



CNRE NEWS

COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT

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CALL IT SUSTAINABLE BIOMATERIALS!

The wood science and forest products department has been renamed the Department of Sustainable Biomaterials to reflect its widening scope of education and research. "Sustainable biomaterials is a term that recognizes our broadening path for the future while maintaining our roots in natural materials, including forest products," said Department Head Barry Goodell.



The department's focus includes lean manufacturing and sustainable business practices. Students have visited production facilities to evaluate processes and make recommendations for improvement.

The department, which was established in 1979 as an offshoot of the university's forestry program, has become a recognized North American leader in student education, research, and outreach. In recent years, faculty expertise has diversified to include nanomaterials, drug delivery, adhesion science, advanced composites, nontimber forest products, biofuels, aseptic packaging, and sustainable biomaterials.

"Virginia's forest industries remain a \$25-billion contributor to the state's economy, and we will continue to serve this important sector," Goodell said. "The new department name is broad enough to encompass newer aspects of the field, such as biofuels and renewable materials. We will continue to work with wood as one of the most widely used biomaterials, but we are expanding our focus to include other natural materials as well."

The new designation aligns with the college's increased emphasis on sustainability and the environment, noted Dean Paul Winistorfer: "We are working to put science behind the theme of sustainability, and the increased use of natural renewable materials must be a key part of our global sustainability commitment. The Department of Sustainable Biomaterials will have the opportunity to shift the materials-use paradigm among academics, industry, and the public at large. We are leveraging our traditional strengths to a larger, societal perspective."



"We are excited about the opportunity to continue serving the needs of our core industrial partners and society at large while reflecting our expanding research options," Goodell added. "In particular, we know that the term sustainable biomaterials positively reflects the activities of the department to our students and prospective students, which, in turn, is helping to increase interest in this field."

Department faculty members have long been conducting research that doesn't fit easily under the banner of wood science and forest products. Professor Kevin Edgar's research using polysaccharides from natural sources for improved delivery of anticancer compounds crosses disciplinary boundaries, as does Associate Professor Scott Rennekar's nanocellulose research focusing on converting biobased feedstocks into materials and composites. Associate Professor Maren Roman's research targets cellulose drug delivery and nanoscale materials for bone repair scaffolds.

Young Teck Kim, assistant professor of practice, focuses much of his work on food and pharmaceutical packaging systems, while others in the department have expanded instruction in lean manufacturing and sustainable business practices to many new industries. Goodell himself has conducted research on the bioconversion of wood and cellulosic materials for biofuels, as well as on the development of nanoporous carbon and carbon nanotubes for energy storage applications.



The department will remain true to its roots in wood science and forest products while expanding its focus into the broader realm of sustainable biomaterials.

Faculty members are expanding and redefining the realm of education, research, and outreach, such as innovation-based manufacturing, lean business, sustainable building technologies, and packaging systems and design. The new department name encompasses faculty expertise in a more accurate and futuristic way and will help define new opportunities for students.

Associate Professor Maren Roman is studying nanoparticles for targeted drug delivery applications in cancer treatment. The inset photo shows a suspension of cellulose nanocrystals functionalized with a common cancer drug (doxorubicin) in dialysis tubing.

Professor Kevin Edgar's research uses polysaccharides from natural sources such as wood, corn stalks, sugar cane, and sea-shells to improve the delivery of anticancer drugs within the body.



Associate Professor Scott Rennekar (C) previously developed an innovative nanoscale polymer wood coating, which appears green on the inset photo. His current nanocellulose research focuses on converting biobased feedstocks into materials and composites.

"Our undergraduate enrollment has almost doubled in the year since we began using the term sustainable biomaterials on our website and in our recruiting materials," Goodell said. "This is due to the efforts of our faculty and students in advancing the program in the new directions the name represents. We have several exciting degree programs under development that will continue to broaden career opportunities for our students."

Recent analyses indicate the strength of this employment sector. Wired Magazine's analysis of 7 million LinkedIn users who switched industries in the past five years showed the strongest gains in the renewables and the environment category — almost double the growth of any other field. An IBISWorld report forecasts that the sustainable building material manufacturing industry will post the fastest growth in wages over the next five years.

"Based on the many employer requests we receive for our graduates, we anticipate strong demand from businesses in many different economic sectors," said Goodell. "In 2011 and 2012, every one of the department's graduates landed a career-level position, which is impressive given the current job market. Educating our students in the broader field of sustainable biomaterials is opening up more doors for our students, and all evidence indicates that this is a continuing trend."



We finished the academic year with one of the largest graduating classes in recent times, and we head into the fall semester with more students enrolled than in spring. Clearly, students are passionate about our disciplines and they aspire to make a difference in this world. Our new meteorology major will have 80 students enrolled in the fall.

We closed out our fiscal year with a record level of discovery activity — a testament to the quality, innovation, and hard work of our faculty. We continue to garner awards and recognition for our engagement work, which is so important in Virginia and beyond, leveraging the very core of our expertise to the communities and individuals we serve. The land-grant mission is alive and well in our college and at Virginia Tech as we celebrate the 150th anniversary of the Morrill Act, which created our nation's great land-grant institutions.

"Vision 2050," a recently released report from the World Business Council for Sustainable Development, outlines opportunities and actions for a future world of 9 billion people by mid-century — living well, yet within the resources of the planet. The students we educate, the discoveries we make, and the engagement we bring to the table are all critically important pieces of a sustainable future.

Sustainable, natural, and renewable materials are a key part of that future; hence, we have renamed our wood science and forest products department the Department of Sustainable Biomaterials. This is yet another strategic action by the college to set the stage for the future of our work and future career opportunities for our students. And we have more changes and initiatives planned for the new academic year. Stay tuned as we continue to move the college forward. Things remain pretty exciting around here!

We are still about trees, forests, fish, wildlife, water, wood products, and physical and cultural environments, all necessary for a sustainable future. But more importantly, we are about people — people educating people, people creating solutions, people working together to build a sustainable future, across Virginia and around the world. It's all how you see it.

Thank you for your continued interest in our students and in what we do. We are grateful for your support.

Warm regards on behalf of our faculty, staff, and students,



Paul M. Winistorfer
Dean
pstorfer@vt.edu

Dean Paul Winistorfer (L) traveled to China in June with faculty members from the master of natural resources program in the National Capital Region to develop further linkages for delivery of the program's China Sustainability Initiative in that country. This tea plantation in Dali was among the stops the group made during its trip to Yunnan province in Southwest China.



