



COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT CELEBRATES 20 YEARS 1992-2012

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KATHLEEN ALEXANDER'S DIVERSE RESEARCH BRINGS SUSTAINABILITY TO BOTSWANA

Associate Professor Kathleen Alexander commutes from Virginia Tech to her research projects in Botswana twice a year. The wildlife ecologist and veterinarian lived in the African nation most of her adult life, focusing on infectious disease, natural resources sustainability, human-wildlife conflict, and water quality. In the past year, her activities have been particularly fruitful. "It is a privilege to work for an institution such as Virginia Tech where I can see a need and have my scientific work be of service," Alexander said. "Nothing is more compelling than a problem that truly needs to be solved."

Hunting is one of the many ways the people of Botswana interact with wildlife. Wild buffalo is the bushmeat of choice, but it could be making people sick. Alexander found that wild buffalo harbor the pathogen that causes brucellosis, a disease that appears to have been largely eradicated in Botswana livestock.

For her recently published retrospective study, Alexander sampled more than 1,000 large wild mammals, including buffalo, over 15 years. Alexander and her co-authors found evidence that a small but persistent percentage of the buffalo population carries the



Kathy Alexander returns to Botswana each year to continue work on her research projects and sustainability efforts.

In November, U.S. Ambassador to Botswana Michelle Gavin visited a tangible result of Alexander's efforts — a craft center that will help impoverished rural women earn money to feed their families. A craft center may not seem like part of a strategy to conserve wildlife, but Alexander learned years ago that scientists must factor in the needs of human communities or their objectives for an ecosystem would fail.

This insight led her to co-found the nonprofit Conservation of African Resources: Animals, Communities, and Land Use (CARACAL), which was instrumental in paving the way for an ongoing \$2.6-million grant to help rural Botswana residents develop strategies to coexist with wild animals. "With wildlife conflicts on the rise, we must find ways other than agriculture to help people escape poverty," Alexander said. "The craft center will be the first outlet to allow local people to benefit directly from tourists coming to see their wildlife."

pathogen, putting all who handle the meat — not just the hunters and butchers, but also family members who prepare and consume it — at risk for infection. "Brucellosis spreads from animals to humans, and the buffalo bears further study in order to understand the ecology of the pathogen," Alexander said. "We need to understand how humans are interacting with the animals they share their environment with and the health threats this may pose."

Alexander received a \$250,000 National Science Foundation grant last year to investigate the links between humans and animals as they influence water quality and, in turn, how water quality affects their health. Her research focuses on the Chobe River region of northern Botswana, where she noticed that the residents often sicken with diarrhea two times each year, and that these peaks appear to coincide with environmental changes in the region and with river flow.

Alexander conducts a health examination on a banded mongoose, taking samples for later study. A few years ago, Alexander discovered a new tuberculosis pathogen that is threatening banded mongoose populations in Botswana. Photo by Matt Eich



Graduate student Risa Pesapane (L) gathers samples of animal droppings for future analysis under Alexander's watchful eye.



U.S. Ambassador to Botswana Michelle Gavin (C) attended the opening of the craft center in November.

Alexander helped establish a craft center where women can create and market handicrafts to tourists, providing a much-needed source of income.



Alexander and her team use *Escherichia coli* (commonly referred to as *E. coli*) to track the transmission of microbes through river water, wildlife, domestic animals, and humans. "We are changing our world rapidly with little understanding of the long-term consequences," Alexander said. "We need to understand where and how these systems are coupled and how they influence water quality and environmental health."

In addition, Alexander is leading a team to study the management and control of water-borne diseases, such as cholera, through a National Institutes of Health grant. The team is evaluating the effectiveness of non-pharmaceutical interventions, such as providing clean water to at-risk populations in Haiti. Instead of incorporating the more commonly used person-to-person model of disease transmission, Alexander and her colleagues are examining the spread of disease through contaminated water sources and the influence of other ecological interactions.

These efforts and accomplishments are evidence of Alexander's dedication to the people of Botswana and elsewhere, and to the sustainability of both residents and their environment. Her goal is to give the local communities the tools they need to find and act on their own solutions to environmental challenges. For Alexander, sustainability and social justice are inextricably linked, yet sustainability comes at a cost. "We have to balance that cost," she explains, "so that humanity and ecosystems can both move forward positively."



Alexander's work includes educating schoolchildren about the importance of their local wildlife.

Find out more about Alexander's efforts in Botswana online.

Conservation of African Resources, Animals, Communities, and Land Use (CARACAL)

www.caracal.info/CARACAL/Welcome.html

Water Quality and Health in Botswana blog

www.healthbotswana.blogspot.com



20/20

Reflecting Back – Looking Forward

1992

2012

2032

My column is titled “20/20 – Reflecting Back – Looking Forward” to shine light on the year 2012 as the 20th anniversary of the college. Through the vision, hard work, sacrifice, and accomplishments of our faculty, staff, students, alumni, friends, and supporters, the college enjoys one of the strongest reputations in North America and leverages our reach across the commonwealth and into the global arena as well as into the future. Thank you to everyone who has contributed to our success and our foundation, which paves the way for us to move forward.

Each of you has your own reflection on your experience with the college. While we all are mindful of our past, our heritage, and our traditions, we must continue to move forward to position ourselves and our students for the future. Can you even imagine what the demands on our natural resources will be in the next 20 years? What tools will we need to assess and analyze our biodiversity and global sustainability, and to link these to human and societal needs? Can we comprehend the new skill sets our students will need to enable their dreams? What leadership roles will they assume and in which organizations? Looking forward is the most difficult work we can do – but must do.

To move forward, we are positioning the college and our work in the most relevant context possible. Relevance with a capital “R” is our singular focus. Relevance attracts the best and brightest, draws resources, creates opportunities, seeds impact, matters to society, and is our best offense. Relevance is the lens through which we must see the future. It’s our currency on the campus, across the state, and around the world.

