



A tale of trusses and two-by-fours

VIRGINIA TECH AND USDA FOREST SERVICE REPORT CONNECTS HOUSING DATA WITH FOREST PRODUCTS INDUSTRY

If you went into a hardware or home improvement store this spring, you likely saw that something was up: the price of wood products. The same holds true for real estate: lower mortgage rates and an uptick in demand have caused house prices to soar in a wildly escalating market.

Drastic price fluctuations have put a significant burden on both the housing industry and the hardwood and softwood lumber companies that provide the materials for new buildings and remodeling work. To manage such a volatile market and make informed decisions, corporations and individuals in both fields need up-to-date data.

That's where Urs Buehlmann, a professor in the college's Department of Sustainable Biomaterials, and Delton Alderman, a research forest products technologist with the USDA Forest Service, come in. Since 2011, they have worked together on a monthly housing report distributed to industry partners and individuals.

"In essence, we provide the housing industry with a distillation of the trends taking place in the U.S. housing market," explained Buehlmann, who is also a Virginia Cooperative Extension specialist. "Instead of people having to go out and find information and make sense of where things are going, we present that information in an easy-to-read format so that those in the affected industries can make good decisions going forward."

The effort is built on work initially conducted by Buehlmann and Al Schuler, a now-retired Forest Service economist. Alderman, a former colleague of Schuler's, has been researching housing markets and collecting U.S. economic and housing data for more than a decade. The report is one of many collaborations that connect Virginia Tech to research and engagement taking place at the Forest Service.

"The agency strongly encourages us to work with universities," explained Alderman, who earned his bachelor's, master's, and doctoral degrees from the college. "As federal researchers, we know that we can't do everything on our own, and it helps to have a connection with one of the few schools in the country that has an established and well-regarded wood materials program."



The monthly housing report produced by Urs Buehlmann (left) and Delton Alderman helps companies and individuals close the gap between changes taking place in the housing industry and their impacts on the hardwood and softwood industries.

"The key figures I look at are the number of housing starts and lumber usage that the report discloses," said Robbie Watkins, a purchasing manager for Fortress Wood Products. "Those are some of the contexts I use to try to stay ahead of trends in a market that is going through an interesting moment."

Alderman notes that the data in the report is critically important to the decision-making processes for builders and manufacturers.



"In essence, we provide the housing industry with a distillation of the trends taking place in the U.S. housing market," said Professor Urs Buehlmann of the Department of Sustainable Biomaterials. "We present that information in an easy-to-read format so that those in the affected industries can make good decisions moving forward."

The monthly housing report, which Buehlmann estimates reaches some 20,000 professionals, helps companies and individuals by closing the gap between changes taking place in the housing industry and the impacts such changes have on the hardwood and softwood industries.

"The housing market is vital to the hardwood industry," noted Judd Johnson, editor of the Hardwood Market Report and a professional with 30 years of experience working in and monitoring the U.S. hardwood industry. "The info that the housing report provides offers us comprehensive information on what's happening not only in construction but on the financial side of things as well."

The report includes data on housing starts of single- and multi-family homes, building permits, completed constructions, and home sales, as well as how that data aligns on a month-to-month and year-to-year scale. There is also information about wood use in construction, regional housing prices, affordability data, and U.S. and global economic indicators.

While the data presented broadly encompasses the trends between housing and industry, the information has real-time impacts on decisions made by lumber producers and buyers, such as whether or not a contracting firm should purchase more truckloads of lumber or how the trends in new home manufacturing will impact secondary wood product demand.

"A lot of secondary manufacturers base their production schedule off housing-under-construction data," he said. "While larger companies can afford the association fees that allow them to access this data quickly, we work to close the gap with smaller companies that need this information."

For Buehlmann, the comprehensive nature of the report means that different audiences can find useful information in the document.

"The idea was never that someone would read it cover to cover," he noted. "The driving intention was that we would present the data consistently so that different needs could be covered by the same report. Some people will turn to the housing data first, while others might be more interested in the gross domestic product forecasts we provide."

Although publishing a monthly report is a demanding task, the schedule means that the housing and economic information being shared is accurate and up to date.

"It is a valuable tool in the toolbox," Johnson said. "The information allows companies and individuals to see where things are going and make better decisions on how to structure their business to benefit from the moment or weather the storm."

To view past issues of the monthly housing report or subscribe to receive future issues, visit woodproducts.sbio.vt.edu/housing-report.

From the Dean's Perspective

We were fortunate and thankful to hold an in-person commencement for our students and families in Lane Stadium on a cool, early Sunday morning in May. It was enjoyable to have a small dose of normalcy following 14 months of the pandemic. Congratulations to our graduates on the momentous occasion! Thank you for choosing Virginia Tech and the college to pursue your studies. Go forth and do good! Please keep in touch and let us know if we can help you in any way as you launch your career.



I want to recognize and thank our federal partner agencies and scientists working alongside us in the college, as highlighted in the feature story on pages 4-5. We are fortunate to have scientists from the U.S. Fish and Wildlife Service, USDA Forest Service, and U.S. Geological Survey. The longstanding Cooperative Fish and Wildlife Research Unit has generated benefits for decades and magnified the work we do in partnership. All of these partnerships are forged on trust and impact, and I want our partners to know how much we value your engagement with us throughout the college. You make a significant difference in your work with us. Thank you.