COLLEGE NEWS

Fellowships Offer Diverse Opportunities for Graduate Students

The Department of Forest Resources and Environmental Conservation recently received two National Needs Fellowship grants from the U.S. Department of Agriculture; each grant funds four fellowships. "The fellowships are designed to increase the number of underrepresented groups — particularly minorities, women, and first-generation college students — with higher degrees in agriculture and natural resources," explained Associate Professor Carolyn Copenheaver, project director for one of the grants.

University Distinguished Professor Harold Burkhart described the fellowships as "a great opportunity for us to attract additional highly qualified graduate students in an area of advanced study that is critical to long-term sustainability of forest resources." Candidates for each grant are matched with faculty members who share their research interests, forging a working relationship that helps students mature into independent scientists ready for professional careers.

The Quantitative Sciences for Sustaining Forest Resources grant, led by Burkhart, centers on biometrics, geospatial analysis, and decision sciences as related to the science, policy, and practice of sustaining forest resources for careers in industry, government agencies, and academic institutions. Current fellowship candidates include Micky Allen, Laura Lorentz, and Brian Morris; Pamela Braff will start in August.



The Inclusive Excellence in Forestry Graduate Programs at Virginia Tech grant, led by Copenheaver, focuses on bringing in candidates interested in researching climate change and bioenergy. All four of the candidates — Rebecca Kidd, Melissa Shockey, Maura Leveroos, and Beth Stein — have taken advantage of the program's emphasis on opportunities for women.

"Melissa and I helped plan a Showcase for Female Scientists, targeting female graduate students, faculty, and staff in the sciences," said Kidd. "We assembled a panel on work and life balance, and organized several breakout sessions. Keynote speaker Laura Furgione, deputy director of the National

The Showcase for Female Scientists, organized in part by fellowship candidates Melissa Shockey and Rebecca Kidd, included a panel discussion featuring (L-R) Laura Furgione, deputy director of the National Oceanic and Atmospheric Administration; Lynn Resler, associate professor of geography at Virginia Tech; Jennifer Hodgson, associate professor of microbiology at Virginia Tech; and Valerie Trouet, assistant professor of dendrochronology at the University of Arizona.

Oceanic and Atmospheric Administration, led an open seminar on climate change."

The candidates all agree that the program has been especially effective at fostering collaborative experience between students and with other faculty. "Networking and prioritizing of project goals are emphasized here more than in any other program I have come into contact with," said Shockey. "It's a very unique experience." Allen echoed those sentiments: "This program allows us to have a small, close-knit group who attend some of the same courses and share the same experiences, and will ultimately aid each other in the overall graduate experience."

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The college honored some of its most accomplished students, prominent alumni, respected faculty, and cherished friends at this year's Annual Awards Recognition Celebration. View the complete list of 2011-12 awards and recipients at cnre.vt.edu/cnr_pdf/2012_CNRE_Awards_Program.pdf.

AMONG THE MANY HONORS PRESENTED ARE THOSE HIGHLIGHTED HERE



Doug Domenech (R) with his wife, Jeanne. Both are forestry and wildlife graduates.

Alumni Award of Achievement

Virginia Secretary of Natural Resources **Doug Domenech** ('78 B.S. in forestry and wildlife) received the **Alumni Award of Achievement**. "We wanted to honor Doug for his leadership and many contributions in serving natural resources agencies and organizations in the Commonwealth of Virginia over his career," Dean Paul Winistorfer said of this one-of-a-kind award.

As the state's top environmental official, Domenech manages six Virginia state agencies, including the departments of Environmental Quality, Conservation and Recreation, Historic Resources, Game and Inland Fisheries, and the Virginia Marine Resources Commission, as well as the Virginia Museum of Natural History.

"I can think of no better recipient of this award than Doug Domenech," wrote Gov. Bob McDonnell. "Doug is an integral member of our leadership team. He is committed to improving this commonwealth for all Virginians, and his work is making a positive difference in the life of our state."

Domenech recognizes the value of Virginia's natural resources to job creation and the economy. He has been involved in state efforts to conserve open space and land; more than 114,000 acres have been protected since he took office. He is also working to improve the health of the Chesapeake Bay through the development of the Bay Watershed Implementation plans recently submitted to the U.S. Environmental Protection Agency.

Friend of the College

Brooks M. Whitehurst ('51 B.S. in chemical engineering) was honored as the 2011-12 **Friend of the College**. He has been generous in his financial and personal support of the Wood Enterprise Institute (WEI), a concept-to-market business venture in which students design, manufacture, sell, and distribute a product. Whitehurst has taken a particular interest in interfacing with the WEI students, exploring innovative solutions to design and manufacturing challenges, and even inviting students to visit at his home and business in New Bern, N.C.

A professional engineer, Whitehurst's experience ranges from chemical process design to venture analysis to environmental control. Among his many distinctions, he holds 25 process and product patents, is credited in four different Who's Who publications, and in 2001 was named one of the top 2,000 scientists and engineers of the 20th century. Most recently he has been instrumental in creating a new forest fertilization technology licensed to the Weyerhaeuser Company. First applied on the North Carolina pines and now used throughout the United States, this technology is being evaluated for international distribution.



Outstanding Recent Alumni



Erica Santana ('05 B.S. in wildlife science) of Opelika, Ala., received this year's **Outstanding Recent Alumna Award – Undergraduate Degree**. Santana, who earned her master's degree from Auburn University in 2010, currently works as an on-camera scientist host and Web content writer for the website Untamed Science. "I had no idea that anyone had been keeping up with my whereabouts or my accomplishments," she said. "Receiving the award was a total shock and a very pleasant surprise."

Before starting graduate school, Santana was a research assistant at the Smithsonian Institute's Division of Mammals. After completing her master's, she traveled to the Gulf of Mexico to work with both the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration to assist restoration efforts in the wake of the BP Deepwater Horizon oil spill. "My time at Virginia Tech taught me valuable lessons about the world and my place in it," Santana said. "My involvement in extra-curricular activities demanded responsibilities beyond my coursework and helped me to develop a sense of obligation for the endeavors I wanted to pursue outside the classroom."



Guillermo Trincado ('06 Ph.D. in forest biometrics) received this year's **Outstanding Recent Alumnus Award – Graduate Degree**. Trincado, who also earned a master's degree in statistics at Virginia Tech, currently works as the director of the forest management institute at Universidad Austral de Chile. "I would like to thank the college for the great opportunities they gave me during the development of my doctoral program in forest biometrics," he said.

During his time at Virginia Tech, Trincado worked on a modeling system for the dynamics of first-order branches and knot formation in loblolly pine trees. The significance of his work was recognized during the International Union of Forest Research Organizations' World Congress in 2010, at which he received the Outstanding Doctoral Research Award for his efforts. "The living and learning experience at Virginia Tech has without a doubt been very important for the development of my professional career," he added.