One thing is certain – the world is changing and will continue to change at a rapid pace. And because of the change around us, we have been changing, too. Changing the college and department names, degrees and degree focus, and course names and content, and creating new courses and a new academic landscape. Broadening our vision of how and where we can make an impact. Expanding the perimeter of our traditional foundation to bring relevance to the larger global discussion of natural resources and sustainability. We must ensure our relevance in a world awash in change.

We asked you in a survey this year to tell us what you think of the college, and nearly 800 of you did in survey responses and 82 pages of open-ended comments. We are using this feedback to help us position the “brand” of the college for the future. We know that perception matters greatly in the discussion of relevance, and this study will help us sharpen perceptions through well-honed words and actions that accurately reflect who we are and the work we do. We want to inform our constituents, reshape misperceptions, and communicate clearly the role of our college, our faculty expertise, and the importance of our academic disciplines. We must shape our message to widen our scope to be more relevant to the world around us.

We have mined the survey feedback into position statements for our learning, discovery, and engagement domains (see below). These statements are how we see ourselves. We believe that our traditional foundation and our future aspirations can be expressed in new language that will resonate with today’s decision makers, stakeholders, students, partners, agencies, organizations, and all individuals and groups with whom we interact.

I assure you we have not lost our footing, and the changes we have embraced have been done so with careful calculation of the probable outcome. We intend to harness the power of words and names to fuel the relevance of our college.

Congratulations to everyone who has been part of our past. Happy 20th anniversary! We head optimistically into the future with our compass set on relevance to address the mounting global challenges facing all our natural resources and their human interactions. We invite you to be a part of our future and thank you for your continued support.



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You can read the executive summary of the College of Natural Resources and Environment’s perception/brand study at cnre.vt.edu/brandexecsum.



The College Brand – Advancing the Science of Sustainability

The College of Natural Resources and Environment prepares the future generation of leaders to deal with the complex natural resources issues facing our planet. World-class faculty lead transformational research that complements the student learning experience and impacts citizens and communities across the state and around the world on issues of sustainability, natural resources management, and the environment.



Engagement – Partnering for Sustainable Solutions

The College of Natural Resources and Environment’s engagement program partners with landowners and communities to provide science-based solutions to natural resources and environmental issues facing the world. Its goal is to improve the lives of the citizens of Virginia and beyond by providing information to make better decisions to sustainably manage and utilize natural resources.



Discovery – Research for Environmental Sustainability

The College of Natural Resources and Environment is a global leader in transformational research impacting environmental sustainability. World-class faculty lead interdisciplinary teams that utilize the latest technologies to explore, investigate, and create solutions for the natural resources and environmental problems facing the world. This research creates the knowledge that future generations can build upon to help develop solutions to the world’s complex environmental issues.



Learning – Students Inventing a Sustainable Future

The College of Natural Resources and Environment is nationally and internationally recognized for its undergraduate and graduate education. Programs focus on managing natural resources and preserving the diversity of Earth’s physical and cultural environments. The college’s world-class faculty is dedicated to mentoring students through experiential learning toward the development of sustainable solutions to society’s natural resources-related problems.

Department Changes Name

The college's wood science and forest products department has changed its name to the Department of Sustainable Biomaterials. The new name, which became effective on Feb. 1, 2012, more accurately reflects the wide scope of education and research being done by the department and aligns with the college's broader transition in recent years toward an increased emphasis on sustainability and the environment. Look for a full feature article in the summer 2012 issue of CNRE News.



CMI Instrumental in Completing Carbon Offset Project

The college's Conservation Management Institute (CMI) provided technical expertise for the world's first avoided planned deforestation project to receive certification under the requirements of the international Verified Carbon Standard. The project, conducted at the Boden Creek Ecological Preserve in Belize, follows the principles of Reduced Emissions from Deforestation and Forest Degradation (REDD), an international strategy for documenting the value of forest carbon offsets to conserve forests, thereby reducing greenhouse gases.

The purpose of the project is to use financing from the sale of forest carbon offsets, under the auspices of the Verified Carbon Standard, to protect the preserve's 12,876 acres in order to conserve biodiversity and enhance the local economy through ecotourism. Markets for carbon offsets — reductions in emissions of carbon dioxide or other greenhouse gases made in order to offset an emission elsewhere — include companies or other entities that buy offsets to meet their goals for reducing carbon dioxide emissions.

To qualify for these carbon offsets, the project had to meet specific globally accepted standards for quantifying net carbon savings (the Verified Carbon Standard), as well as biodiversity and community benefits (the



Verl Emrick (second from left) and Michael St. Germain (right) of CMI measure the diameter of a tree at the Boden Creek Ecological Preserve in Belize with the help of two preserve field assistants. Permanent plots at the preserve are used to determine forest carbon stocks in order to calculate available carbon offsets.

Climate, Community, and Biodiversity Standard). In concert with Forest Carbon Offsets LLC, CMI researchers collected data on the preserve's biomass, biodiversity, and human community.

"The project is predicted to avoid emissions of 1.6 million metric tons of carbon dioxide equivalent into the atmosphere over the next 25 years," said Verl Emrick, CMI project manager.

Institute researchers documented the presence of species listed as vulnerable by the International Union for Conservation of Nature, such as Baird's tapir, and two Belize species of concern: the Yucatan black howler monkey and the Central American spider monkey. As a result, the project received the Gold Level Climate, Community, and Biodiversity Standard by virtue of significant biodiversity resources conserved on the property and the critical location of the property in the immediate watershed of the Port Honduras Marine Reserve.

CMI is working on two additional carbon offset projects in Belize, which are likely to be certified sometime this year.

College Students Learn to Teach High Schoolers

Virginia Tech has partnered with the University of Georgia and Appalachian State University in an innovative program called Ambassadors for Conservation Education. Students in the college's Communications for Natural Resources course join students from the other universities for a weekend at Appalachian State's Camp Broadstone, a 55-acre outdoor adventure and retreat center, to learn ways to teach and interest high school students in natural resources and to better communicate with various audiences.

"The program gave us the opportunity to learn how we should interact with kids and how we should learn to respect and get down to our audience's level to interact with them in the best way possible," said forestry major Drew Cockram. Guest lecturers, teachers, and natural resources leaders share their personal experiences with the students. "One thing we learned was to improvise," said wildlife science major Caroline Nepomuceno. "You've always got to be on your feet, especially teaching outdoor classes."