Our cover story highlights another partnership and its product: the longstanding housing report that has been


published as a collaborative effort with the Forest Service for more than a decade. The monthly report, read by thousands, is a reminder that forestry — and wood and fiber — remain critical to our nation's infrastructure. We need effective management of our forest resources, strong markets for forest landowners, and research, education, and outreach on renewable materials and the development of new and improved products and processes to remain globally competitive. We also need to develop the human resources that fuel these sectors. Our college was founded on a desire to prepare students for careers involving forestry and forest products, and we remain committed to all things forestry today. The housing report brings the supply chain together and combines it with Federal Reserve monetary policy, economic indicators, and a host of other considerations that have direct ramifications back to forest landowners.

I also want to share news about an exciting new initiative that is underway in relation to urban natural resources. By the time you read this, the college will have held a significant event and engaged nearly 100 external stakeholders in exploring the contributions we can make to our ever-expanding urban environments. More people are now migrating to urban areas than at any other time in world history, meaning that urban natural resources are of growing importance. We are well along in planning for new courses and a significant emphasis on curricular programming addressing urban natural resources. Stay tuned — this is an exciting initiative.



We are hoping for a full return to in-person instruction and work environments as we start the fall semester. I hope you are on a path to pre-pandemic normalcy.

Warm regards from our faculty, staff, and students, and thank you for your continued interest in and support of the college.

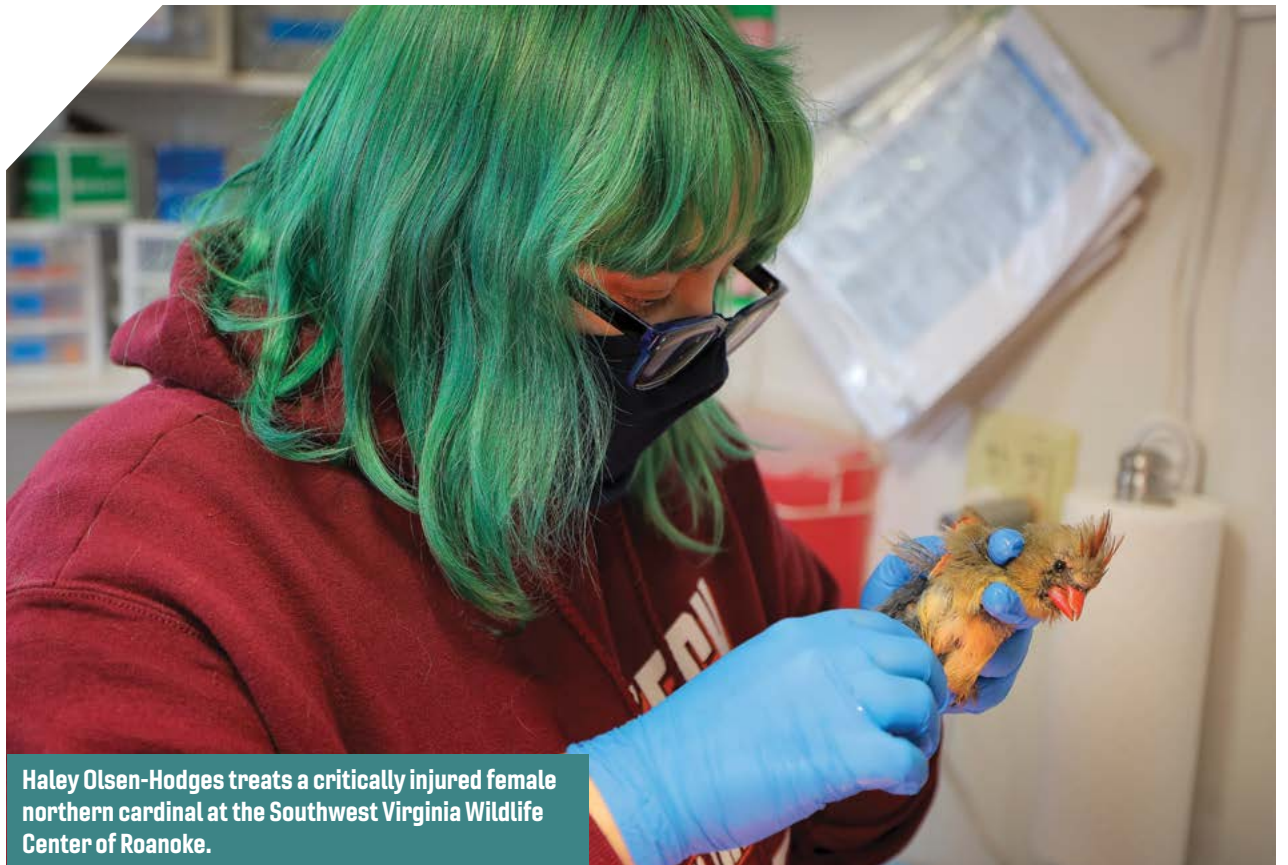

Paul M. Winistorfer
Dean

UNDER HER WING: student applies experience and initiative to rehabilitating birds

If you hear a songbird chirping from the back of a classroom or the ruffle of hawk feathers during a lab, there is a good chance **Haley Olsen-Hodges** is one of your classmates. The wildlife conservation major is the rare student who brings extensive experience working with birds and other animals to the classroom. Sometimes, that means she brings the animals themselves. "I've had to treat a few animals during class," she said. "During a bat lab for my mammalogy class, I received a hawk from a wildlife removal person and had to triage it."

