



CNRE NEWS

COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT

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FROM DVD AND WEBSITE TO APPS —

John Seiler's Team Continues to Use Emerging Technologies to Teach Tree Identification

There is a smartphone application for just about everything these days — you can transform blurry snapshots into breathtaking photographs, play a game of Tetris, and turn your phone into a virtual Bic lighter. Thanks to two college researchers, you can also use your smartphone as a tree identification tool.



The Virginia Tech Tree Identification app, available free from Google Play, averages 100 downloads per day.

Alumni Distinguished Professor John Seiler and Laboratory Specialist John Peterson of the Department of Forest Resources and Environmental Conservation, along with forest landowner and programmer Bob Potts, created a free application for the Android smartphone that allows users to identify the woody plants around them. The app, titled Virginia Tech Tree Identification, is available as a free download on Google Play.

Potts, a self-described amateur naturalist and frequent visitor to Seiler and Peterson's Dendrology at Virginia Tech website, approached the two about the possibility of developing the app for use in the field by combining the website's tree fact sheets and interview key with the smartphone's portability and GPS capabilities.

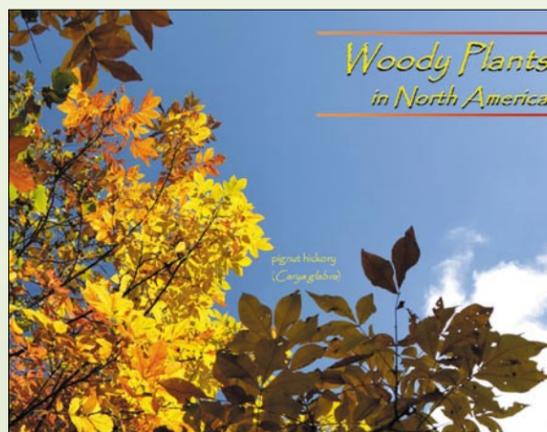
"We want to get the app into the hands of as many people as possible, which is why it was important for us to make it available to the public at no cost," Seiler said.

The app includes fact sheets for 969 woody plants with descriptions, range maps, and over 6,400 images of leaves, bark, flowers, fruit, twigs, and form.

Using the phone's GPS receiver, network signal, or a user-entered location to narrow down the list of species native to an area, the application becomes "Woody Plants of Where You Are Standing." For example, it can become "Woody Plants of Southwestern Oregon" or "Woody Plants of Great Smoky Mountains National Park."

The app is not limited by the location of the user's smartphone; it can display data for virtually any address, GPS coordinates, or location description in North America entered by the user.

With the app's interview key, users can further narrow the list of possible species by answering a series of simple tree attribute questions like where the tree is growing, how the leaves are shaped, or what the flowers or fruits look like.



The Woody Plants in North America software tutorial remains a popular resource for students and professionals alike.

If users have some knowledge of the species they are trying to identify, they can narrow the species list by typing in a keyword. Users can also email tree-related questions and photos directly to "Dr. Dendro," Seiler's online alter ego.

Potts programmed the app; Peterson created digitized range maps for each species, worked on the interview key, and manipulated the database; and Seiler provided most of the



(L-R): John Peterson, Bob Potts, and John Seiler teamed up to develop the smartphone app.

photographs and lent his eye for design, product testing, and end-user market research. Alumnus Andrew Meeks ('04 B.S. in wildlife science), a professional web application developer, helped solve some technical issues.

The app became the most downloaded tree identification app available from Google Play just three months after its release. At press time, it had over 18,000 downloads and was rated 4.6 out of five stars. An iPhone version is currently in development.

In addition to the Android app, Seiler and Peterson recently released the third edition of their DVD-based software program Woody Plants in North America. The program, which expands on the tree fact sheets and includes side-by-side species comparisons, a quiz function, and over 23,000 photos, serves as a comprehensive tutorial for species identification. This popular resource, developed and refined over the course of 15 years, is used by students and practitioners alike.

According to Seiler, the new edition represents a large improvement from its predecessors. "We constantly listen to student feedback," he said. "The whole navigation system is easier, there are dozens of new species and thousands of new photographs, and many poor photographs have been replaced."

Efforts on the software program began when the late Professor Peter Feret obtained a U.S. Department of Agriculture Challenge Grant to fund the project. Seiler and Peterson, who were tapped to continue Feret's work, collaborated with co-author Professor Ed Jensen of Oregon State University as well as researchers from the Pennsylvania State University and the University of Georgia to compile the program's vast collection of photographs.

"I'm proud of what we have built," Peterson remarked. "I have felt thankful and fortunate from the beginning. John Seiler and I are a good tree identification software team."

All three tree identification tools — the app, the DVD, and the website — include examples of John Seiler's stunning photographs.



The new year began with a weeklong trip with our Leadership Institute students and co-directors Steve McMullin and Brian Bond to Richmond and Washington, D.C. You would be proud of the 12 students in this year's cohort: smart, articulate, interested, and able to represent the college at the highest level of professionalism in some of the highest offices of state and federal government. It was a great week of travel with a great group of students. Thank you to those of you who support the Leadership Institute; your investment in these students is an investment in our future.

Harold Burkhart, University Distinguished Professor of forestry, was recognized by the Science Museum of Virginia at a special event in Richmond in January as Virginia's Outstanding Scientist for the year 2013. With a career at Virginia Tech spanning four decades, Harold has made foundational contributions to the field of modeling forest stand dynamics, growth and yield, and applying quantitative analysis techniques to forestry problems. Harold represents the college and Virginia Tech at the highest level of professional accomplishment. Congratulations, Harold, for your lifelong contributions to forestry, our students, the college, and the university.