The students were videotaped giving presentations on soil profiles, native tree species, and tree rings. "It was freezing outside and we didn't think the kids would be motivated, but we were really surprised at what we ended up seeing," noted wildlife science major Christine Bingham. "I had considered teaching before, but now I know I want to make it a life goal."

The weekend was divided into group and individual instruction days, giving the participants a more well-rounded experience. "The student I worked with had a lot more technical knowledge than I did, but I



Rebecca Jarvis (L) and John Peake discuss forest ecology and measurements during a session at Camp Broadstone.

took the kids along with me and did more hands-on activities," explained fisheries science major Jake Whalen.

Professor John Seiler and Associate Professor Carolyn Copenheaver, co-instructors of the Communications for Natural Resources course, participate in the weekend program and coordinate field trips to sites such as Indian Springs State Park and Mason Neck National Wildlife Refuge, where their undergraduates teach nature topics to high school students. "Our course is designed to help improve the communication and leadership skills of our students," Seiler said. "We have emphasized a very hands-on approach to learning how to teach, particularly in an outdoor setting."

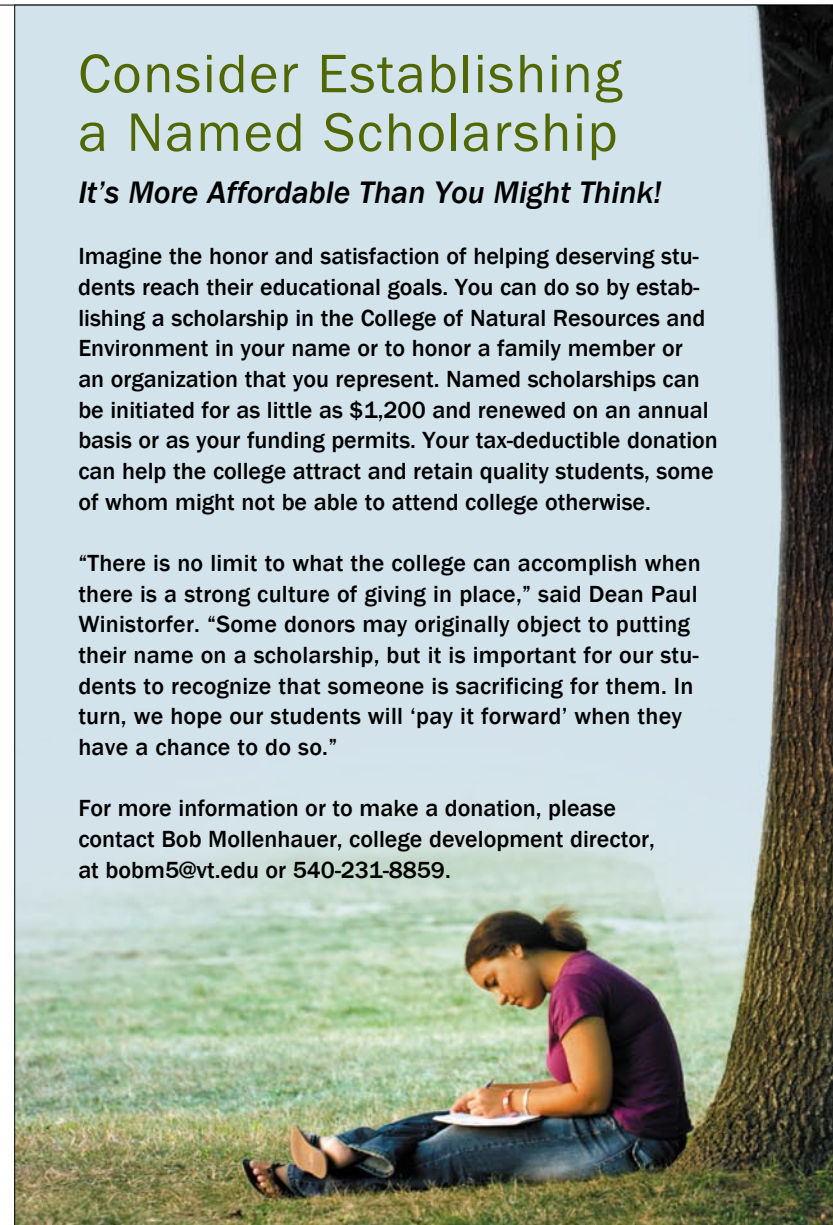
Consider Establishing a Named Scholarship

It's More Affordable Than You Might Think!

Imagine the honor and satisfaction of helping deserving students reach their educational goals. You can do so by establishing a scholarship in the College of Natural Resources and Environment in your name or to honor a family member or an organization that you represent. Named scholarships can be initiated for as little as \$1,200 and renewed on an annual basis or as your funding permits. Your tax-deductible donation can help the college attract and retain quality students, some of whom might not be able to attend college otherwise.

"There is no limit to what the college can accomplish when there is a strong culture of giving in place," said Dean Paul Winistorfer. "Some donors may originally object to putting their name on a scholarship, but it is important for our students to recognize that someone is sacrificing for them. In turn, we hope our students will 'pay it forward' when they have a chance to do so."

For more information or to make a donation, please contact Bob Mollenhauer, college development director, at bobm5@vt.edu or 540-231-8859.



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Graduate Student Saves Drowning Victim

Matt Hillman of Southborough, Mass., a wildlife science master's student who was conducting research on Cape Lookout National Seashore, N.C., last May, became a local hero when he saved the life of a woman drowning in a rip tide. A man on the beach in poor condition from his own struggles in the rip tide informed Hillman in Spanish that there was another person in need of help. Fully aware of the risks, Hillman swam out beyond the breakers to the woman and fought the tide to get her safely to shore. "I'm a capable swimmer and feel comfortable in the surf, so I hoped I could help in some way, particularly as there are no lifeguards on the national seashore," said Hillman.