Olsen-Hodges, the staff naturalist at the Southwest Virginia Wildlife Center of Roanoke, has been doing hands-on work with birds for the last decade. Starting as a high school volunteer in Wisconsin and continuing at wildlife rehabilitation facilities in Iowa and Florida, she has taken a passion for birds and dedicated herself to understanding the science of how to rehabilitate injured animals and how that effort can expand our understanding of animal behaviors. She has prepared a "bird bible" — a comprehensive protocol that synthesizes both external research and her own experiences in a reference guide for taking care of injured songbirds.

Among her many outreach efforts, Olsen-Hodges has used her work with the wildlife center to aid the second Virginia Breeding Bird Atlas, a five-year citizen science survey. "Normally, volunteers sign up to monitor a specific transect on the map," she said. "I realized that our center receives a lot of physical evidence: we're brought nests and eggs and baby and adult birds, and we're required to collect date and location information about what is brought in. I thought, we have this amazing collection of data available: how can we use it?" Working with Program Coordinator Ashley Peele, Olsen-Hodges designed a protocol to utilize



Haley Olsen-Hodges treats a critically injured female northern cardinal at the Southwest Virginia Wildlife Center of Roanoke.

rehabilitation data to supplement the work that volunteers and researchers were doing in the field.

Fostering collaboration between researchers and rehabilitation specialists is an area that Olsen-Hodges, who plans to go to graduate school, would like to explore further. "Rehabilitation work sits in an interesting space

between wildlife science and broader human dimension challenges," she said. "My dream would be to find a way to work as a liaison between researchers and people in rehabilitation, so that both sides can learn from each other and mutually create better conservation outcomes for wildlife." **Full story:** cnre.vt.edu/summer2021mag

CNRE NEWS | Summer 2021
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Dean | Paul M. Winistorfer

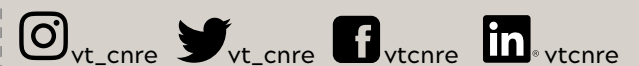
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CONGRATULATIONS GRADUATES!



CNRE's spring 2021 graduates filed into Lane Stadium bright and early on Sunday morning, May 16, to celebrate their commencement among classmates, faculty, family, and friends. It was the college's first in-person event since the start of the pandemic, and it was wonderful to come together as a college and as a community to laud the accomplishments of our students amidst these unrepresented times.

CNRE's commencement was one of 16 held by colleges and schools; there was even a ceremony for 2020 graduates. Safety protocols were in place for all events. The universitywide commencement was held as a virtual event on Friday, May 14.

If you know any students who graduated in 2020 or 2021 — whether they are Hokies or alumni of another institution — reach out and give them your best. They've earned it!



LEADERSHIP INSTITUTE TAKES ITS WINTER TRIP ON THE (DIGITAL) ROAD



Leadership Institute students met with groups of environmental leaders and policymakers during several Zoom sessions in January, including this meeting with representatives from the Virginia Department of Wildlife Resources.

The college's Leadership Institute asks a lot of the students accepted into the two-semester program. From weekly classes where they learn about their own strengths and limitations to a capstone project that puts their skills to the test, the program offered significant challenges — and rewards — to participants even before COVID-19 upended everything. And although they were able to hold classes in person, the annual winter break trip, where students meet with environmental leaders and policymakers in Richmond and Washington, D.C., was canceled. But not without a silver lining — by moving the winter trip into the virtual world, the students were able to connect with professionals from around the country. “One of the benefits of going virtual this year is that we've been able to reach further across the landscape,” said Professor Brian Bond, who directs the program. “The change has provided us opportunities to expand our reach.”

“When I first heard that the winter trip was going to be online, I was disappointed,” said junior Logan Anderson. “I was looking forward to meeting people in person and wasn't sure what I'd get out of online meetings, but they turned out to be great. We met with a bunch of state and federal agencies, and I ended up getting a lot of helpful insight into what goes into those agencies and what leadership looks like in the natural resources realm.”

Bond added, “This program requires a real commitment. Students need to have a strong interest in developing their leadership skills and a willingness to participate in a class that asks a lot of them, both time-wise and energy-wise. But the payoffs, in terms of preparing our students to be leaders in their chosen fields, are well worth the effort we ask.”

Full story: cnre.vt.edu/summer2021mag

Geography named EXEMPLARY DEPARTMENT



The college's Department of Geography, home to the geography and meteorology programs, was recognized as a 2021 Exemplary Department by the Virginia Tech Office of Executive Vice President and Provost. This year's awards focused on the theme of effective approaches to teaching with a global perspective. “The Department of Geography has developed a strong teaching ethic in our undergraduate and graduate programs,” said Department Chair Tom Crawford. “By allowing faculty to experiment with innovative teaching strategies, we have sought to strengthen our students' global geographic knowledge. Our faculty recognize that passionate teaching helps to create a globally informed and engaged citizenry. We have a demonstrated record of success and are strategically advancing beyond boundaries in ways that honor and maintain past achievements while seeking new boundaries that we can move beyond to achieve future success. It is part of our DNA.”

GIVING DAY 2021

Virginia Tech's annual Giving Day returned in 2021 after a hiatus in 2020, and Hokie Nation answered the call! Within the college, participation increased by 22%, with 199 donors making donations totaling \$127,849. At the university level, 12,397 donors raised \$6,349,233, representing an 85% increase in donors and a 122% increase in donations. Thanks to all who supported this effort — your contributions help fund scholarships, student learning and career development opportunities, faculty research, and more.