The Leadership Institute students met with Virginia Secretary of Natural Resources Doug Domenech ('78 B.S. forestry and wildlife) during the Richmond stop of their weeklong trip. Front row (L-R): Doug Domenech, Ally Rodgers, Claire Helmke, Lisa Trapp, Keegan Mobley, Ryne Noska, Carol Anne Nichols, Brian Bond. Back row (L-R): Paul Winistorfer, Morgan Brizendine, J. Turner Crawford IV, Josh Hertzler, Stephen Perkins, Matt Layman, Katie Abelt, Steve McMullin.

Professor Randy Wynne has been selected as a member of the Landsat Science Team by the U.S. Geological Survey and NASA. Randy and other college faculty form the center of geospatial sciences expertise on our campus and bring the very latest in satellite imagery and remote sensing technologies to forestry, natural resource management, ecological modeling, and earth system science.

And who could have imagined even just 10 years ago that a handheld device could hold the world of dendrology at your fingertips. Our cover story on the newly developed and wildly successful tree identification app is perhaps the most current example of creativity and leadership of our faculty and the work they do. Our faculty and students are involved with technology development and application in our work, pushing the boundaries to new limits. Computer numerical control (CNC) manufacturing equipment recently installed in the Student Innovation Lab at the Brooks Forest Products Center is helping our students become proficient in the latest technologies in advanced manufacturing.

The college has been changing to remain current, but we hold our traditional disciplines firm in hand. The year 2013 promises to be a year of growth and increased relevancy and recognition of our work. Be sure to look for our recently published college prospectus (see p. 4) on our website to get a glimpse of how we look today and how we are moving forward.

Spring is just around the corner and that means we will soon have an excellent group of graduates ready for employment. Please let us know if we can help connect you with our students, who are well educated, well trained, well versed in their disciplines, and ready to work.

Thank you for your continued interest and support.

Paul M. Winistorfer
Dean
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View a video about the Leadership Institute at cnre.vt.edu/media/video.

GLOBAL SUSTAINABILITY CENTER



Coca-Cola Associate Meshes Job in Atlanta with Graduate Program in Arlington

Jill Knoll of Dunwoody, Ga., a team manager for The Coca-Cola Company's Industry and Consumer Affairs Department in Atlanta, commutes one weekend a month to the college's Executive Master of Natural Resources program at the National Capital Region campus in Arlington, Va. The program, based in the Center for Leadership in Global Sustainability, meshes well with Knoll's job.

For the program's 10-day international residency, Knoll's student cohort will explore sustainable development throughout China's Mekong and Yangtze river basins. Knoll says that the trip is especially relevant as she builds a future at Coca-Cola, where conserving and managing water resources is viewed not only as a strategic business imperative but as a vital responsibility around the world.

In a global partnership, Coca-Cola and World Wildlife Fund have been working collaboratively to conserve seven freshwater river basins around the world, including the Mekong River. "My plan is to contribute to this important effort in the Mekong watershed by conducting a field study project that identifies some of the existing gaps and explores what opportunities we can seize to move forward," she remarked.

Knoll has long wanted to develop her passion for the environment in an advanced degree program, but couldn't

quite work it in between her job and family commitments. In 2007, she enrolled in the Warnell School of Forestry and Natural Resources at the University of Georgia. "But eventually," Knoll said, "trying to balance work and family along with the long drive to classes in Athens became just too much of a challenge. I decided to put school on hold while I focused on a new social media initiative at Coca-Cola."

Then she began working on an assignment to support Coca-Cola's 2020 Vision, an initiative that enhanced and expanded the company's commitment to the environment and sustainability by creating long-term goals for its business and providing a road map for success. She manages a long-term agricultural commodities and products project in which "we're analyzing our top agricultural commodities and ingredients for continuity of supply, risks, and opportunities to meet our 2020 Vision," she said.

"Sustainable agriculture plays a key role in shaping our future. Coca-Cola has contributed to 27 sustainable agriculture initiatives in 22 countries," she added. "We invest in improving the communities we serve because it is the right thing to do. Finding the right balance is important, and providing small holder farmers with jobs is significant."

Knoll says that Coca-Cola's commitment to management practices and sustainability — which includes water, pack-



aging, energy, health, and agriculture — is a perfect match for her personal passion for agriculture and commitment to the environment.

In January 2012, Knoll renewed her educational dreams by enrolling in the 18-month Executive Master of Natural Resources program. "I researched top natural resource programs and found Virginia Tech," she said. "After much consideration and consultation, I committed to the program. Coca-Cola has been totally supportive of my commitment to this program, and I fully expect earning this degree from Virginia Tech will impact positively on my future career here."

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Peggy Quarterman Retires



After 42 years of exceptional service to Virginia Tech, Peggy Quarterman retired from her position as administrative assistant to the dean on June 30, 2012. During her career, Peggy reached out with an extraordinary kindness and thoughtfulness that touched the lives of everyone she encountered. She frequently donated her own sewing and quilting pieces to various college-related silent auction fundraisers.

"She made every person who came into our office feel comfortable," commented Dean Paul Winistorfer at an event honoring her many years of service. "She was in the middle of so much in our college."

Peggy began her career with Virginia Tech in 1971 right after graduating from Blacksburg High School. After a brief stint in the Print Shop, she took a position as administrative assistant to John Hosner in the College of Agriculture's Forestry and Wildlife Division and stayed on to work for three deans through the division's evolution into the College of Natural Resources and Environment.



Virginia Tech Hosts First TEDx Event

Faculty, students, and alumni came together to share their ideas at the first TEDxVirginiaTech event in November, featuring 21 speakers who shared ideas, insights, and inspiration centered around the theme "knowing." Of the 200 nominated speakers, all three from the college were selected to present: Associate Professor of Wildlife Kathleen Alexander, geography instructor John Boyer, and Dan Goff, a senior majoring in geography and meteorology.

For over 25 years, the nonprofit organization TED (Technology, Entertainment, and Design) has sought to inspire individuals to act by spreading ideas with the potential to change attitudes, lives, and even the world. At TED's two annual conferences, professionals from all over the world are invited to give the talk of their lives. The short speaking times — a maximum of 18 minutes — are intended to generate clearly defined messages and capture the audience's attention.