After confirming the woman was conscious and could communicate with the other people on the beach, Hillman tended to the first victim. "Park Service rangers arrived after a few minutes and I translated in order to keep the man awake and get his information," remarked Hillman, who remained with the team until both victims were transported to the hospital. After the incident, Hillman worked with National Park Service staff to request that additional flotation devices be placed in storage sheds and park service vehicles on the island, which would make similar efforts much less risky in the future.



Matt Hillman took time to save a drowning victim while researching waterbirds along the North Carolina coast.

"Matt exemplifies the best of the college," said Associate Professor Sarah Karpanty, Hillman's advisor. "Not only is he an outstanding student-scholar, he also recognizes that we do not work in a bubble. In all aspects of his life and work, it is clear that Matt prioritizes others over himself, and so it is no surprise that his instincts and skills led him to that rescue, which few others could have safely accomplished." Karpanty and Professor Jim Fraser, also Hillman's advisor, honored the student's selflessness by nominating him for the U.S. Coast Guard Lifesaving Award.

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Wildlife Students Bring Home Range of Honors

Extending their passion for wildlife and the environment beyond the classroom, a number of wildlife science students took home prizes in recent competitions.

The Quiz Bowl team representing the student chapter of The Wildlife Society (TWS) placed second at the society's meeting in Hawaii in November. The team faced stiff competition from perennial favorite Humboldt State University, who took first place, as well as 10 other teams from across the country. "Many students and faculty from other universities complimented our team's

performance," said Associate Professor Marcella Kelly, the chapter's faculty advisor. "I am very proud of them."

Two graduate students fared well in the TWS meeting photography contest. Audrey DeRose-Wilson won the People's Choice Award in the game cam category and second place in the mammals category, while Matt Hillman received both first and third place in the game cam category and third in the mammals category. "I was proud of Virginia Tech's showing at the conference, with all of the presenters and quiz bowl students representing the university so



Stephen Wurfel's poster on black skimmer ecology earned first place at The Waterbirds Society meeting.

well," remarked Hillman, "and even us photo contest winners who are more than happy to claim credit for the work of remotely triggered cameras."

Closer to home, recent graduate Stephen Wurfel received the best student poster award at The Waterbirds Society meeting in Annapolis, Md., for his poster on black skimmer ecology. "The research I presented on was my first experience with undergraduate research and my first foray into waterbirds, aside from some lab work as a work-study student," Wurfel explained. "I was happy to see that the people there were eager to talk to and encourage future ornithological professionals."



The Quiz Bowl team received a painting of an I'iwi (scarlet Hawaiian honeycreeper) by a 15-year-old artist for its second-place finish. Pictured (L-R): Team Captain Vance Nepomuceno, Chad Stachowiak, Associate Professor Marcella Kelly, Kristen Booher, and Stephen Perkins. (Not pictured: Lance Harvey, team alternate)

Hajnal's Last Dip in the Pool for H20kies

Senior wildlife science major **Erika Hajnal** of Budapest, Hungary, closed out her career on the H20kies swimming team with strong performances in this year's ACC and NCAA championships. Virginia Tech hosted the ACC championships at the new Christiansburg Aquatics Center, where Hajnal earned silver medals in the 1,650-yard freestyle as well as the 400-yard individual medley, setting a new school record in that event. Her fourth-place finish in the 500-yard freestyle and sixth place in the 800-yard freestyle helped lead the H20kies women's team to a fourth place finish overall, their best finish since 2009. The team finished 18th at the NCAA's, just behind Virginia, the ACC's top finisher.

"It was a long journey and I enjoyed every minute of it," said Hajnal of her time at Virginia Tech. "If I could go back in time, I wouldn't change a thing!"



Erika Hajnal closed out her career on the H20kies swimming team with strong performances in this year's ACC and NCAA championships.

Slemp Heads VT Snow

Nate Slemp, a wood science and forest products major, is president of VT Snow, a student-run ski and snowboard club now in its third year. About 30 of the club's 70 members compete at local freestyle competitions.



The group practices both indoors — at a gymnastics facility with a foam pit and a trampoline

— and outdoors — at SnowFlex, an artificial snow slope and ski training facility at Liberty University in Lynchburg. "Once the snow comes, we take it to the real thing," Slemp said. "It's very basic in concept of how we progress, but incredibly elaborate in the steps to learn all that is necessary. It's a challenge, and every day you can improve."

In March, the club hosted Virginia Tech's first-ever stop of the Campus Rail Jam Tour, a snowboarding and skiing performance and competition event. A 60-foot scaffolding hill with ramps, pitches, and rails was constructed on the Virginia Tech Drillfield and topped with 35 tons of snow trucked in from Massanutten Resort. Despite the day's warm temperatures and intermittent rain, the event drew almost 60 participants from a half dozen universities and a few thousand onlookers. "It's a way to bring people together in a way that's never happened before," Slemp said, pleased with the success of the event, to which the club dedicated "thousands of hours" over the past year.

Social Media Steers Hollywood Stars to Tech

Geography instructor **John Boyer**, already known for his Plaid Avenger alter ego and his unorthodox teaching methods, has embraced social media in a way unmatched on the Blacksburg campus. Boyer and his 3,000-student World Regions class persuaded actor Martin Sheen and his son, film director and writer Emilio Estevez, to include Virginia Tech on their cross-country tour to promote their new movie, "The Way." The class created a YouTube video, which received thousands of hits in a matter of days. After additional campaigns on Facebook and Twitter, Estevez and Sheen couldn't refuse. "It took our breath away," said Sheen. "This video went viral and we couldn't ignore



it," added Estevez. The pair's bus tour rolled into Blacksburg on Sept. 28 for a screening of the movie and a question-and-answer session for an audience of more than 2,500 in Burruss Hall.

The saga began when Annie Hesp, an instructor in the Department of Foreign Languages and Literatures, initiated an in-person appeal to Sheen and Estevez at a conference in February 2011. Hesp wisely enlisted Boyer in the effort. "The Way' is an empowering experience," said Boyer, "and we wanted our students to experience it."