GIVING DAY
VIRGINIA TECH
FEB. 24-25, 2021

FIND IN-DEPTH ARTICLES ONLINE
Many of the articles that appear in CNRE News are based on longer news stories. Any article here that is followed by the URL cnre.vt.edu/summer2021mag is available in its full-length format on our website.

From mollusks to mountaintops:



Mussels raised at the Freshwater Mollusk Conservation Center are tagged before being released into select streams in the southern Appalachian region to help improve and restore natural populations.



Jeff Marion's work as a recreational ecologist for the U.S. Geological Survey has taken him across the country, including the Boundary Water in Minnesota, the Appalachian Trail, and the desert Southwest.

On a remote corner of campus, in tanks and constructed ponds bubbling with fresh water, an unusual life cycle is taking place.

At Virginia Tech's Freshwater Mollusk Conservation Center, the process begins when female adult mussels release strings of larvae, called glochidia, into the water. Designed by evolution to lure fish closer by looking like food, these packets of larval mussels attach themselves to the gills of fish introduced to the tanks. In the wild, that process would provide the glochidia a way to migrate upstream against the current before detaching to start their lives as filter feeders. In the tanks, the same strange method means that a threatened species will see a boost in its population.

"We're doing recovery work with a lot of endangered mussel species, which includes hatching them in our labs and then distributing them into water systems where there is a restoration need," said Jess Jones, a restoration biologist with the U.S. Fish and Wildlife Service and an associate professor in the Department of Fish and Wildlife Conservation. "In any given year we work with eight to 12 species, and we'll release 10,000 to 20,000 animals into water systems in Virginia and the surrounding states."

The process of transforming from larval mussels to juveniles takes 2-3 weeks, after which the mussels detach and are collected by siphoning the bottoms of the tanks. The juveniles are brought to the mussel culture facility, where algae-laden pond water is cycled to feed them for 1-2 years, until they are large enough for release into ecosystems where mussel populations have declined due to environmental degradation or pollution.

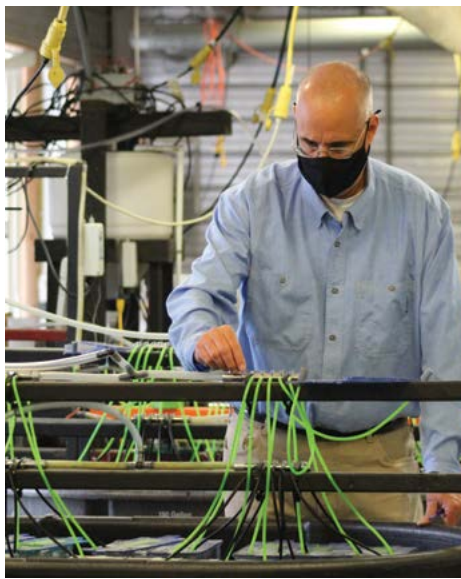
This effort — critical in maintaining the health of freshwater ecosystems — is one of the many ways that the College of Natural Resources and Environment is partnering with federal agencies to serve Virginia and the nation while providing students with unique learning opportunities.

COOPERATION BETWEEN FEDERAL AGENCIES AND THE UNIVERSITY SPARKS INNOVATION

Jones is one of several scientists in the college whose research and teaching is funded by federal agencies such as the U.S. Geological Survey, USDA Forest Service, and U.S. Fish and Wildlife Service.

"Our federal partners benefit our students through their direction of research projects at both the undergraduate and graduate levels," said Joel Snodgrass, head of the Department of Fish and Wildlife Conservation. "They provide examples and networking opportunities for students interested in employment with state and federal agencies, and they work closely with our faculty and other state partners to really amplify interdisciplinary science and its impacts on the citizens of Virginia."

For federal scientists, having a connection to Virginia Tech means that they can utilize laboratory resources and cutting-edge technologies as well as collaborate with colleagues in their fields of study.



Jess Jones, who directs Virginia Tech's Freshwater Mollusk Conservation Center, helps conduct daily checks of the mussel culture systems at the lab.



Senior fisheries technician Dawn Mercer ('13 B.S. fish and wildlife conservation) uses a microscope to count tiny juvenile mussels after they have dropped off a host fish.



Graduate students Katie Ortiz (left) and Alissa Ganser prepare to release endangered mussels into the Clinch River in Virginia.

"The value added is tremendous on both sides," explained Mark Ford, an associate professor of wildlife conservation and unit leader of the U.S. Geological Survey's Virginia Cooperative Fish and Wildlife Research Unit. "The university is getting talented faculty who are bringing important research questions to Virginia Tech not only for the commonwealth, but in some cases the nation. In return, instead of doing research in isolation, federal scientists can conduct their work amidst this ideas-generating campus."