John Boyer

On the local level, individuals or groups can host self-organized events where live and video-streamed speakers combine to spark deep discussion and connection in a small group setting. These events are branded TEDx, with "x" representing the organization or place hosting the talks.



Kathy Alexander

The audience at the TEDxVirginiaTech event was limited to only 135 attendees to promote a more intimate setting with the speakers. Those unable to get the highly sought-after tickets could attend live streaming events on campus, in the local community, and with alumni chapters around the country.

"It was such a privilege to participate in this event and share my experiences in Africa about 'knowing and knowledge,'" said Alexander. "Working across the continent over the last 20 years, I have come to understand that we must be available to learn from those who know. It has transformed my research and has secured the impact and value of my work."

"I was grateful and excited to first be nominated, then selected, to be a speaker at the inaugural

TEDxVirginiaTech event," said Boyer, whose talk "More Passion, Less Pedagogy" was aimed at reinventing the American education system. "I have been a fan of TED talks for years now, and it certainly was a challenge to live up to their high standards and even higher expectations."

"Speaking at TEDx has easily been one of the top five experiences of my time at Virginia Tech," stated Goff. "The process of taking an idea and turning it into a compelling, entertaining talk and giving it the 'TED look' was challenging. I'm proud to be one of the college's representatives and to share the stage with so many great speakers and fantastic ideas."

For more information and to watch videos of the presentations, visit www.tedxvirginiatech.com.



Dan Goff

Wynne Named to Landsat Science Team

Professor Randolph Wynne has been selected by the U.S. Geological Survey and NASA to be a member of the Landsat Science Team. Wynne joins a team of scientists and engineers who will provide technical and scientific input for the interagency Landsat program, which is comprised of a series of U.S. scientific satellites that have been imaging the Earth's surface for 40 years. The Landsat archive is used by farmers, scientists, city planners, and other specialists to assess some of the world's most critical issues, such as food, water, forests, and other natural resources.

Membership in the Landsat Science Team comes with funding for proposed research. "My research goal is to improve our collective ability to monitor, model, and manage the earth system — and, in particular, forest ecosystems — through improvements in both the preprocessing and analysis of multi-temporal Landsat data," said Wynne.

Wynne's research team is testing prototype solutions for dealing with the problem of clouds in the images

they get from the satellites. Research team members Professor Kevin Boyle and Associate Professor Klaus Moeltner of the College of Agriculture and Life Sciences are recruiting undergraduate students to fine-tune online training modules for cloud identification. Another technique being tested is to provide the missing images by creating a model based on data from previous shots.

Wynne's research team is also working to improve the Landsat Science Team's ability to be alerted quickly when



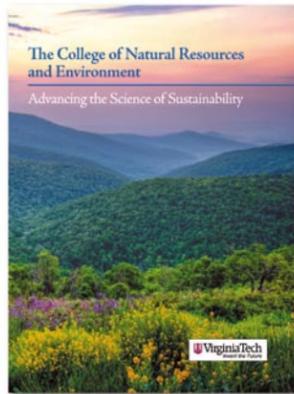
there are significant changes to a landscape. "Whether the application is disaster management or agricultural productivity, urban expansion or forest loss, detecting these changes is critical to understanding a wide variety of earth system processes," explained Wynne. "We will help the Landsat program develop advanced methods or strategies for large-area land change assessments, pioneer new applications of Landsat data sets resulting from the free data policy, and increase the value of Landsat for addressing societal issues."

In addition to Boyle and Moeltner, Wynne's research team includes University Distinguished Professor Harold Burkhart, Professor Tom Fox, Assistant Professor Valerie Thomas, Research Scientist Christine Blinn, and instructor Evan Brooks from the Department of Forest Resources and Environmental Conservation, and John Coulston, supervisory research forester for the U.S. Forest Service's Forest Inventory and Analysis Program.

Mountain pine beetle damage in the Rocky Mountains of Colorado is evident in this Landsat image. The areas where the insects have caused trees to die appear as dark brown, while healthy trees appear as dark green. Randolph Wynne's research project will refine and develop methods for detecting changes in forests through time using Landsat data.

New College Prospectus Available

To see the college's newest publication, a prospectus titled "The College of Natural Resources and Environment — Advancing the Science of Sustainability," visit cnre.vt.edu/prospectus or scan the QR code. ➤



Commencement Speaker

Katelin Shugart-Schmidt ('12 M.S. in fisheries and wildlife sciences) was selected to give the student address at the December commencement. Shugart-Schmidt, who was named the 2012 Graduate Woman of the Year, plans to pursue work in the marine policy field in Washington, D.C., where she hopes to work alongside legislators to help turn scientific discoveries into meaningful environmental practices.



First Year Experience Program Sets Students on the Right Path

As the university places a greater emphasis on preparing freshmen for the rigors of college life, several college faculty members have risen to the challenge by developing a first year experience program to help students get acquainted with the demands of college classes. Professor Donald Orth in the Department of Fish and Wildlife Conservation has spearheaded this effort and is leading the program, titled "Invent the Sustainable Future," into its second year.

Established in 2011 with a grant from the university's Office of First Year Experiences, the program is aimed at helping students in the college adopt sustainable learning strategies. Although it is not mandatory, the program is recommended for all incoming freshmen and can be taken for course credit. "The program helps students develop their sense of identity, relate to the college as their home, and encourage their involvement in undergraduate research, internships, study abroad, and other relevant programs," Orth said.

Associate Professor Eric Wiseman and doctoral student Kimberly Cowgill of the Department of Forest Resources and Environmental Conservation and Dean Stauffer, associate dean of academic programs, serve as instructors along with Orth. Professor Joseph Loferski of the Department of Sustainable Biomaterials and Associate Professor Lynn Resler of the Department of Geography have come on board for the program's second year.