Soon after their success with Sheen and Estevez, Boyer's class posted a YouTube request for a Skype interview with Nobel Peace Prize winner Aung San Suu Kyi, the Burmese political activist who spent 15 of the last 21 years under house arrest. She agreed to the interview, which took place just days after her historic meeting with Secretary of State Hilary Clinton. In what EdTech Digest called "the best use of Skype ever," Suu Kyi patiently answered students' questions, saying she was encouraged by the democratic spirit she saw in the classroom.

Boyer's efforts have solidified his belief in the power of social media. "Because of technology and the Virginia Tech community, we in this day and age can make contact and communicate with people who before this everybody said, 'That's impossible, you can't talk to Hollywood

Emilio Estevez (L) and John Boyer mug for the camera after the movie screening.



Martin Sheen, wearing one of the many thank you gifts presented to him and Estevez, addresses the crowd.

stars, you can't talk to prime ministers and presidents," Boyer explained. While some professors may question the value of social media, Boyer recognizes the opportunity it gives him to connect with students and make their learning more interactive.

Boyer has used social media to facilitate a number of other events, including a visit from Jason Russell, co-founder of Invisible Children; an appearance by the stars of award-winning documentary "Bouncing Cats," which profiles Breakdance Project Uganda, an organization formed to empower disadvantaged youth in Uganda through hip hop; and a presentation by retail wine store and marketing agency owner Gary Vaynerchuk to discuss his Wine Library TV video blog and his success in the industry through social media and Internet marketing.

Plover Research Captures Monograph Award

Nationally known wildlife researcher **Jim Fraser** and his research team leaders **Lawrence Houghton** and **Jonathan Cohen** (both '05 Ph.D. in fisheries and wildlife sciences) received the 2011 Wildlife Society Publication Award in the monograph category. "I felt very honored and surprised to learn that we were getting the monograph award," noted Professor Fraser. "It is, of course, always gratifying to be recognized by your peers for your work. It would not have happened without the fine work of Larry and Jon."

Their monograph, "Nesting density and reproductive success of piping plovers in response to storm- and human-created habitat changes," follows the repercussions of a massive 1992 storm that devastated the island community of West Hampton Dunes, N.Y., while at the same time transforming the area into an ideal habitat for piping plovers, a species listed as threatened since 1986.

The U.S. Army Corps of Engineers was required by the U.S. Fish and Wildlife Service to monitor post-storm

plover populations on the island during rebuilding efforts. Fraser, who had been studying the piping plover's decline for years, applied to conduct research while monitoring the birds for the corps at the site. Over the next 12 years, Fraser and his team — including Houghton as head of field operations from 1996 to 1999 and Cohen in that role from 2001 to 2004 — investigated the plover population's response to changes in the quality and amount of habitat available on the island as well as the effects of predation and rebuilding on plover chick survival rates.

Since both humans and plovers prize the same beachfront habitats, it is essential to understand exactly what habitats the plovers need. The results of the study, published in the journal *Wildlife Monographs*, provided wildlife managers with the tools to create more favorable conditions for the birds and the U.S. Fish and Wildlife Service with the data it needs to legally defend its conservation practices. "It is a great source of satisfaction that the results of our work have been applied to shorebird conservation up and down the coast," said Fraser.



Professor Jim Fraser and alums Jonathan Cohen and Lawrence Houghton earned a publication award for their monograph on piping plovers. Here, Fraser (R) and Cohen tag a red knot, another shorebird species, to track its migration.

Popular Professor Named Environmental Officer for Ocean Energy Bureau



Alan Thornhill, a popular adjunct faculty member in the college's National Capital Region graduate program, is the Bureau of Ocean Energy Management's (BOEM) first chief environmental officer. The position, established as part of the U.S. Interior Department's structural reform for offshore energy oversight, is designed to promote applied science in offshore energy and ensure that decision making is based on sound information and research. Thornhill most recently served as science advisor to BOEM's director and was the leading author of the department's scientific integrity policy.

"BOEM is responsible for world-class research being conducted and directed by bureau scientists, and we are ensuring that rigorous scientific information and analysis is given appropriate weight in the decision making process," said Thornhill. "I'm pleased to be part of the efforts to promote the role of science in this new bureau." He is responsible for directing programs that study offshore environmental issues necessary to support responsible decision making about resource development, managing the National Environmental Policy Act review process, and developing national priorities for scientific research relating to the oceans.

"Alan is a much sought after professor among our students and represents the level of experience and skill our program has access to," said Michael Mortimer, director of natural resources programs in the National Capital Region.

IN MEMORIAM: Dennis Stauffer



Dennis Stauffer and his son Roan

Dennis Stauffer — son of Professor Dean Stauffer, associate dean of academic programs, and his wife, Bennie — died in an automobile accident in Asheville, N.C., on Jan. 18, 2012. Dennis' one-year-old son, Roan, was in the car with him at the time but was not injured as a result of Dennis' decisive and selfless evasive action at the wheel. Though he was only 32, Dennis had established himself as master drum builder, having crafted instruments for well-known recording artists and local residents alike, and was known internationally as well as in the Asheville music community. He is survived by his wife Brittney, his son Roan, his parents, and his three sisters.

Donations are being accepted to an education fund for Dennis' son. Make checks payable to "Roan Stauffer fund" and mail to Asheville Savings Bank, PO Box 2895, Asheville, NC, 28802.

Research May Help Save Tigers on the Brink of Extinction

The tiger is one of the most beloved and well-known jungle cats. Unfortunately, it is also one of the world's most endangered species. From Indonesia to Nepal, tiger conservation has become a pressing issue for policy makers and land managers. With the help of dedicated researchers from the college, the tiger's future is beginning to look a little brighter.

On the Indonesian island of Sumatra, Sunarto ('11 Ph.D. in wildlife science) led a ground-breaking study of the Sumatran tiger subspecies in collaboration with World Wildlife Fund (WWF). The study is the first of its kind to systematically investigate the use of different land cover types for tiger habitat. "Ultimately," explained Sunarto, now a tiger expert for WWF-Indonesia, "the goal is to learn how to restore tiger populations and habitat through better management."