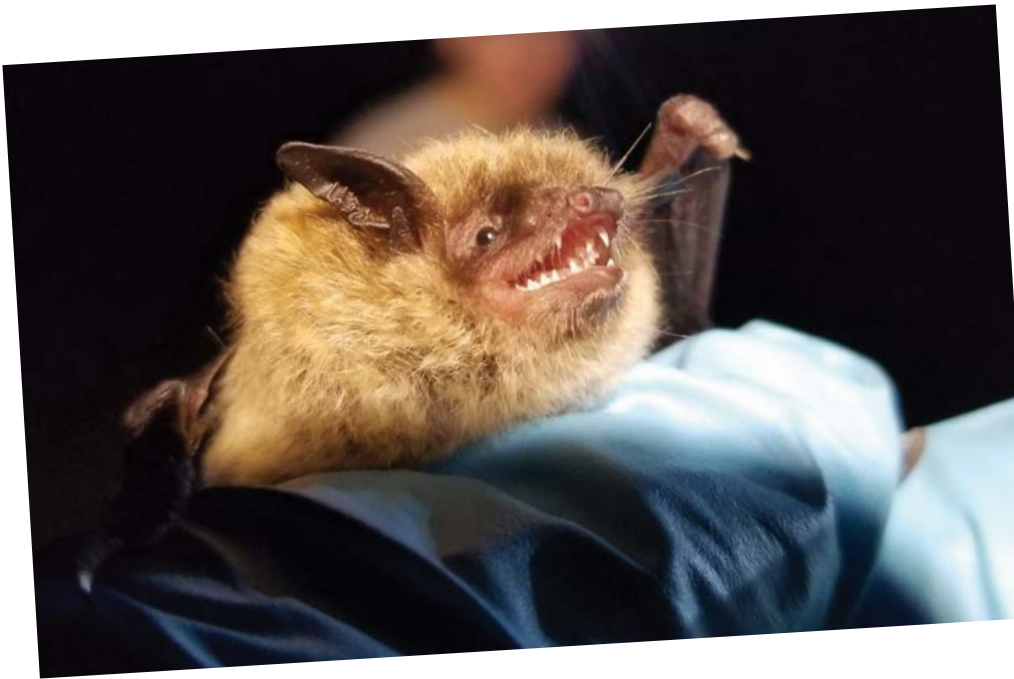
Ford has focused much of his recent research on endangered North American bats, which are crucial components of Virginia's biodiversity and overall ecosystem integrity. "Endangered bats intersect not only forest management but the energy sector, development, and even national security," he said. "Everyone who has to manipulate something on the landscape somehow bumps into challenges of bat conservation."

The Cooperative Research Unit, which has existed at Virginia Tech since 1935, works in collaboration with numerous federal and state agencies to address fish and wildlife management needs on just about every landscape imaginable, from pristine wilderness areas to urban centers.



It's no surprise that the majority of bat fieldwork takes place after dark. Virginia Tech students weigh, measure, and radio-tag captured bats before releasing them at the Florida National Guard's Camp Blanding. Photo by Allan Hallman, Florida Fish and Wildlife Resource Commission.

Working with federal agencies to make strides in conservation science



Bats are crucial components of biodiversity and overall ecosystem integrity. Researchers use acoustic monitoring to “listen” to bats as they move through the landscape.



Graduate student Johanna Arredondo takes measurements to evaluate visitor impacts on the Appalachian Trail.



A research team, including Virginia Tech students (left photo) and Associate Professor Mark Ford (right photo), sets up small mist nets to capture bats at the Florida National Guard’s Camp Blanding Joint Training Center. Photos by Allen Hallman, Florida Fish and Wildlife Resources Commission.

To monitor bat populations, Ford’s team uses a noninvasive process of acoustic monitoring to “listen” to bats as they move through the landscape. The data reveal what bat species are foraging and roosting in the summer and where and when they hibernate for the winter, information that can help land managers better conserve and protect bat habitats.

The Cooperative Research Unit, which also includes Professor Paul Angermeier, an aquatic ecologist, and Assistant Professor Elizabeth Hunter, a landscape ecologist, currently supports 19 graduate students and four postdoctoral researchers in addition to cooperating with numerous other faculty and students, both within the college and across campus. The unit is researching an array of diverse subjects, from the efficacy of best land management practices in the upper Tennessee River basin to support aquatic health, to tracking the success of reintroduced elk in the coalfields of Southwest Virginia.

“We work closely with the Defense Department in collaboration with the college’s Conservation Management Institute,” added Ford. “The military installations in Virginia and elsewhere in the East are very actively managed, not only from a mission perspective but also from a natural resources stewardship perspective. As such, they are terrific places to acquire research data.”

DAMAGE CONTROL

Other federal scientists are studying how to minimize human impacts on natural environments and how to restore landscapes that are damaged by pollution or recreational use.

Serena Ciparis, a contaminants biologist for the U.S. Fish and Wildlife Service and a research scientist at Virginia Tech, works with the Department of the Interior’s Natural Resource Damage Assessment and Restoration program.

“We look at historically contaminated sites or contemporary spills and then determine if there have been impacts to threatened or endangered species that are under the

jurisdiction of our agency,” she said. “If there have been negative impacts, we figure out what they were and determine the economic cost required to restore that landscape.”

“We give students a feel for work that is done in an applied context. In federal agencies, we think much more through the lens of trying to solve a specific problem, and our presence can help students realize that there are avenues outside of academia to pursue.”

— Serena Ciparis

Ciparis, who teaches a first-year experience course introducing fish and wildlife conservation students to the pathways and programs available in the college, says that having government scientists on campus is a useful exposure to potential career trajectories.

“We give students a feel for work that is done in an applied context,” she explained. “In federal agencies, we think much more through the lens of trying to solve a specific problem, and our presence can help students realize that there are avenues outside of academia to pursue.”

Jeff Marion, a recreation ecologist with the U.S. Geological Survey’s Eastern Ecological Science Center and adjunct professor in the Department of Forest Resources and Environmental Conservation, has been a trailblazing researcher on the ecological impacts of recreational activities in protected natural areas.