After its inaugural year, the instructors agreed that the program had its share of positives and negatives. "We had a pretty clear vision of what we wanted to accomplish, but it was somewhat blurry and perhaps imperfect," Wiseman said. "We were introducing a lot of new paradigms to these students and placing new expectations on them. We really pushed them out of their comfort zones."

Despite any struggles they may have experienced initially, the program leaders are keeping things on track. "Thank goodness for the great team of professors involved in the course," Cowgill said. "I'm learning from the best group I could. They care so much about the students and developing a valuable course for everyone involved."

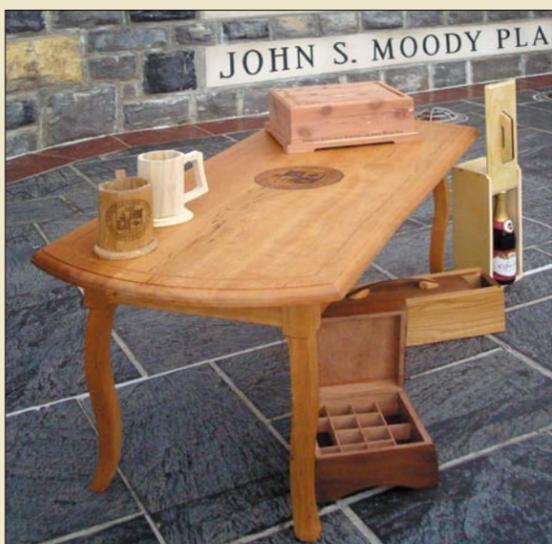
Student response to the program has also been overwhelmingly positive. "What I enjoyed most were the personal reflection assignments," remarked forestry major John Peake. "When I first came to college I found that I was a lot busier than in high school and had lost valuable time to reflect, but these assignments forced me to set aside time for reflection and planning out the future."

The instructors are committed to building on the program's success. "We want to try to get the students more engaged with practitioners of natural resources," Wiseman said. "It's important for them to get early exposure to working with professionals so they can begin to shape their goals and their expectations for a career in natural resources."

Don Orth (standing) led the collaborative effort to develop the college's first year experience program.

wei Unveils 2013 Products

The Wood Enterprise Institute (WEI), a student-run entrepreneurial venture that uses a concept-to-marketing business approach, is taking orders for this year's products. Students have organized into three teams, with each offering products designed for different market segments: a budget-friendly commemorative mug that showcases the Hokie spirit; decorative boxes with a choice of hand-crafted joinery, laser engraving options, and wood species; and a limited edition, solid wood, inlaid coffee table incorporating unique materials such as the Henderson Lawn Sycamore and reclaimed redwood from Cheatham Hall.



To order, visit www.vtwei.com, email vt.woodenterprise@gmail.com, or call 540-231-8841. Orders must be received by **April 19, 2013**. Show your Hokie spirit while supporting this unique program!

Virginia Tech Hosts ESA Mid-Atlantic Conference

Virginia Tech hosted last spring's Ecological Society of America's Mid-Atlantic Chapter annual conference, which focused on disturbed environments and urban forests. Susan Day, assistant professor of urban forestry and chair of the chapter, served as conference chair. "This was one of the largest conferences held by the chapter, and I think everything went really well," Day observed.

Several guest speakers delivered informative presentations, including Greg Shriver, assistant professor in the University of Delaware's Department of Entomology and Wildlife Ecology, and Stephen Schoenholtz, professor of forest hydrology and soils and director of the Virginia Water Resources Research Center at Virginia Tech. Attendees also visited the Kayford Mountain mountaintop removal site in West Virginia to observe the effects of the mining practice on the environment.

"This conference really gave our students an opportunity they wouldn't have normally," Day said. "These chapter meetings are important because they give them a chance to present and network with fellow students without going to an expensive national meeting."



Conference participants visited the Kayford Mountain mountaintop removal site in West Virginia.

Several fisheries and wildlife sciences students took home awards for their participation in the conference. Doctoral student Brandon Peoples took home the first place award in the oral presentations category, while master's student Brittany Hopkins placed second. David Drewett earned an honorable mention for his work in the undergraduate poster division. "We had great participation from all our students, with a significant increase from last year," Day commented. "I think this shows that we have a strong graduate program and all the students should be really proud of themselves."

WeatherFest

Meteorology students and program faculty spoke to over 3,000 visitors at the WDBJ WeatherFest in Roanoke last October and participated in the Open House at the National Weather Service's Blacksburg office in November.



Burkhart Honored as Virginia's Outstanding Scientist of 2013

University Distinguished Professor **Harold E. Burkhart** was honored as Virginia's Outstanding Scientist of 2013 by the Governor's Office and the Science Museum of Virginia at a General Assembly reception on Jan. 17.

"Forest scientists consider Harold Burkhart the father of forest biometrics," noted Virginia Tech President Charles W. Steger. "Harold's international leadership in this basic research vastly improved forest development, particularly in the South. The Virginia Tech community is very proud of this recognition of distinction and Harold's career-long accomplishments to his discipline of forest science. He has been a major contributor to establishing our forestry program at Virginia Tech as a global leader."

Burkhart's principal path-breaking achievement is the development of a comprehensive, integrated set of forest yield forecasting models for stands subjected to a wide variety of management treatments. His contributions to the advancement of forest growth are unprecedented, and he has led the way in developing new methodology for tree and stand modeling and in elucidating the complex mathematical relationships between models of differing levels.



Harold Burkhart (L) with Virginia Tech President Charles W. Steger and Geosciences Professor Patricia M. Dove, who was also named Virginia's Outstanding Scientist. Photo courtesy of the Science Museum of Virginia

Peers call Burkhart, who is the endowed Thomas M. Brooks Professor of Forestry, "a world-class scientist who has been one of the top leaders for more than three decades." They note that his basic science contributions have set him apart from the majority of other scientists.