Over the past 100 years, the Sumatran tiger population has dropped a staggering 97 percent, due in large part to disturbances caused by human activities such as poaching and the conversion of natural forests into agricultural plantations. Sunarto led the on-site data collection, then he and Associate Professor Marcella Kelly, his graduate advisor and a co-author of the study, created a series of maps that predict where tigers are most likely to live. They discovered that while Sumatran tigers prefer areas closer to forest centers, they can also use plantation land with dense understory cover and low human activity.



Their most notable find was the tigers' strong predilection for sites with understory cover — vegetation at the ground level — which suggests it is an environmental necessity

Local crews are critical for data collection. Here, Kanchan Thapa (L) shows Nepalese park staff members how to collect DNA from tiger droppings.

Populations of both the Sumatran tiger (pictured) and Bengal tiger subspecies are dangerously low. Image courtesy of World Wildlife Fund

for tiger habitat. "As ambush hunters, tigers would find it hard to capture their prey without adequate understory cover," said Sunarto. "The lack of cover also leaves tigers vulnerable to persecution by humans, who generally perceive them as dangerous."

Graduate student Kanchan Thapa is conducting similar research in the Terai Arc Landscape along the border of southern Nepal and India. In his work with the collaborative Nepal Tiger Genome Project (NTGP), he uses genetic sampling to identify individual tigers and track their movements by analyzing DNA in scat samples. "This is the first genetic study of the Bengal tiger subspecies in the region," said Kelly, who is also Thapa's advisor. "We're not only building a genetic database, we're establishing a protocol and building competency for the use of DNA sampling techniques among the Nepali people."

After completing data collection in Nepal this summer, Thapa will return to Blacksburg to analyze the data with Kelly in order to assess tiger and prey population size, connectivity, and habitat use. The NTGP will continue to aid the Nepalese government in building the tiger genetic database, which will be used to track connectivity, gene flow, inbreeding, and poaching across the Terai Arc.

Both projects point to the importance of protecting tiger habitat as well as critical corridors between protected areas in order to ensure that tigers are able to roam freely, which is crucial to their survival.

INTERNATIONAL CROSSINGS

Students Explore Sustainability in Costa Rica

Assistant Professor Henry Quesada of the Department of Sustainable Biomaterials returned to Costa Rica this spring with a group of students for the study abroad component of his Global Issues in Sustainability course. The course, first offered in spring 2010, is designed around student-centered methods, such as active learning, cooperative learning, and inductive teaching and learning. These methods encourage student reflection as part of the learning process rather than teacher-centered methods like traditional lectures, assignments, and grading, which offer minimal opportunity for students to learn independently.

The course seeks to connect academics with practice, foster an effective interdisciplinary curriculum, link students to work experience and job opportunities, and engage and empower students in the realm of sustainability, natural resources, and environment. The Costa Rica trip offers students the opportunity to visit national

parks, businesses, and natural attractions in order to experiment, learn, and reflect on the interactions of humans with natural resources.

"Sustainability is a very difficult topic to teach because it comprehends environmental, societal, and economic elements that are complex and sometimes conflictive in nature," Quesada said. "It also requires a multidisciplinary effort to bring discussions that represent multiple points of views on the same issues. But perhaps the most important element when teaching sustainability is the method of teaching. Students who experience sustainability in a defined context are more open to understand the relationships underlying sustainability and are more eager to engage afterward."

Students have responded positively about the course, indicating that they have developed new attitudes and behaviors about sustainability, and feel empowered



Students get up close and personal with the local wildlife at a Costa Rican crocodile farm.

and motivated to apply the knowledge gained abroad to their own local contexts. "The study abroad empowered me as a student in many ways," one student reflected. "It taught me that I don't always have to rely on papers and rankings to tell me information but that I could go to the problem and assess it myself." Another student explained, "I frequently take what I learned in Costa Rica and apply it to many different things I encounter in my studies."



Spring Break Students Construct School Addition in Haiti

Professor Emeritus Dick Neves has long been dedicated to community service projects supporting children in the small Haitian town of Pignon. In March, Neves accompanied a group of 13 students and two faculty members from Virginia Tech's School of Architecture and Design and the Myers-Lawson School of Construction to Savanette, a community on the outskirts of Pignon, where they began constructing an addition to the existing school, which currently houses only four grades. The addition — two classrooms, storage rooms, a kitchen, and a bathroom — will enable students to complete their primary school education as well as take a national exam to qualify for secondary school.

During the trip, the crew worked alongside Haitian laborers to dig the foundation and prepare the site for pouring the concrete. A Haitian contract manager in Pignon will oversee the project and report back on progress. After a long week's work, the group challenged the local soccer team to a match at the school site.

The Savanette soccer team proudly displays the soccer ball they won by beating Virginia Tech students in a friendly match.

Alumni Board Welcomes New Members

The College of Natural Resources and Environment Alumni Board has welcomed two new members.



Eric Brittle

Eric Brittle ('97 B.S. in fisheries science) is currently a fisheries biologist with the Virginia Department of Game and Inland Fisheries after a stint with the Virginia Marine Resources Commission in Newport News. Brittle, who earned his master's at Tennessee Technological University, has served as president of the Virginia Chapter of the American Fisheries Society and worked on many fisheries-related projects across the state, focusing on riverine species. The avid hunter and angler enjoys spending time outdoors with his wife and 1-year-old son.

Dan Cumbo ('98 B.S. and '99 M.S. in wood science) is the general manager at American Hardwood Industries – Augusta Flooring Division in Waynesboro, Va. The Danville native worked in production and plant management for Coffman Stairs in Bristol, Va., after graduation and later as a research associate at the college's Center for Forest Products Marketing and Management (now the Center for Forest Products Business). After a period of time as editor of the HMR Executive, a new publication of the Hardwood Market Report, he joined Augusta Lumber as director of continuous improvement. After Augusta acquired American Hardwood Industries (AHI), Dan agreed to lead the flooring division for AHI.

In related news, the alumni board congratulates member **Lauren Stull** ('05 B.S. in forestry and agricultural and applied economics, '07 M.S. in forestry and public administration) on her promotion to district ranger on the Nantahala National Forest. Stull manages Forest Service operations on the Cheoah and Tusquitee districts, which together encompass over 270,000 acres in western North Carolina.