Outstanding Graduates



Graduating Senior: Cari Lynn Squibb
Hometown: Eggleston, Va.
Majors: Wildlife science and biological sciences
Main accomplishment: "I conducted a research project through the Research Experiences for Undergraduates program at Mountain Lake Biological Station this past summer, which helped me understand the effort required to successfully complete field-based research without the financial stresses usually accompanying such projects. My research on coccidian infections in dark-eyed juncos deepened my interests in avian disease ecology, as well as my enthusiasm for avian fieldwork."



Master's Student: Beth Stein
Hometown: Vienna, Va.
Major: Forestry
Research focus: "My research is on the relationship between land cover and wildlife biodiversity in Virginia. Specifically, I am examining the effect of landscape fragmentation and other environmental variables, such as topography, climate, and anthropogenic factors, on biodiversity and developing predictive models to forecast the number of unique species in a watershed based on these characteristics."



Ph.D. Student: Baojuan Zheng
Hometown: Shenzhen City, China
Major: Geospatial and environmental analysis
Significant honor: Zheng is the 2012 recipient of the William A. Fischer Memorial Scholarship, one of the most prestigious national awards given by the American Society for Photogrammetry and Remote Sensing.
Research focus: "I have developed techniques to apply remote sensing imagery to generate tillage maps by assessing the amount of crop residue present in agricultural fields just before spring planting. When implemented to survey landscapes over large areas at decadal intervals, the research will support an understanding of the success of conservation measures and improve monitoring of water quality within agricultural landscapes."



Shugart-Schmidt Named Graduate Woman of the Year

Katelin Shugart-Schmidt, a master's student in fisheries and wildlife sciences, was named Virginia Tech's 2012 Graduate Woman of the Year. Shugart-Schmidt, who hails from Logan, Utah, and received her undergraduate degree from Randolph-Macon Woman's College in 2010, received the award and a \$500 cash gift for her contributions to the Virginia Tech graduate community. "I've tried hard during my time here to make this a university community that is more welcoming to and supportive of graduate students of all types, and I was very honored to receive this award," she said.

Shugart-Schmidt's research focuses on estimating the management uncertainty associated with U.S. fish stocks, as part of an effort to better understand and manage marine resources. She has been actively

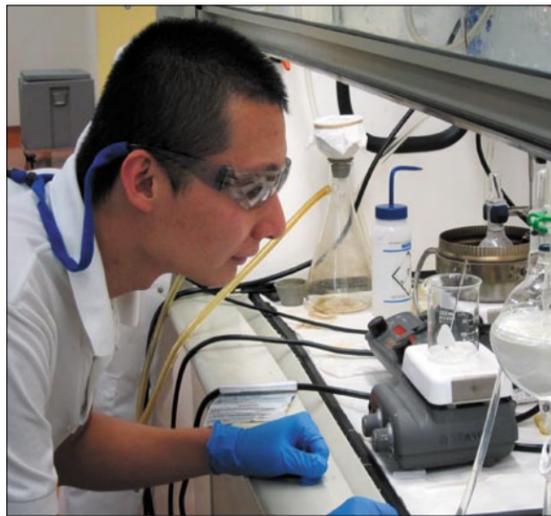
involved with a number of organizations and projects at Virginia Tech. She currently serves as chief justice of the Graduate Honor System and is president of Queer Grads and Allies, a graduate student organization that provides resources and support for lesbian, gay, bisexual, and transgender students and allies.

Shugart-Schmidt hopes to work alongside legislators to help turn scientific discoveries into meaningful environmental policies. "Graduate school at Virginia Tech has been an incredible journey and I can't believe how much I've grown as both a scholar and a person during my time here," she added. "We have a truly immense community of faculty and graduate students who are going to continue doing great things for this world, and I'm very grateful to be a part of it."

Daiqiang Xu Wins Prestigious Graduate Student Award

Doctoral student **Daiqiang Xu** of Beijing, China, received the 2012 Eastman Graduate Student Award from the Cellulose and Renewable Materials Division (CELL) of the American Chemical Society. Xu, a chemistry major who is co-advised by Professor Kevin Edgar of the college's Department of Sustainable Biomaterials and Professor Richard Turner of the College of Science's Department of Chemistry, was chosen from an international group of nominees based on his outstanding graduate work.

Xu studies the complex chemical structures of new materials made from renewable cellulose, a major component of plants and trees. Such materials have great promise for fields as diverse as flat screen televisions and drug delivery formulations, as well as generating fundamental knowledge that will enable the design of superior cellulosic materials for a broad variety of applications.



"Daiqiang has made very significant advances in the design of materials based on renewable polysaccharides, thanks not only to his outstanding work ethic but also to his keen powers of observation — not dismissing the unexpected result but instead learning from it, and taking advantage of it to create important new science," Edgar remarked.

The highly competitive Eastman award, which is given to one graduate student each year, provides a cash award and travel support to attend and speak at the society's national meeting. Xu made an oral presentation to a large group of leaders in polysaccharide chemistry at the highly attended awards session of the society's CELL program at this year's meeting in San Diego in March. "It is a great honor for me to win this award," said Xu.

Graduate Student Team Wins GeoLeague Challenge

A team of eight graduate students won the 2012 national GeoLeague Challenge at the American Society for Photogrammetry and Remote Sensing conference in Sacramento, Ca. The society is one of the leading professional organizations devoted to advancing research and applications of geospatial data. The team, a mix of forestry and geospatial environmental analysis master's and doctoral students from the college as well as the College of Agriculture and Life Sciences, are members of the society's Virginia Tech student chapter.

The goal of the competition was to use geographic information system (GIS) analysis to develop a cost- and time-efficient method to update dynamic coastal wetland information for the National Wetlands Inventory. The team's winning strategy, published in the June issue of Photogrammetric Engineering & Remote Sensing, is an innovative and scientifically supported approach incorporating multiple sensors and data sources, while balancing cost, processing complexity, and classification accuracy.

"This national recognition and the teamwork across departments and colleges are testimony to the expertise, enterprise, and initiative of our student team," noted Dean Paul Winistorfer. "They have displayed outstanding skills in their ability to work together as well as outstanding technical and scientific skills that will be much needed in addressing sustainability matters that are so critical to our planet."