"Professor Burkhart's modeling methods have been adopted, extended, and applied in Virginia, across America, and around the world, thus contributing to the goal of sustainable management of forest resources," explained Dean Paul Winistorfer. "He has significantly advanced the science of sustainability. His commitment to the college has been at the highest level, and his care and concern for students complement his many research and outreach achievements. We are very fortunate that Harold chose to make his career at Virginia Tech."

In addition to Burkhart's seminal contributions to forest modeling and advancing the science of sustainability, former students and colleagues around the nation also recognize him for his unparalleled success as a mentor of graduate students. Burkhart has freely shared his best ideas and greatest insights with graduate students and postdoctoral associates, encouraging young scholars and helping them become established by listing them as primary authors for their collaborative research.

NEW COLLEGE FACULTY



Timothy Baird
Assistant Professor
Department of Geography
A.B. (1999) Bowdoin College of Natural Resources and Environment
M.A. (2007) and Ph.D. (2012) University of North Carolina-Chapel Hill

Academic interests
Sustainability and resilience, conservation and communities, human/environment interactions, complex adaptive systems, livelihood diversification, East Africa, political ecology, mixed methodologies, interdisciplinary collaboration



Daniel Catlin
Research Assistant Professor
Department of Fish and Wildlife Conservation
B.A. (2001) Hamilton College
M.S. (2003) Oregon State University
Ph.D. (2009) Virginia Tech

Academic interests
Population dynamics, dispersal, conservation biology, model selection and interference



Frank Merry
Research Associate Professor
Department of Forest Resources and Environmental Conservation
B.S. (1989) and Ph.D. (2001) University of Florida
M.S. (1993) Virginia Tech

Academic interests
Natural resource economics, Latin America and Africa, tropical forestry, small farm systems, low carbon development, sustainable business



Yang Shao
Associate Professor of Geography
Department of Geography
B.S. (1997) and M.S. (2001) Nanjing University, China
Ph.D. (2007) University of North Carolina-Chapel Hill

Academic interests
Remote sensing, geospatial informatics, biosecurity, epidemiology, scientific visualization, 3-D city models, virtual reality environments, weather and climate

Wiseman Named 2012 Early Career Scientist

Assistant Professor **Eric Wiseman** is the recipient of the 2012 Early Career Scientist Award from the International Society of Arboriculture, which boasts over 20,000 members worldwide. The award recognizes scientists in the field of urban forestry and arboriculture who demonstrate exceptional promise and high career potential for producing internationally recognized research. "It's a privilege to be considered to be on a trajectory to get to the level of past recipients," said Wiseman. "To be given an award that says I might be as good as they are gives me something to shoot for."

Wiseman got his start in the field when he couldn't find a job as a recent wildlife science graduate. "I was lucky enough to meet Alan Jones of Bartlett Tree Experts at a career fair, and it led me to become a grounds man for the company. I got hooked on it, but I felt deficient in urban forestry, so I went back to school and got my master's and later my Ph.D."

Wiseman teaches urban forestry and arboriculture in addition to advising student researchers. He has published 18 articles in peer-reviewed scientific journals and trade magazines. In addition, Wiseman is known for his work on roadside arboriculture management, citizen monitoring of the emerald ash borer infestation, and predicting urban canopy coverage through tree growth.



Eric Wiseman (R), shown instructing a student in the Arboriculture Field Skills course, focuses his research on urban forest ecology and management.

Kirwan Receives Crown Award

Professor Emeritus and Forestry Extension Specialist **Jeffrey Kirwan** received the Crown Award from the Virginia Department of Forestry. The award — the department's highest civilian honor — was established to recognize an individual or entity that has not only gone beyond the call of duty, but has set an admirable standard of excellence. Kirwan is only the fourth recipient in the award's history.



Lisa Deaton of the Virginia Department of Forestry presented Jeff Kirwan with the Crown Award at the State of the College address in August.

"Jeff is no stranger to high praise for significant achievement," said State Forester Carl Garrison. "He has a sustained and long-term track record of success, and I'm proud to add to his legacy of excellence and unparalleled achievement."

Kirwan dedicated many years to researching trees in Virginia as part of the state's Big Tree Program, which prompted him to co-author the widely acclaimed "Remarkable Trees of Virginia" book. "Jeff has spoken to thousands of children about the trees in the book, and his tree conservation efforts have garnered much publicity for trees, forests, the environment, and the broader efforts of our entire college," said Dean Paul Winistorfer. In addition to serving the commonwealth and spreading knowledge to people of all ages, Kirwan walked across Virginia in 11 days as part of a sabbatical in 2007.

Among his many accomplishments since joining the Virginia Tech community in 1978, Kirwan led a natural resources and environmental education program that reached more than 360,000 youth, and incorporated service learning into classes taught in both the college and the American Indian Studies program long before the practice became commonplace.

"In addition to being an excellent teacher, Jeff served the public with distinction as a 4-H agent in Loudoun and Albemarle counties," added Garrison. "We are proud to be able to recognize and thank Jeff for all he has done in service to the citizens of the commonwealth."

Rocky Knob Project Land Unveiled

The hard work of Associate Professor John McGee of the Department of Forest Resources and Environmental Conservation and Associate Professor Nancy McGehee of the Pamplin College of Business on an effort to promote tourism in the Rocky Knob area of the Blue Ridge Parkway has paid off. The project provided the foundation and traction for a recent land purchase near the Rocky Knob Recreation Area.

The property, which straddles Floyd and Patrick counties, was unveiled at a Sept. 22 ribbon-cutting ceremony. Plans for the site include establishing hiking trails, outdoor education centers, and a visitor center to highlight the area's history and its cultural and natural resources.

"It was very rewarding to work on a project that focused on sustainability right here in our own backyard," stated McGehee.