“I developed a program of research in the emerging field of recreation ecology,” explained Marion, who was a founding board member for the Leave No Trace educational program. “My work is focused on the management of visitors in protected natural areas, what the resource impacts from visitation are, and how, through science, we can better understand the influential factors so that impacts can be avoided or minimized.”

He echoes that the tangible quality of his work provides students with the chance to connect classroom learning with on-the-ground challenges.

“We’re trying to solve problems,” said Marion, who has done extensive research on the Appalachian Trail and is conducting research on the Pacific Crest Trail in Crater Lake National Park this summer. “The research that I do is very applied, very much about solving problems, and I think that’s true for all of the people who share my role at Virginia Tech.”

FROM STUDENT TO SCIENTIST

The collaborations between university researchers and federal partners offer students a crucial transition from classroom learning to understanding how that knowledge translates into real-world contributions.

“It’s one thing for a student to be interested in fish conservation or biology and to choose that as a major,” Jones explained. “But then the question becomes, what does it mean to be a conservationist or a biologist? How does this learning translate into a job? What can you do in these fields?”

Having scientists like Jones and others on campus gives students crucial insights into career trajectories within federal and state agencies, an important steppingstone in bringing a new generation of natural resources scientists into the workforce.

“We are very fortunate to have a cadre of scientists representing several federal agencies working among us in the college,” said Paul Winistorfer, dean of the college. “Agency partnerships magnify our reach, synergize with our faculty and students, and broaden the impact of the work. I want to formally thank our partner agencies for their continued investment in the scientific staff at Virginia Tech.”

CONGRATULATIONS TO THE 2021 CNRE AWARD WINNERS!

Since this year's Scholarships and Awards Celebration was a virtual event, we wanted to again recognize all award winners for the college. We honor you as individuals and laud your many and varied accomplishments.

Thank you for all that you do for your departments, the college, the university, and our local and global communities. We hope that next spring we will be able to again gather as a community and celebrate the great work happening in CNRE.

STUDENT AND ALUMNI AWARDS

*Denotes college-level winner

OUTSTANDING UNDERGRADUATE STUDENT AWARD



Rebecca Hawkins
Fish and Wildlife
Conservation



Erika Wright
Forest Resources and
Environmental Conservation



***Isaiah Moore**
Geography



Shane Yuhasse
Sustainable Biomaterials

H.E. BURKHART OUTSTANDING MASTER'S STUDENT AWARD



Steven Winter
Fish and Wildlife
Conservation



Pedro Junqueira Sartori
Forest Resources and
Environmental Conservation



***Balaji Ramesh**
Geography



Mary Paz Alvarez Valverde
Sustainable Biomaterials

A.B. MASSEY OUTSTANDING DOCTORAL STUDENT AWARD



***Brandon Semel**
Fish and Wildlife
Conservation



Kelley Anderson
Forest Resources and
Environmental Conservation



Sharif Islam
Geography



Eduardo Molina Montoya
Sustainable Biomaterials

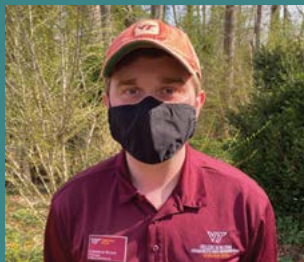
DAVID WILLIAM SMITH LEADERSHIP AWARD



Hannah Wojtysiak
Fish and Wildlife
Conservation



***Nizhoni Tallas**
Forest Resources and
Environmental Conservation



Cameron Bruce
Geography

PHI KAPPA PHI MEDALLION (HIGHEST UNDERGRAD GPA)



***Ryan Shayer**, Geography

OUTSTANDING GRADUATE TEACHING ASSISTANT AWARD



***Zachary Martin**
Fish and Wildlife
Conservation



Alison Ritz
Forest Resources and
Environmental Conservation

RECENT ALUMNI AWARD



Candice Luebbering ('07 M.S., '11 Ph.D.)



Peter Forister
Geography



Angela Dominique Rara
Sustainable Biomaterials

FACULTY AND STAFF AWARDS

OUTSTANDING TEACHING AWARD AND CERTIFICATE OF TEACHING EXCELLENCE



Bob Oliver
Geography

OUTSTANDING UNDERGRAD MENTOR AWARD



Carol Franco
Forest Resources and
Environmental Conservation

OUTSTANDING GRADUATE MENTOR AWARD



Marc Stern
Forest Resources and
Environmental Conservation

AWARD FOR OUTREACH EXCELLENCE



Eric Wiseman
Forest Resources and
Environmental Conservation

DIVERSITY AND INCLUSION AWARD



Carola Haas
Fish and Wildlife Conservation

RESEARCH ACHIEVEMENT AWARD



William Hopkins
Fish and Wildlife Conservation

OUTSTANDING STAFF AWARD



Selena Ruben
Dean's Staff

CONNECTING WITH INDIGENOUS GROUPS DEFINES ONE HOKIE'S LEADERSHIP JOURNEY

Growing up on the Navajo Nation in northern Arizona, senior **Nizhoni Tallas** knew that coming to Virginia Tech would mean leaving the familiar behind. But she found a new familiar — collaborating with Indigenous communities on natural resources management issues. “I’ve learned that there’s not just one path to knowledge,” said Tallas, who received the college’s **2021 David Wm. Smith Leadership Award**. “There are so many different ways that tribal communities manage, plan, and sustain both their natural resources and their culture.”