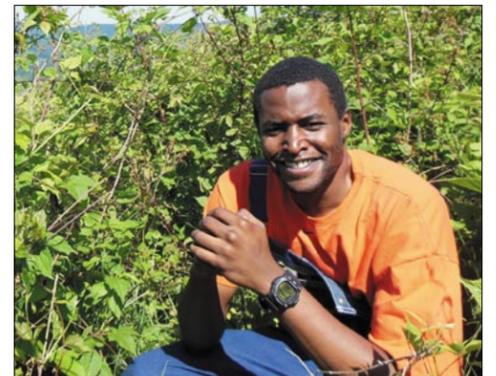
The Virginia Tech GeoLeague Challenge team. Front row (L-R): Beth Stein, Nilam Kayastha, Baojuan Zheng, and Jim Campbell, faculty advisor. Back row: Won Hoi Hwang, Kemal Gökçaya, Ioannis Kokkinidis, Taylor Seigler, and Ranjith Gopalakrishnan.

"After months of work on the project, it was great to see our hard work pay off," said Beth Stein, the team's leader. "Our team worked very well together in all stages of the project, from developing our vision to conducting the research and producing a high-quality proposal. We each had different areas of expertise, which enabled us to capitalize on our varied strengths."

"This project has been a student-initiated and student-led activity, over several months, of the student chapter," said Professor Jim Campbell, the chapter's faculty advisor. "I'm extremely proud of our team and grateful to the society for encouraging and recognizing outstanding student engagement in this important field."

Wansley Selected for STEP Program

Senior wildlife science major **Jarrett Wansley** of Richmond, Va., was selected for a competitive STEP (Student Temporary Employment Program) position with the Appalachian Mountain Joint Venture, housed in the college's Conservation Management Institute (CMI). Wansley's position, which includes working on a variety of bird habitat conservation projects with the U.S. Fish and Wildlife Service, could eventually lead to a job with the federal government. "There is a lot of competition out there for employment, so I feel a sense of security knowing that by this time next year I could have a full-time job, doing work that I absolutely love," he said.



Wansley will travel up and down the East Coast throughout the summer, where his responsibilities will range from performing vegetation sampling and bird-point counts to removing invasive plants at project sites. "This federal program is basically a paid internship, and it provides opportunities for students to receive some great experience in a field that is their professional interest," said Todd Fearer, science coordinator for the Appalachian Mountain Joint Venture.

Wansley will also work with CMI on select projects to enhance his experience and bolster his knowledge. "The STEP program is a great opportunity for minority students to get an early career start with the Fish and Wildlife Service," said Scott Klopfer, CMI executive director. "Our hope is that this will not only go well for Jarrett, but that it will open up similar opportunities for Virginia Tech students in the future."

The position could also lead Wansley to the Student Career Experience Program (SCEP), which would give him support through graduate school and help him transition into a career with the government. "This is a tremendous opportunity to launch a career," Klopfer said.

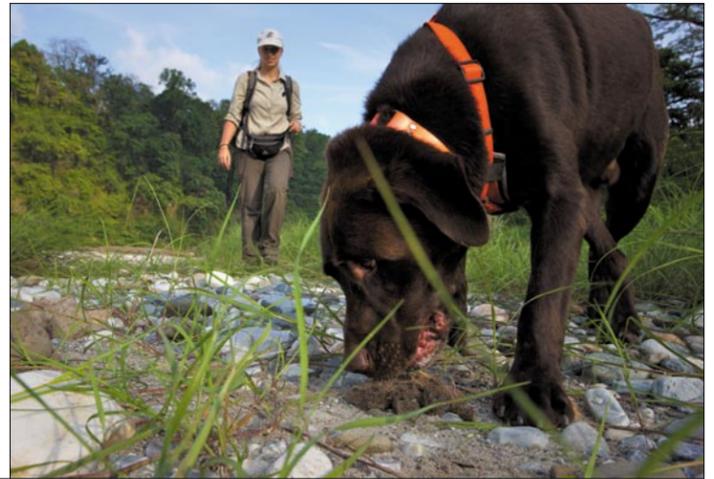
Wansley gives credit to Professor Carola Haas for encouraging him to apply for the program. "She has been a great influence on me, always giving me advice and passing along information and applications for programs," Wansley added.

National Geographic Highlights Scat Studies

Wildlife science graduate student **Claudia Wultsch** and her scat detector dog Bruiser have once again garnered international attention. After appearing in the BBC documentary "Lost Land of the Tiger" in 2010 (see CNRE News, winter 2011), the pair are now featured on the National Geographic website in a photo gallery called Scat Studies. Wultsch, who is working on a research project that received a National Geographic Society/Waitt Grant last fall, uses noninvasive techniques, such as remote cameras, genetic sampling, and collecting scat (fecal) samples — which is where Bruiser's detection expertise comes into play — to study elusive big cats such as jaguars in Belize and tigers in Bhutan.

Visit www.nationalgeographic.com/explorers/scat-studies-gallery/ to see Claudia and Bruiser and to learn about scat studies around the world.

Photo courtesy of Steve Winter, Panthera



Teammates **Carson Rejzer** (L) and **Wyatt Blevins** took fifth place in the National Guard FLW College Fishing National Championship, after finishing in 11th place last year. Photo courtesy of FLW Outdoors

Bass Fishing Teams Place in National and Regional Competitions

Wyatt Blevins, a fisheries science major, and **Carson Rejzer**, a building construction major, earned fifth place and a \$5,000 prize in the National Guard FLW College Fishing National Championship on Lake Murray in South Carolina in April. Twenty-five teams from across the country competed for the title of national champion in the nationally televised three-day event. "It was a long, hard road, but we worked hard at it and finally made the top five," Rejzer said.

This is the second straight year that Blevins and Rejzer have placed in the national competition, as they continue to build awareness of their sport. "I've had multiple alumni come to me and say how excited and amazed they were to see us on television representing Virginia Tech," Rejzer said. "Most of them had no idea we had a fishing team, but they became loyal fans immediately."

On the same weekend as the national championship, two Virginia Tech teams placed in the Carhartt College Bass East Super Regional on Smith Mountain Lake. **David Bryant**, a natural resources conservation major, and **Mark Condron**, an environmental science major, placed second, while **Nick Preskitt**, a wildlife science major, and **Clay Ross**, an environmental science major, took third.

Williams Named Presidential Management Fellowship Finalist

Danielle Williams of Falls Church, Va., who received an executive master of natural resources degree in May, has been named a finalist for a Presidential Management Fellowship, a highly competitive two-year post-graduate fellowship with a federal agency. Finalists are selected for their exceptional leadership qualities, and agencies groom them to be future policymakers and leaders. Williams, who has until January to secure a position with a hosting agency such as the Department of the Interior or the Environmental Protection Agency, is particularly interested in environmental education, green infrastructure, forest recreation, and sustainability issues.