Alumni Events Calendar

MAY 18-19, 2012

33rd East Coast Sawmill and Logging Equipment Expo
Richmond Raceway Complex, Richmond, Va.
www.exporichmond.com

MAY 30-JUNE 1, 2012

National Conference of Private Forest Landowners
Sawgrass Marriott, Ponte Vedra Beach, Fla.
forestlandowners.com

JUNE 3-5, 2012

Forest Products Society 66th International Convention
Omni Shoreham Hotel, Washington, D.C.
www.forestprod.org/ic/

AUGUST 19-23, 2012

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

SATURDAY, SEPTEMBER 8, 2012

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



Adkins Named True Professional of Arboriculture

Richard Adkins ('84 B.S. in forestry), forestry supervisor for the Phoenix Parks and Recreation Department, has been named one of seven "True Professionals of Arboriculture" for 2011 by the International Society of Arboriculture. The True Professional recognition program honors arborists and tree care professionals for their positive impacts on the industry in and around their communities.

Adkins is credited with established a memorandum of understanding that designates how Phoenix's city and utility crews share the responsibility for removing and replacing trees near power lines. His Right Tree in the Right Place initiative helps homeowners choose

the right tree for the desert climate and avoid future utility line conflicts. Adkins' Tree Care Academy and Brown Bag Lunch presentations educate city employees on how to properly manage the urban canopy. "The importance of managing trees and the urban forest resource for the economic, environmental, and social well-being of our cities is often not clearly understood by both city administrators and the public," Adkins explained. "Trees are an important design tool for the sustainability of our urban environments. I try to teach and reiterate this point daily." Adkins also conceived the Shade Phoenix 2030 Master Plan, a program designed to help the city become a role model in tree and shade management.

IN MEMORIAM: Mark Bain

Mark Bain ('80 M.S. in fisheries science) of Lansing, N.Y., passed away on Feb. 8, 2012, at the age of 56 from ALS (Lou Gehrig's disease). Bain, who earned his bachelor's degree at West Virginia University and his doctorate from the University of Massachusetts-Amherst, went on to serve on the faculty at Cornell University for 22 years.

While at Cornell, Bain served in the Cooperative Fish and Wildlife Research Unit, as director of the Center for the Environment, and as professor of systems ecology in the Department of Natural Resources. During his storied career, he was voted by the Cornell student body as one of the university's top 15 professors and received several awards.

Although Bain's research in aquatic systems focused primarily on the Great Lakes ecosystem and the Hudson River, he developed collaborations around the world. "Mark took a systems approach to his research," said Eric Hallerman, head of the college's Department of Fish and Wildlife Conservation. "He integrated hydrology and aquatic ecology in studies of fishes and invertebrates, especially in Lake Ontario and the Hudson River. His contributions to our field are well noted, and he will be missed."

For Bain's colleagues, the most memorable aspect of his personality was his optimism and upbeat disposition. He was passionate about his many hobbies, especially fishing, traveling, and cooking. Bain is survived by his wife of 31 years, Jane (Barden) Bain ('78 B.S. in fisheries and wildlife science), and his two sons, Paul and Gary.

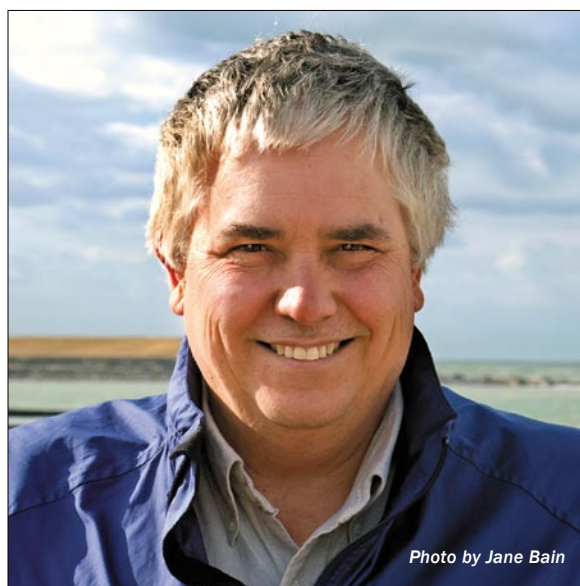


Photo by Jane Bain

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Join us!