Tallas’s interest in helping Indigenous groups find innovative ways to share traditional knowledge has spanned the country, and even the globe. From researching the cultural significance of Manoomin (a traditional wild rice) crops in Minnesota, to studying water resource challenges for Virginia tribal communities as an intern for the Virginia Water Resources Research Center, to learning about traditional practices with members of the Sámi people of northern Norway, she has seen the diversity of Indigenous communities firsthand and some of the foundational values that they share.

She has also taken an active leadership role on campus. As a member and president of the group Native at VT, she worked to increase visibility and awareness and took part in urging Virginia Tech to become the first university in the commonwealth to officially recognize Indigenous People’s Day. She used a Howard Hughes Medical Institute fellowship to improve success for nontraditional students entering science majors by advocating for field equipment kits to assist those who would otherwise have difficulty purchasing such equipment.

Tallas plans to attend graduate school and return to her community to help tackle the environmental challenges that Indigenous communities face. “It’s been exciting to



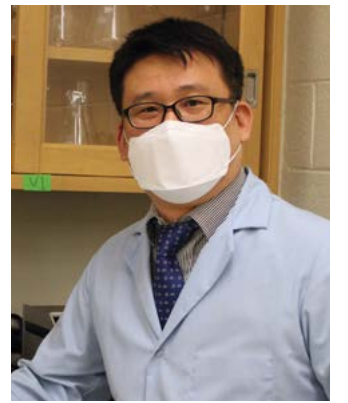
“I feel like a lot of western science views traditional ecological knowledge as not actual science. But there is so much knowledge that has been passed on through tribal communities, and they have learned a great deal about how to steward the land in such a manner that it can prosper for generations. I’m trying to figure out how to intertwine those two ways of knowing so that everyone benefits, especially Mother Earth.”

have spent four years in Virginia, but the community where I hope to have the biggest impact is back in Arizona. I feel like I’m ready to focus in and fine-tune how I can make a difference at home.” **Full story: cnre.vt.edu/summer2021mag**

Young-Teck Kim earns career advising award

Associate Professor **Young-Teck Kim** of the Department of Sustainable Biomaterials received a Virginia Tech 2021 Award for Excellence in Career Advising. Kim teaches undergraduate courses in packaging systems and design and has been an integral part of this growing program. His innovative approaches

include class time devoted to helping students build their professional identities through resume creation and interview preparation. He encourages and facilitates networking with industry professionals, provides a path for student involvement in national events like Pack Expo and the Packaging Jamboree, and serves as faculty advisor for the Packaging Club. His award nomination included student testimonials, such as “I have never been around a more caring and helpful professor in my life” and “Dr. Kim’s incredible leadership, feedback, and advice... was critical to my understanding of the packaging curriculum as well as my career development.”



Candice Luebbering receives Recent Alumni Award

Candice Luebbering (’07 M.S., ’11 Ph.D.), recipient of the CNRE 2021 Recent Alumni Award, holds the distinction of being the first person to earn a doctorate in the history of the Department of Geography. Luebbering took her passion for the discipline to the American Association of Geographers, where she served in several positions, including director of outreach and membership services. She most recently served as executive director of the GIS Certification Institute. A self-labeled “map nerd” with strengths in outreach, research, and geospatial technology, she loves promoting and sharing geography and GIS with all audiences. “I love how we can connect with and learn from others through sharing personal geographies and our innate sense of places and spaces.” She notes that Blacksburg, Virginia Tech, the college, and the geography department have all played a big role in her personal and professional development. In return, she has served on the Dean’s Advisory Council, as a Women in STEM panelist, and as a CNRE Career Panel panelist. **Full story: cnre.vt.edu/summer2021mag**



CHIP CARTWRIGHT EARNS UT PROSIM ALUMNI AWARD

Charles “Chip” Cartwright (’70 B.S.) was honored with the Influential Black Alumni Ut Prosim Award during this year’s Black Alumni Reunion, held virtually in April. Cartwright combined a ground-breaking career with the USDA Forest Service with a lifetime of community service. After a stint in the Air Force following graduation, he joined the Forest Service, rising through the ranks and blazing a trail as the first African American to serve in the positions of district ranger, forest supervisor, and regional forester. He was a leader in pursuing affirmative action and diversification of the agency’s workforce, forged better working relationships with several southwestern Native American tribes,



and developed new approaches to the recruitment and mentoring of women and people of color. In addition to service to his church, Scout troops, and Habitat for Humanity throughout the years, Cartwright’s retirement has included roles as a black cowboy, buffalo soldier, and explorer history interpreter and state park manager in North Dakota and as a black history interpreter for a historical museum in Arkansas. “I credit the college and the Virginia Tech Corps of Cadets

with helping me build a foundation for a successful and meaningful career,” Cartwright said. “My dream was, and still is, to make a difference. I believe I am.” **Video: cnre.vt.edu/summer2021mag**

ISAIAH MOORE NAMED CNRE 2021 OUTSTANDING SENIOR

Isaiah Moore’s fascination with weather extremes was sparked by sometimes-scary tornado warnings during his early years in Nebraska. Those experiences led him to pursue dual degrees in meteorology and geography to study both the science of weather and the human impacts that extreme weather events can have. “I’m especially interested in the human dimension side of meteorology and how our understanding of weather can be used to help people,” said Moore, the college’s 2021 Outstanding Senior. “Natural disasters aren’t going away, and the more we can know about how tornadoes, hurricanes, and winter storms work, the more we can do to prepare for such events.”