McGee and McGehee, along with three researchers from Clemson University, received a \$266,000 grant in July 2008 from the National Park Service and Blue Ridge Heritage Inc. For almost two years, the group worked



(L-R): Nancy McGehee, Steve Schwartz of Blue Ridge Heritage Inc., and John McGee hold a map of the newly acquired property at the ribbon-cutting event.

with students, community members, and project stakeholders to create a tourism marketing plan that would enhance the Rocky Knob area's appeal and create a positive economic impact.

"This project could certainly be used as a showcase for community and student engagement," explained McGee. "Local stakeholders provided university researchers with local perspectives, knowledge, and data that were paramount to the success of the project."

McGee and McGehee's portion of the project benefitted from McGee's expertise in the use of geospatial technologies for government and business planning, as well as McGehee's expertise in rural tourism development, particularly entrepreneurship and community capacity building.

"It's always a bit of a leap of faith to work on an interdisciplinary, multi-university team, but this group was wonderful to work with," said McGehee. "Our mutual passion for the project made for a great learning experience that was also a lot of fun."

RESEARCH SPOTLIGHT

Brunner Studies Genomics of Wood for Biofuels

Associate Professor Amy Brunner is part of a team researching the genomics of wood for biofuels production. Along with Eric Beers, professor of horticulture; Richard Helm, associate professor of biochemistry; and Allan Dickerman, assistant professor at the Virginia Bioinformatics Institute, Brunner is working toward characterizing the genes involved in wood formation in poplar trees. The overall goal is to improve the quality and quantity of wood as a feedstock for biofuels production.

Over the next several years, Brunner and her colleagues will identify the key interactions among hundreds of proteins associated with wood formation in true poplars, which include species commonly known as aspens and cottonwoods, forming the basis for the creation of transgenic (pertaining to the artificial introduction of DNA from another organism) poplar plants. Studying the manipulated trees will allow the researchers to learn more about the basic biology of wood formation and establish whether such genetic modifications can increase the value of poplar as a biofuels feedstock (any organic matter that is available on a renewable basis for conversion to biofuels).

"This project illustrates the power and utility of poplar research. We would not be able to carry out this project with any other tree species," Brunner stated. "Poplar has characteristics that make it a top candidate for dedicated biomass feedstock production and it is the premier model tree system for fundamental research."

According to Beers, the project's lead investigator, the potential benefits include decreasing oil imports, reducing the use of food crops for ethanol production, and increasing options for American farmers. Because some cultivars of poplar are more tolerant of conditions such as drought and poor soils, they can be grown on marginal lands unsuitable for food crops. Farmers will thus have the option to grow bioenergy crops in addition to food crops.



Brunner's work is funded by a \$1.5 million Plant Feedstock Genomics for Bioenergy grant from the U.S. departments of Energy and Agriculture. Virginia Tech is one of 11 universities that received funding to conduct research to accelerate bioenergy crop production and spur economic impact.

"As someone who has studied poplars for over 18 years, it is especially rewarding to have seen the poplar system develop to the point where we can discover molecular mechanisms of gene and protein activity and translate this information to generate desirable traits in trees," said Brunner.

Brunner, who joined the Department of Forest Resources and Environmental Conservation in 2005, has dedicated much of her time to university research. This past April, she received a Faculty Research Award from Gamma Sigma Delta, an international honor society dedicated to recognizing the accomplishments of students, faculty members, or industry leaders who work in agriculture.

FIRST IN FIREFIGHTING Continued from back page

in Atlanta in September 2012. "We all have our passions. Some like to hike, some like to skydive — firefighters are like the skydivers of Forest Service work. And with 50 percent of the U.S. Forest Service budget going for fighting fires, this kind of experience helps folks get jobs."

"My firefighting made contacts for me," says Speaks, supervisor of the George Washington and Jefferson National Forests headquartered in Roanoke. "It pushed me to develop leadership skills in tense situations, skills I use as a forest supervisor."

Firefighting was one of the bigger draws when I considered a career in forestry. It's the best morale builder I know. You're working with a team of quality people on a mission, and you get a great feeling of achievement when the fire is out."

The four alumni, who have been friends for decades, feel as though the Virginia Tech firefighting crew is a special fraternity. "We're a tight group," said Speaks. "For bonding, nothing quite compares to the fire experience and going to Virginia Tech."

WILDLAND FIRE CREW TO RECEIVE NEW TRUCK

For over 40 years, Virginia Tech has been sending its student Wildland Fire Crew to battle forest fires in Virginia. In the 1970s, the crew was 80 members strong, and the U.S. Forest Service would fly them to major wildland fires throughout the Southeast. These days, Virginia Tech's crew averages about 30 red-card members — those who have passed the National Wildfire Coordinating Group's skills, knowledge, and fitness tests — and averages about seven days of firefighting a semester. The crew is so integral to the region's firefighting capability that the state is giving the club a used fire truck valued at \$35,000.

"It's a one-ton, four-wheel-drive fire truck agile enough to get around in the woods," said Professor Shep Zedaker, the crew's faculty sponsor. "The State Council of Higher Education for Virginia and Virginia Tech's

Department of Forest Resources and Environmental Conservation are providing the truck, and the U.S. Forest Service is donating a slip-on pumper/tank unit."

Zedaker trains the student wildland firefighters; most take his Wildland Fire Ecology and Management course, which teaches students how the environment influences fire behavior, how to suppress wildfires, and how fire can be used as a management tool. In the weekly four-hour lab, students practice prescribed burning techniques and fire control.



The U.S. Forest Service's "Introduction to Prescribed Fire in Southern Ecosystems," revised several times since it was originally written in 1966, has been recently updated to include the best available research and current management practices. View the publication online at www.srs.fs.usda.gov/pubs/41316 or request a hard copy at pubrequest@fs.fed.us.

"The course is one of the few university classes that actually qualifies students to work in a specific field related to their program of study," said Zedaker.

Though student crew members have to be prepared to drop everything when duty calls, not every member responds to every fire. When those called reach the site, they join forces with Virginia Department of Forestry or U.S. Forest Service crews to suppress the fire or manage a prescribed burn for wildfire prevention. Firefighting experience gives the students a distinct advantage in finding jobs with state and federal agencies.