College of Natural Resources and Environment Homecoming

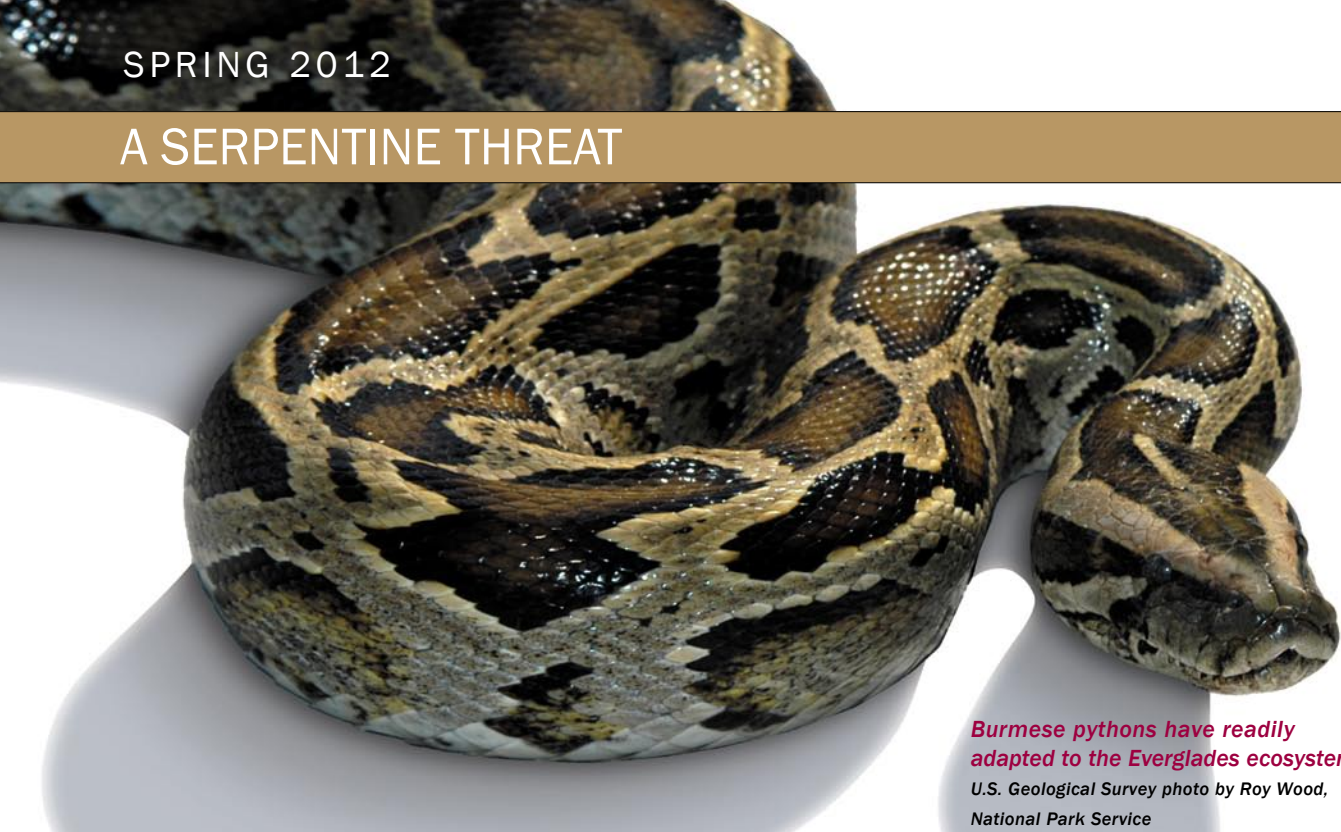
Join CNRE alumni, faculty, family, and friends at our pre-game homecoming tailgate. The festivities will take place outside Cheatham Hall and will start 3 hours prior to kick-off when Virginia Tech takes on Austin Peay State University.

Saturday, September 8, 2012

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Virginia Tech for life



Burmese pythons have readily adapted to the Everglades ecosystem.
U.S. Geological Survey photo by Roy Wood,
National Park Service

Burmese Pythons Linked to Severe Declines in Everglades Mammals

John "J.D." Willson, a post-doctoral researcher in the Department of Fish and Wildlife Conservation, came to the university to do research on the effects of pollution on native reptiles and amphibians. Now, however, he's getting national attention for his collaborative study on the environmental threat of an elusive, non-native snake proliferating in the swamps of southern Florida.

The study, published in the Proceedings of the National Academy of Sciences, is the first to document the ecological impacts of the invasive Burmese python and has set off waves of alarm across Florida and neighboring states.

Burmese pythons are the likely cause of a dramatic mammal decline in Florida's Everglades. Sightings of medium-size mammals are down substantially — as much as 99 percent — in areas now inhabited by pythons. Willson's study reveals that the huge snakes — probably descended from escaped or released pets — appear to be wiping out raccoons, opossums, bobcats, and other mammals. Scientists fear for the environmental balance of the 1.5-million-acre Everglades National Park and surrounding areas.

"Such severe declines in easily seen mammals don't bode well for the many species of conservation concern that are more difficult to monitor, particularly wading birds," said Willson. "Our findings suggest that pythons are changing the Everglades ecosystem, causing other wildlife to disappear, and that will have dramatic effects on the overall ecosystem."

Tens of thousands of Burmese pythons, which are native to Southeast Asia, are believed to be living in the Everglades. They can grow to 15 feet long or more in the wild and can live more than 25 years. Although alligators may attack young pythons, the large adult snakes are likely at the top of the food chain. While birds make up more than a quarter of their diet, the snakes have been found with alligators, and even deer, in their stomachs. Some of the declining species could be both victims of being eaten by pythons and of having to compete with the pythons for food.



During the mammal survey, Burmese pythons were often found crossing roads at night in Everglades National Park.
Photo by Michael Dorcas



Researcher J.D. Willson holds a young Burmese python captured while basking on a canal bank in Everglades National Park. Photo by Michael Dorcas

"Pythons are ambush predators," Willson said. "They lie hidden in water and vegetation waiting for prey. They have an acute sense of smell and will eat a variety of warm-blooded animals as well as alligators."

Pythons and other constrictor snakes kill their prey by coiling around it and suffocating it. Although Willson says he's not in serious danger when he searches for pythons in the Everglades, he always hunts with a partner. "I have to be as careful around them as I would be around alligators," he noted.



Researchers implant a radio transmitter in a 16-foot, 155-pound female Burmese python in order to build an understanding of where pythons spend their time and, therefore, where they can be controlled in practice. U.S. Geological Survey photo by Lori Oberhofer, National Park Service

At least 1,800 Burmese pythons have been caught in and around Everglades National Park since 2000. For this study, researchers drove 39,000 miles along Everglades-area roads from 2003 to 2011, counting wildlife and comparing the results with surveys conducted along the same routes in 1996 and 1997. The researchers found staggering declines in animal sightings: a drop of 99.3 percent among raccoons, 98.9 percent for opossums, 94.1 percent for white-tailed deer, and 87.5 percent for bobcats. Rabbits and foxes, commonly spotted in earlier years, were totally absent. Along roads where python populations are believed to be smaller, declines were lower but still notable.

Officials must pick their battles with the pythons carefully, Willson says. "There's no easy solution for controlling them, so we need to concentrate on sensitive areas, such as the heron rookeries and the Florida Keys. We're refining our collection methods, but we don't know how many pythons there are and there is no way to eradicate them completely at this point."

"Non-native invasive species have become a problem worldwide," Willson continued. "Animals are getting introduced, whether it's intentional or accidental. Although there are at least two other species of large constrictors taking up residence in South Florida, it's the Burmese python that is causing the biggest problems."

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