Moore’s interests have led to enriching experiences outside the classroom, from utilizing satellite and GIS data to reveal water level patterns on Lake Powell for the U.S. Geological Survey, to analyzing weather data from the nuclear testing era for the nonprofit Institute for Defense Analyses, to researching the use of drones to document wind damage associated with severe weather events for the National Weather Service.

On campus, Moore served two years as president of the Meteorology Club, coordinating meetings and activities through the challenges of the pandemic. He also co-founded the Chi Epsilon Pi National Meteorology Honor Society at Virginia Tech and has mentored aspiring meteorology students through that initiative. “Isaiah epitomizes the term ‘well-rounded student,’” said Instructor David Carroll.

Looking ahead, Moore aims to start a career in meteorology and says that his ambition is to someday work for the National Weather Service or NOAA. “I’d love to jump right into working on meteorology in some capacity,” he said. “Wherever I end up, I’m grateful for both the background I’ve received and the experiences I’ve had at Virginia Tech.” **Full story: cnre.vt.edu/summer2021mag**



News from around the college

Campus trees help train the next generation of arboriculturists

Virginia Tech's Alwood Oak, planted on the Drillfield near the end of the 19th century, is taking on a new role this year: teaching assistant. Associate Professor Eric Wiseman worked with University Arborist Jamie King to allow students in Wiseman's Arboriculture Field Skills class see firsthand how to care for old trees and participate in protection strategies used by urban foresters and arborists. The students had a chance to talk to professional arborists contracted to check the tree's lightning protection system and learned about support systems utilized to prevent structural damage to big trees. They also got their hands dirty — or at least sappy — installing a brace rod in a nearby tree. "The chance to be hands on with activities has been an extreme confidence booster," said junior Cydney Chambers. "I feel much more confident applying for jobs knowing I've actually practiced some of the skills we'll be expected to use



in the future." That is the goal for Wiseman, who says that this lab is an important step from understanding the science to seeing how that science plays out in real time.

Full story: cnre.vt.edu/summer2021mag

What can stream quality tell us about quality of life?

As a source of drinking water and a place to enjoy nature, streams represent a crucial point-of-contact between human beings and the environment. Researchers using stream quality data to find new insights into the interactions between the health of our natural spaces and human well-being found that demographics such as race and population density, as well as health indices such as cancer rates and food insecurity, show strong correlations with water quality across Virginia. The researchers, including Professors Paul Angermeier and Marc Stern, found a strong correlation between ecosystem health and human demographics, particularly along the lines of race. Stream conditions were found to be better in counties with higher percentages of white residents. More polluted streams were correlated with higher degrees of overall mortality. A crucial next step for the researchers is understanding how people are interacting with natural environments. Full story: cnre.vt.edu/summer2021mag



THINKING GLOBALLY TO PROTECT OUR OCEANS



Protecting the biodiversity of our oceans is typically viewed as being at odds with the goals of the global fishing industry, but a new study is challenging that thinking — at least slightly. A team of conservation scientists has concluded that a global effort to designate specific high-priority areas as marine protected areas

would have the capacity to strengthen ocean biodiversity while simultaneously improving fisheries production and conserving ocean carbon stores that are vital in limiting climate change. "Our goal was to come out with a global map of priority areas that we could focus on to improve biodiversity conservation," said Assistant Professor Francesco Ferretti. The results are surprising: the team estimates that 90 percent of the ocean's biodiversity could be preserved by strategically protecting just 21 percent of the ocean, and designating high-priority areas as marine protected areas would have significant ramifications for critically endangered ocean species. The researchers stress the importance of finding a global strategy to strengthen the health of our oceans. Full story: cnre.vt.edu/summer2021mag



Photo by Guillermo Santos

CONNECTING BIRD-WATCHERS with shade-grown coffee

In light of declining bird populations in North America — 2.9 billion lost birds since 1970 — researchers are looking into how to mobilize the growing number of bird-watchers to help limit bird population declines. One possible tool? Bird-friendly coffee, cultivated specifically to maintain bird habitats instead of clearing vegetation that birds and other animals rely on. Assistant Professor Ashley Dayer and colleagues surveyed more than 900 coffee-drinking bird-watchers to find out if they knew about bird-friendly coffee products and certifications, whether they would purchase it if available, and what was important to them regarding their coffee purchases. Among their findings: less than 40 percent of respondents were familiar with bird-friendly coffee. The next step to increasing awareness about shade-grown coffee and its potential impact on bird populations may include increased advertising for bird-friendly coffee, more availability of bird-friendly coffee, and collaborations between public-facing conservation organizations and coffee distributors. Full story: cnre.vt.edu/summer2021mag

UPCOMING EVENTS

We hope to be able to return to in-person events on campus in the fall; however, plans are understandably subject to change. Watch for updates on the following events via email, on social media, and on our Upcoming Events calendar at cnre.vt.edu.

WELCOME BACK BASH

Sept. 9

CAREER FAIR

Sept. 21

HOMEcomings TAILGATE

Oct. 16

Non-Profit Org.
U.S. Postage
PAID
Blacksburg, VA 24060
Permit No. 28

CHEATHAM HALL, RM 324 (MC 0324)
310 WEST CAMPUS DRIVE
BLACKSBURG, VIRGINIA 24061
540-231-5481
CNRE.VT.EDU

COLLEGE OF NATURAL
RESOURCES AND ENVIRONMENT
VIRGINIA TECH