"One great aspect of being a Presidential Management Fellowship finalist is that it opens doors to people and opportunities in the federal government that I may not have access to otherwise," Williams said. "I'm grateful to have been chosen."

Williams is a grants administration specialist with Laurel Consulting Group Inc., under contract to the U.S. Department of Health and Human Services, with

nine years of experience in grants administration, project management, and research. She is among the first class of students to graduate from the intensive 18-month Executive Master of Natural Resources Program in Leadership for Sustainability, which is part of the college's graduate programs in the National Capital Region.

The Presidential Management Fellowship program, established by President Jimmy Carter in 1977, is sponsored by the Office of Personnel Management. Candidates, who are nominated by their schools, face an arduous application process, including an online skills assessment and an in-person interview. Fewer than 10 percent of the 9,000 applicants become finalists.

"As I've watched the Presidential Management Fellowship program get increasingly competitive over the last decade, it was rewarding to have a student we felt would be able to effectively represent Virginia Tech and our program," said Michael Mortimer, director of natural resources programs for the college in the National Capital Region, who nominated Williams.

Meteorology Club Promotes Major

The Virginia Tech Meteorology Club has recently become a chapter of the National Weather Association and the American Meteorological Society. Officially founded in fall 2011, the club was designed to spread the word about the meteorology major throughout the university, as well as to help both current and incoming students in the new major.

The club has since expanded from its eight founding members and its humble beginnings, and now boasts roughly 25 members. "We would get together over dinner and drinks just to talk about our goals, classes, and concentrations that would be ideal within the department and new major," said Rebecca Vizzi. "We really wanted to help make the new major a success."

Once the meteorology major became official in January 2012, the club shifted its attention toward helping its members gain experience in the field. The group also holds monthly meetings, where guest speakers from the National Weather Service, the Roanoke Times, and the Virginia Emergency Management Office stop by to give members career advice. "The guest speakers are a great resource for students to gain knowledge in what types of occupations and employment opportunities might be out there for students interested in pursuing meteorology," said Kathryn Procriv.

The club operated in an unofficial capacity prior to its official founding, including selling sandwiches at the 2011 Relay for Life.

Front row (L-R): **Will Chong**, **Samantha Huddleston**, **Rebecca Vizzi**, and **Kathryn Procriv**. Back row: **Michael Lafon**, **Russ Glazer**, **Dan Goff**, and **Keith Isleib**.



Service is another important element for the club. Members participated in this year's Big Event, and its Relay for Life team raised over \$2,500. "We also sent a representative to the aeronautical engineering department's Atmospheric Teaching Experiment launch, contributing atmospheric science information to the program's balloon launch and presentation to elementary school students," Dan Goff added.

The club has recently become involved with WUVT-FM, Virginia Tech's student-run radio station, allowing members to get experience both forecasting and broadcasting weather for the New River Valley community. "Forecasting for WUVT has been very helpful in terms of both forecasting and media dissemination," said Aaron Davis. "You have to get your point across in a limited time, so you have to focus on the big picture in terms of weather players."

Stern Selected as Clemson Scholar

Associate Professor **Marc Stern** of the Department of Forest Resources and Environmental Conservation was selected as Scholar of the Clemson University Institute for Parks, one of the largest concentrations of park researchers in any U.S. academic institution. Those awarded this honorary title are recognized for distinguishing themselves as scientists, practitioners, or policy-makers invested in the management and protection of parks and protected areas. "It's nice to be recognized by peers in my field," said Stern, who will collaborate with the faculty of Clemson University and Institute for Parks Scholars across the country and around the world to improve parks and protected areas.



Hindman New Editor of Wood Design Focus



Associate Professor **Daniel Hindman** of the Department of Sustainable Biomaterials was recently named the editor of *Wood Design Focus*, a journal produced by the Forest Products Society that features articles on various aspects of wood engineering. "Being named editor

recognizes the good research and teaching in wood engineering that has been done at Virginia Tech," he said.

Each issue of the journal focuses on a specific theme related to design or engineering issues, and Hindman chose to concentrate the most recent edition on cross-laminated timber, a new building system that can be used to construct everything from housing to mid-rise commercial buildings to a proposed 30-story skyscraper in Vancouver, B.C. "This is a new system that's coming to the United States," he explained. "Cross-laminated timber can be a sustainable replacement for widely used building materials, like concrete."

Hindman's current research centers on fall protection for construction workers on residential projects. He recently received a grant from the National Institute for Occupational Safety and Health to help support this work. "Falls represent close to one in three fatalities in residential construction projects, so it's important we work to address this issue," he said.

Promotions and Tenure

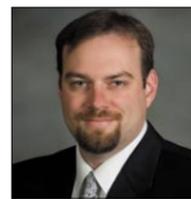
The Virginia Tech Board of Visitors has granted several college faculty promotions and approvals for tenure. Promotion to professor: **Carola Haas**, fish and wildlife conservation; tenure at rank of professor: **Kevin Edgar**, sustainable biomaterials; promotion to associate professor with tenure: **M. Chad Bolding**, forest resources and environmental conservation, **Sarah Karpanty**, fish and wildlife conservation; promotion to associate professor and Extension specialist with tenure: **John Munsell**, forest resources and environmental conservation; tenure at rank of associate professor and Extension specialist: **Urs Buehlmann**, sustainable biomaterials.



Carola Haas



Kevin Edgar



M. Chad Bolding



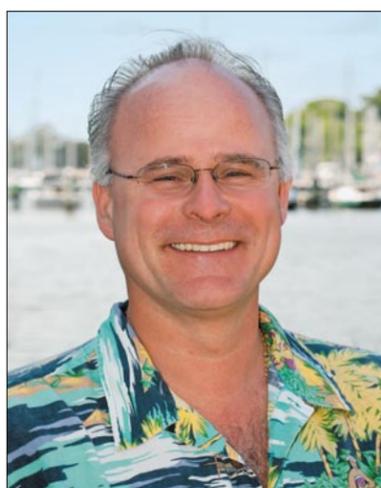
Sarah Karpanty



John Munsell



Urs Buehlmann



Schwarz Honorary Ambassador for Jeju

Michael Schwarz, an adjunct assistant professor in the Department of Fish and Wildlife Conservation and an aquaculture specialist at the Virginia Seafood Agricultural Research and Extension Center in Hampton, Va., was recently presented with a letter of entrustment from the Jeju Special Self-Governing Province of South Korea, naming him an honorary ambassador for the island.