Alumni Profile

Bettina Ring

Bettina Ring ('86 B.S. in forestry and wildlife) is right at home in the woods. Last May, she joined the American Forest Foundation as senior vice president of family forests, bringing over 25 years of experience to the job. She began her career at the Virginia Department of Forestry, where she moved up through the ranks from area forester to deputy state forester.

After 14 years at the Department of Forestry, Ring headed west, working in leadership roles at the Colorado Coalition of Land Trusts, the Wilderness Land Trust, and the Bay Area Open Space Council. "Going west allowed me to experience a whole different culture and environment, which helped me grow both personally and professionally," she explained.

Ring's work with the American Forest Foundation involves traditional on-the-ground outreach as well as innovative digital work with family forest owners all over the United States. She joined the foundation just as the Washington, D.C.-based nonprofit launched www.MyLandPlan.org, a website for woodland owners who are just beginning to explore their land.

"Having the opportunity to work in both the East and the West greatly expanded my personal and professional growth and broadened my perspective and understanding of people and their relationship to the land," Ring said. "I came to not only appreciate the unique differences in the landscapes and cultures but to embrace and celebrate that diversity."

Ring, who rose to success in a male-dominated industry, is a proponent for the advancement of women in her



field. "It's been great to see women that I've worked with be promoted to management positions," she noted. "I had a lot of support when I worked for the Department of Forestry, and it's important for us to do whatever we can within the forestry community to be more inclusive and to make sure we're being relevant and representative of the communities in which we serve."

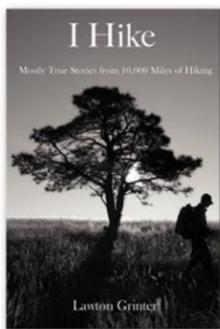
"I'm lucky enough to have loved every job I've had," she added. "I'm also very fortunate to have studied forestry at Virginia Tech. I'm a proud Hokie. My time at the university was great because I was challenged. It was a rigorous program, but having that academic challenge was important."

Over the years, many professors and colleagues have inspired Ring. "Dr. David Smith is an incredible man who served as a mentor for me over the years," she stressed. "My dendrology professor, the late Dr. Peter Feret, was my college advisor and later became a colleague when we established the Virginia Urban Forest Council. He was very influential and his legacy lives on."

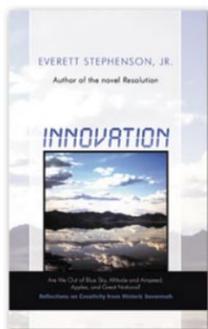
Ring is an avid animal lover and enjoys spending time with family and friends, cooking, reading, gardening, kayaking, hiking, and doing yoga. "I really enjoy the outdoors and I look forward to having a small farm and woodlot someday," she said.

BOOKS BY ALUMNI

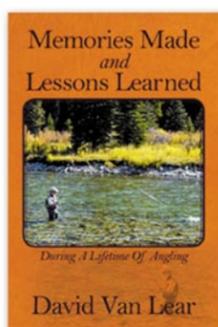
Lawton Grinter ('02 M.S. in forestry) authored his first book, "I Hike: Mostly True Stories from 10,000 Miles of Hiking." This collection of short stories describes his experiences over 10 years of hiking, including end-to-end hikes on the Appalachian Trail, the Pacific Crest Trail, and the Continental Divide Trail. Grinter, a forester for the Colorado Forest Service, also filmed, edited, and produced the film "The Walkumentary," which documented his 2006 southbound Continental Divide Trail hike.



Everett H. Stephenson Jr. ('77 M.S. in industrial forestry operations) published "Innovation," a collection of short stories about people who attempt to use new technology to shape their worlds. Known during his career as "the most prolific industrial forestry innovator in the United States," Stephenson worked on projects as diverse as mechanical felling saws and on-board truck scales to a mechanized system for collecting and processing pine cuttings for clonal reproduction. He published the novel "Resolution" in 2008.



David Van Lear ('63 B.S. and M.S. in forestry and wildlife) penned "Memories Made and Lessons Learned During a Lifetime of Angling," in which he recounts stories of fishing across the country and shares insight into this lifelong passion. Van Lear worked as professor of forestry at Clemson University for 35 years, focusing on the effects of forest practices on forest growth, water quality, wildlife habitat, and soil productivity. He has also worked with the organization Trout Unlimited to help protect water ecosystems.



Alums in Afghanistan

Virginia Tech Corps of Cadets alumnus **1st Lt. George Hogg** ('10 B.A. in geography) was honored as a Hokie Hero during the Virginia Tech versus Cincinnati football game on Sept. 29, 2012. The Hokie Hero program, which honors corps alumni who are currently deployed, highlights heroes during the radio broadcast of Virginia Tech football games, on the websites of the corps and corps alumni, and in Corps Review magazine.

Hogg is currently on his first combat deployment to Afghanistan as an Airborne Infantry Rifle Platoon Leader for Task Force Geronimo. Originally from Abingdon, Md., Hogg is stationed in Anchorage, Alaska. He would like to say "Rangers lead the way" to all his fellow Ranger Company members in the Corps of Cadets; hello to his wife, who is a second lieutenant stationed in Virginia, and to all his friends and family around the world; and thanks all those who serve to keep our nation great.

Also in Afghanistan is alumna **Brooke Wright** ('09 B.A. in geography), who is serving with Task Force National Geospatial-Intelligence Agency as a government civilian. Friends from their days in the geography department, Hogg and Wright were able to meet up at Forward Operating Base Salerno, where Wright provided the task force with geospatial data for mission planning and data for their area of responsibility.