As an honorary ambassador, Schwarz will help communicate the value of Jeju, designated in 2011 as one of the "New7Wonders of Nature" in an international initiative. Jeju is also listed as a UNESCO Biosphere Reserve, World Natural Heritage Site, and Global Geopark, which together form the UNESCO Triple Crown in the field of natural science.

Schwarz's longtime work with the World Aquaculture Society led to professional collaborations with scientists in Jeju and elsewhere in Korea. He currently serves as a board member with the society and served on the program committee for the organization's 2008 conference in Busan, South Korea. He has also been appointed to the Industrial Relations Committee for World Aquaculture 2015, which will be held on Jeju.

"The people and culture of the Democratic People's Republic of Korea and the Jeju Special Self-Governing Province are truly wonderful and amazing, as is the unparalleled beauty of Jeju," he said. "It is a tremendous honor for me to receive this recognition and responsibility as honorary ambassador, and only adds to the already significant enrichment of my life through such interactions and friendships over time."

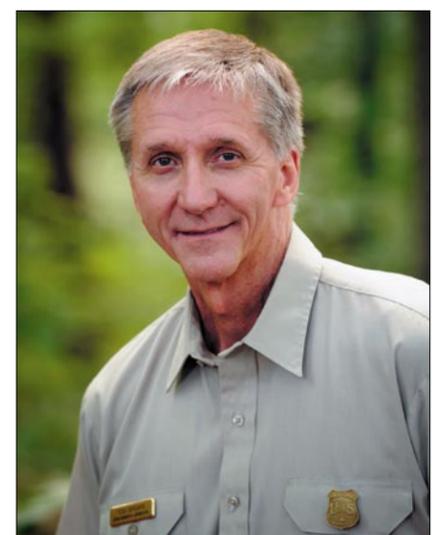
ALUMNI CORNER

Speaks Named National Forest Supervisor

Tom Speaks ('79 B.S. in forestry and wildlife) was selected as the new forest supervisor of the George Washington and Jefferson National Forests, headquartered in Roanoke. Speaks, who previously served as forest supervisor for the Cherokee National Forest in Tennessee and North Carolina, is the first Virginia Tech alumnus to supervise Virginia's jointly managed national forests. "I'm both honored and excited to be named to this position and to return to Virginia, where I started my career over 30 years ago," he said.

Speaks is the deputy incident commander for the Southern Area Interagency Incident Management Team, overseeing complex wildfires and other emergencies throughout the nation. He also spent two years on Capitol Hill as a legislative staff member for the chairman of the House Interior Appropriations Subcommittee.

As forest supervisor, Speaks is responsible for the management of 1.8 million acres in 34 counties across Virginia, West Virginia, and Kentucky. He is faced with a variety of issues, such as completing the George Washington Forest Plan revision, mitigating the impacts of invasive plants, and providing safe roads and recreation areas. "I look forward to working with the conservation community and our local, state, and federal partners on conservation issues facing the George Washington and Jefferson National Forests" Speaks said.



Do You Want To Learn More?

Alumni, are you looking for continuing education, professional development, or online learning opportunities? Visit these websites for more information:

The Natural Resources Distance Learning Consortium nrdlc.org

VTalumnNET for Virginia Tech Alumni alumni.iddl.vt.edu

Natural Resources Programs in the National Capital Region nr.ncr.vt.edu

Virginia Tech Extended Campuses vt.edu/where_we_are/extended.html

Virginia Forest Landowner Education cnre.vt.edu/forestupdate

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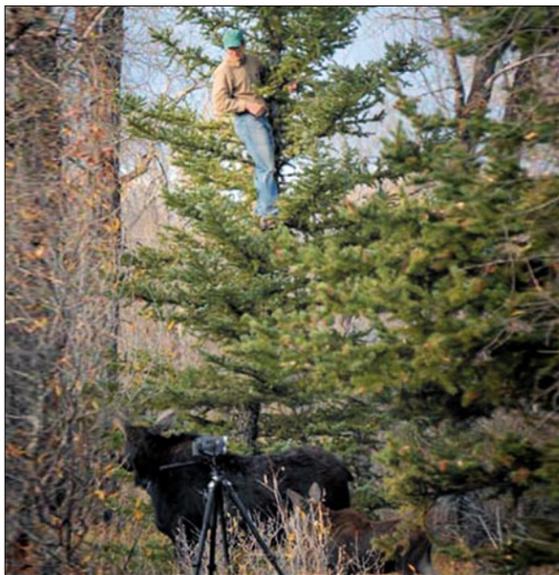
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Alumni Profile

George Bumann

George Bumann ('02 M.S. in wildlife science) has made a name for himself with his stunning wildlife artwork. Since earning his degree, he has become a professional sculptor, working out of his studio in Gardiner, Mont., at the northern entrance to Yellowstone National Park. He lives there with his wife Jenny ('95 B.S. in wildlife science), and their son George in a unique home — an 1890s railroad station that was the last stop on the Northern Pacific Railroad before it reached Yellowstone.

"The 'day job' portion of my work these days is in fine art bronze sculpture, and the rest is spent out observing wildlife, sketching and sculpting from life in Yellowstone," explained Bumann. "Some of the latter has found me climbing up trees to escape unruly moose, darting away from stampeding bison, jumping into the truck as elk walk by at arm's length, and standing by, as in one case this past autumn, when a cow elk decided to eat part of my sculpture then knock it off the sculpting stand and into the dirt, to the delight of onlooking tourists."



Bumann shares his passions for Yellowstone and art with his son.

As passionate about education as he is about art, Bumann has taught art and natural history programs since 1990 and offers a number of formal education programs and guest lectures on ecology and art at Yellowstone. "It was the synergy of the skills and lessons from Virginia Tech fused with my own zeal for education and art that opened the niche I enjoy now as a fine artist and educator," he remarked.

Bumann has guided all manner of outdoor education programs, from 10-day backpacking courses and day-long youth and university programs, to personalized tours for various organizations and multiday college-level field seminars on Yellowstone wildlife ecology. He has also conducted teacher workshops and training sessions for National Park Service and Xanterra interpreters on a variety of topics. Many of these activities have been planned through the Yellowstone Association, where his wife is the director of education.

"For what I'm doing now, striving to connect people to wild places through my art and educational programming, Yellowstone has presented unlimited opportunities that have allowed education of citizens from our nation and those from around the globe," he said.

Bumann's sculptures can be found on display throughout the United States and Europe, including the permanent collections at the National Museum of Wildlife Art in Jackson Hole, Wyo., and the C.M. Russell Museum in Great Falls, Mont. See examples of his artwork and a schedule of courses at www.GeorgeBumann.com.

Occupational hazards may include being treed by a moose!

Jones Receives Cross Alumni Leadership Award

Edwin Jones ('79 B.S. and '83 Ph.D. in fisheries and wildlife sciences), director of Virginia Cooperative Extension, received the Department of Fish and Wildlife Conservation's Gerald H. Cross Alumni Leadership Award. For the first time, the award recipient was



(L-R) Steve McMullin, Edwin Jones, and Gerald Cross after the presentation of the Gerald H. Cross Alumni Leadership Award.

selected by students in the college's Leadership Institute, who recognized Jones for his distinguished work in natural resource conservation. "Dr. Jones' career exemplifies the qualities of exceptional leadership, and we are pleased to honor him with this award," said Professor Steve McMullin, director of the Leadership Institute.

Jones, who had previously worked with extension programs at Mississippi State University and North Carolina State University, took the reins at Virginia Cooperative Extension in April 2011. "Cooperative Extension is a critical aspect of the mission of land-grant universities," McMullin said. "Dr. Jones has enthusiastically embraced the challenges of meeting the Extension needs of Virginians during these challenging times.

Professor Emeritus Gerald E. Cross significantly built up the Department of Fish and Wildlife Conservation during his tenure as department head from 1976 to 1989. The Gerald H. Cross Alumni Leadership Award is the only award given by the College of Natural Resources and Environment that specifically rewards demonstration of exceptional leadership in a natural resources field.

University Honors Hukill With Pylon Dedication

The Virginia Tech Corps of Cadets honored **U.S. Marine 2nd Lt. Maurice Hukill** ('81 B.S. in forestry and wildlife) by engraving his name into one of the pylons at the War Memorial on campus. Hukill was one of 241 American servicemen killed in the terrorist bombing attack on the U.S. Marine Corps barracks in Beirut, Lebanon, on Oct. 23, 1983.

Hukill was a civilian student at Virginia Tech, and after graduating earned his commission in the U.S. Marine Corps through officer candidate school. He was deployed to Beirut in 1983 as part of an international peacekeeping force during the Lebanese Civil War when a suicide bomber drove a truck full of explosives into a Marine barracks, killing 220 Marines, 18 U.S. Navy personnel, and three U.S. Army soldiers.

Members of the Hukill family attended the Pylon Dedication Ceremony on May 12. The Pylons are etched with the names of every Virginia Tech student and graduate who has died defending our nation's freedom beginning with those lost during World War I; Hukill's is the 428th name to be added. For the last 11 years, the family has returned to campus to attend the spring U.S. Naval commissioning ceremony, where they present a ceremonial saber to the top Marine graduate of the Naval ROTC program.



The name of U.S. Marine 2nd Lt. Maurice Hukill is unveiled by his brother, Matt Hukill, during the Pylon Dedication Ceremony.

Alumni Events Calendar

AUGUST 19-23, 2012

American Fisheries Society 142nd Annual Meeting
Minneapolis-St. Paul, Minn.
afs2012.org/

TUESDAY, AUGUST 21, 2012, 5-7 P.M.

Alumni and Friends Reception at AFS Annual Meeting
Great Waters Brewing Company, St. Paul, Minn.
www.greatwatersbc.com/

AUGUST 27-31, 2012

Society of Wood Science and Technology 55th International Convention, Beijing, China
swst.org/meetings/AM12/index.html

SATURDAY, SEPTEMBER 8, 2012

10:30 a.m. – 1:00 p.m. (game kickoff at 1:30 p.m.)

Homecoming and Tailgate
Virginia Tech vs. Austin Peay State University
Cheatham Hall, Blacksburg, Va.
www.alumni.vt.edu/reunion/cnre/index.html

SEPTEMBER 9-13, 2012

National States Geographic Information Council Annual Conference, Lake Buena Vista, Fla.
www.nsgic.org/2012-annual-conference-detail

OCTOBER 7-10, 2012

Southeastern Association of Fish and Wildlife Agencies 66th Annual Conference, Hot Springs, Ark.
www.seafwa.org/conferences/2012/index.html

OCTOBER 9-10, 2012

North American Association for Environmental Education 41st Annual Conference, Oakland, Calif.
www.naaee.net/conference

OCTOBER 13-18, 2012

The Wildlife Society 19th Annual Conference
Portland, Ore.
wildlifesociety.org/

OCTOBER 24-28, 2012

Society of American Foresters National Convention
Spokane, Wash.
www.safnet.org/natcon12/index.cfm



Seiler Goes West

Members of both the Seattle and Portland, Ore., chapters of the Virginia Tech Alumni Association were treated to "An Evening With Alumni Distinguished Professor John Seiler" in June. Seiler's light-hearted interactive presentation was entitled "I'm sorry God isn't a Hokie . . . so why do the leaves turn orange and maroon in the fall?" The audience used a clicker system to answer a range of questions during each program, and Seiler awarded prizes such as mugs, hats, shirts, and posters to the top point earners.

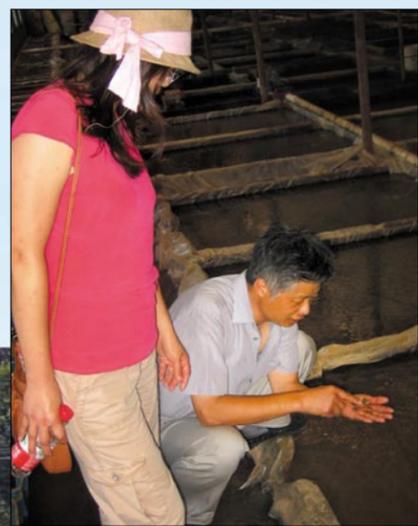
Eric Hallerman, Richard Neves, Jess Jones, and Dan Hua of the Department of Fish and Wildlife Conservation — all of whom are heavily involved with freshwater mussel research in North America — traveled to China last summer to visit several research institutes, aquaculture facilities, and commercial farms dedicated to studying the propagation and cultivation of freshwater mussels.



To stimulate pearl production, freshwater mussels are implanted with bits of mantle tissue from another mussel — rather than small spheres of hard material such as calcium carbonate as is used in saltwater pearl production — so the resulting pearls are irregular in shape.

Researchers in China focus on propagating mussels for commercial purposes, such as food and pearl production, and include few species. U.S. researchers, however, study nearly 170 North American mussel species, mostly for conservation purposes. Hallerman, head of the fish and wildlife conservation department, calls the southeastern U.S. the “global center of diversity for freshwater mussels,” noting that the region’s ecosystems and those of China share similarities. “The southeastern U.S. has never been glaciated and retains ancient river systems. China is the same way,” he observed. Booming populations in both countries are coinciding with — and, arguably, causing — a sharp decline in mussel populations.