Alumni Events Calendar

MARCH 25-30, 2013

78th North American Wildlife and Natural Resources Conference
Arlington, Va.
wildlifemanagementinstitute.org

APRIL 9-13, 2013

Association of American Geographers Annual Meeting
Los Angeles, Calif.
aag.org/cs/annualmeeting

MAY 17-19, 2013

Commencement Ceremonies:
Friday, May 17 – University Commencement
Saturday, May 18 – College of Natural Resources and Environment Graduation Exercises
Sunday, May 19 – National Capital Region Commencement

JUNE 9-11, 2013

Forest Products Society and the Society of Wood Science and Technology Joint International Convention
Austin, Texas
www.forestprod.org/ic/

JUNE 19-21, 2013

The Future of Diversity in Our Disciplines and Careers:
Natural Resources and the Environment
Blacksburg, Va.
cnre.vt.edu/events/conferences/diversity



Geography alums Brooke Wright (L) and George Hogg recently crossed paths in Afghanistan.

"A lot of our mission planning and area analysis has to do with maps, mapping, imagery, and other GIS-related skills I learned in college," said Hogg. "I also teach the Afghan National Security Forces how to utilize maps and the military grid system to help them build their own capacity to conduct their missions independently."



Not Quite a Millionaire!

Associate Professor **John Loegering** ('92 M.S. in wildlife science) may prefer to be recognized for his research on avian ecology and wildlife-habitat relationships, among other topics, but the University of Minnesota-Crookston faculty member gained notoriety as a contestant on a "Who Wants to Be a Millionaire" episode that aired last June. No, John didn't win the million, but he made enough for a couple of nice trips to New York, a few Broadway shows, and a generous contribution to his son's tuition fund. Plus, he got to meet Meredith Vieira. Not bad for a northwestern Minnesota boy!

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FIRST IN FIREFIGHTING: VIRGINIA TECH CLAIMS FOUR AT TOP OF WILDLAND FIREFIGHTING RANKS

Fighting on the front lines of a major forest fire — ripping up brush, tearing the earth down to mineral soil, working into the night, then collapsing exhausted into a tent for a few hours sleep only to begin all over again — was the experience that ignited **Tom Speaks**' ('79 B.S. in forestry) passion for firefighting. "It was a great adventure," he says of his 1977 student firefighting stint in Northern California, during which he went three weeks without a shower or change of clothes and had to hike 15 miles to civilization after an early snow.



Mike Quesinberry (left), Joe Ferguson (second from left), and Tom Speaks (right) at the Bugaboo Fire near Lake City, Fla., in 2007. Mike Wilkins was on the same fire but was getting some much needed shut-eye after working the night shift. Alumnus Glen Stapleton ('76 B.S.) (second from right) served as a Type 1 Safety Officer on the team.

Speaks and three other Virginia Tech forestry alumni are members of an elite group who have attained the highest level of the country's wildfire fighting ranks. Type 1 Incident Commanders lead management teams assigned to the nation's largest, most complex fires; only 20 people in the nation hold this rank at any given time. Speaks, **Mike Wilkins** ('76 B.S.), and **Mike Quesinberry** ('83 B.S.) are the only current wildland firefighters holding this qualification in the U.S. Forest Service's Southern Region, which stretches from Virginia to Florida to Texas. **Joe Ferguson** ('77 B.S.) retired several years ago after becoming the first Type 1 Incident Commander for one of two new, full-time National Incident Management Organization teams. He continues to train forest and park leaders and emergency managers around the country.

All four started their firefighting careers on Professor Dick Vasey's wildfire fighting crew at Virginia Tech. After receiving training from the Forest Service, they battled local brush fires and major forest fires while taking classes — work that helped to pay their way through college. During especially bad fire years, the Forest Service kept a jet standing by in Roanoke to fly Virginia Tech crews to major fires around the Southeast. Although a few other universities have student firefighting crews, none has the distinction of producing four alumni who have risen to the highest rank of wildfire fighting command.



Mike Wilkins pauses for a photo while serving on an Incident Management Team based in Wisdom, Mont., in 2007.

Attaining Type 1 Incident Commander status takes 20 to 25 years of training, experience, and successive leadership in the wildland firefighting arena. Over the years, each of these men has managed to juggle firefighting stints while progressing in their careers with the Forest Service and spending weeks

Incident Management Teams sometimes conduct public briefings at local businesses.



at a time away from their families. For example, as commander of the full-time management team, Ferguson fought fires for all but about three weeks of the summer of 2007.

With the drier climate cycle and increased development in wooded areas creating longer, more complex, and costlier fires, crews have been busier than ever. Although they are no longer on the front lines in their supervisory roles, each of the alumni has been in tight situations; they know what it's like to outrun a fire, their hearts thudding in their throats. They are masters of strategy, of reading weather, land, and risks. "We're very safety conscious now," said Wilkins, a district ranger on North Carolina's Nantahala National Forest. "We take a step back, look at things, and strategize. We don't put ourselves in front of a fire we can't stop. There is no point in giving up your life for a natural resource. Risk your life for another life, but not for trees."

Ferguson says he almost quit firefighting after working 30 hours straight on fire lines along the Appalachian Trail in Georgia in 1976. "We'd put a fire out, and an arsonist would start another one farther north. We didn't sleep; we just fought fires until we were beyond tired. I got back to Tech and said I'd never do that again, but five days later, a call came in and I was on my way to Kentucky," he said. "Fighting fires gives you an adrenalin rush, sure, and there's a feeling of accomplishment when you get the fire out."

"Firefighting gets into your blood," said Quesinberry, who took over Ferguson's former job as full-time commander of the National Incident Management Organization team

Continued on page 6

Wildland firefighters are trained to carry out prescribed burns in addition to controlling wildfires.



2013 Drillfield Series

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Corps of Cadets Alumni Weekend
June 21-23, 2013

Specially reduced lodging is available in The Inn at Virginia Tech.

Virginia Tech Admissions Weekend
July 12-13, 2013

Learn more at www.alumni.vt.edu

Women's Getaway Weekend for Alumnae
July 19-21, 2013

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