The trip was sponsored by the Freshwater Fisheries Research Center in Wuxi, China. Hua, the laboratory manager of Virginia Tech’s Freshwater Mollusk Conservation Center, researched pond dynamics and aquaculture at the center in Wuxi for 14 years before coming to Virginia Tech in 1999. She met Neves, co-director of Virginia Tech’s mollusk center and now a professor emeritus, during his first visit to China in 1997. Hallerman describes Neves, who initiated the university’s renowned endangered mussel research program, as “a world-class expert in mussel biology and propagation, which is why the Chinese seek out his expertise.”



Juvenile freshwater pearl mussels are raised in indoor facilities. Once they reach a certain size, they are implanted to induce pearl production and then moved to outdoor ponds. Here, Professor Zhang Genfang of the Jinhua Technology College Aquaculture Department shows Dan Hua juvenile mussels being reared at the Jinhua Wellwant Freshwater Pearl Culture Farm Field Station.

Hallerman was astounded by the technological and commercial boom China had undergone since his last visit in 2005. “I was blown away,” he said. “China has developed very quickly since I was last there.” Hua and Neves, who both visited in 2009, could hardly recognize the new China either. “For me,” said Neves, “the national bird became the construction crane.”

Hallerman noted that the rapid development has had some good influences — people are better fed and have better housing — but there is a downside. “Chinese scientists and officials are slowly realizing the country’s pollution and habitat alteration could influence the well-being of the entire aquatic system,” he said. “They’ve done a pretty good job of understanding mussel life history and population dynamics, but they haven’t really caught on to the importance of nongame and noneconomically important species. It takes time to develop that whole field of science, and they are still about 15 years behind us.”

“While Chinese experts have been preaching conservation for years, higher officials in the government have been slow to change,” he added.

Much of Hallerman’s work focuses on sequencing genomes; he was pleased to find similar work taking place halfway around the world. “I found a group in Shanghai that has done exactly that with a freshwater mussel,” he reported. Other researchers had characterized the genetic basis for a growth trait that they could then breed for, and he advised them on propagation and culture techniques and population genetics. “When it comes to population genetics, you can gather all the data you like, but the key is asking the right questions and interpreting the data correctly.”

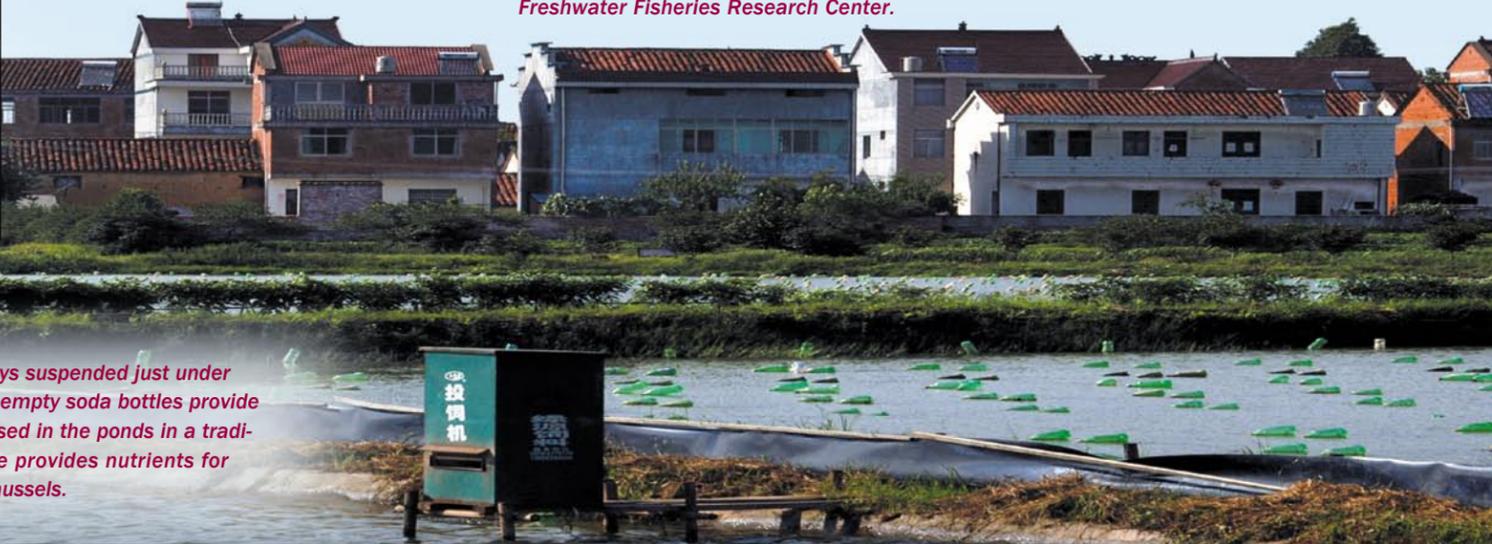
Jones made the visit to learn how the Chinese are rearing their freshwater mussels. He is a restoration biologist with the U.S. Fish and Wildlife Service and co-director of the Freshwater Mollusk Conservation Center, whose main mission is to develop methods for propagating endangered freshwater species and stocking them into rivers to build up populations. “Their work helps us learn how to hold adult mussels in captivity throughout their reproductive life cycle to do our propagation work instead of collecting adults from the wild each time,” he explained.

All of the travelers described the trip as a wonderful experience, emphasizing the importance of international cooperation in scientific research. “We’re not really competing,” Hallerman said. “Language and distance can get in the way, but research is becoming globalized. We can all do better when we work together.”



(L-R): Dan Hua, Jess Jones, Dick Neves, and Eric Hallerman took time during their trip to visit the Great Wall, accompanied by Wen Haibo (far right), a professor with the Freshwater Fisheries Research Center.

The mussels are raised to full size in trays suspended just under the surface of the water in large ponds; empty soda bottles provide flotation for the trays. Fish are also raised in the ponds in a traditional polyculture system — their waste provides nutrients for algal growth, which, in turn, feeds the mussels.



Support Community Trees With New License Plate

Virginians can now show their support for community trees by purchasing a new “Virginia Loves Trees” specialty license plate. Proceeds will benefit Virginia Tech’s urban forestry program and Trees Virginia (the state’s Urban Forestry Council), which help train tree care workers, such as the crews who cleaned up after the devastating derecho storm in June. For more information, visit www.valovestrees.org.

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