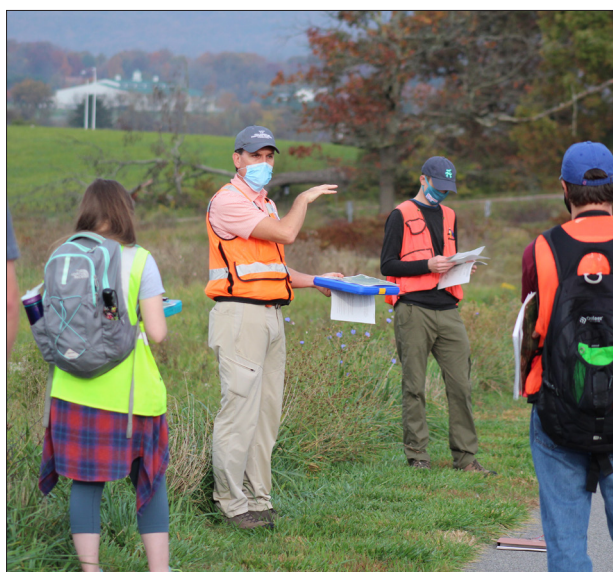


Forestry

leader in excellence.....

Spring
Summer
Fall
2020



Eric Wiseman and FREC sophomore field experience students.

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Faculty use innovation and engagement to adapt to new online education space

To adjust to the new landscape of digital classrooms, FREC faculty have joined others all across campus in finding new ways to keep their students engaged and on task while being adaptive to the challenges of moving classes online.

Assistant Professor **J. P. Gannon**, who teaches environmental informatics, conducted surveys to gauge how the students have adjusted to video lectures and labs and where he could make improvements. To lighten things up, Gannon “did a survey asking students what they were doing to take their mind off things. I made a slideshow with some of the strategies, from exercising and dancing, to playing Animal Crossing, or building forts. I even put in slides of what I’ve been doing, whether it’s riding my bike or playing with my dogs. I think they appreciated knowing we’re all in this together.”

As part of the FREC sophomore field experience course, Associate Professor **Eric Wiseman** conducted a virtual urban forestry day, inviting a municipal forester, a commercial arborist, a consulting arborist, and a utility forester to participate in a Zoom class and round-robin discussion about the field and how students can prepare for careers in forestry. “They talked to the students about some of the things they do in their sectors of the field, and it was an opportunity for our students to ask questions of professionals,” said Wiseman.

For his fire ecology lab, Assistant Professor **Adam Coates** took his students to the field virtually. “I visited outdoor field locations in Fishburn Forest and the Jefferson National Forest where the students would have observed potential fire effects and prepared videos of what those labs would have entailed,” he said.



COLLEGE OF NATURAL
RESOURCES AND ENVIRONMENT
FOREST RESOURCES AND
ENVIRONMENTAL CONSERVATION
VIRGINIA TECH.

FROM THE DEPARTMENT HEAD



Jay Sullivan

We are all in this virus/shutdown/health/economic situation together, so I will dispense with comments about how disruptive and profound the times are for all of us. Personally, I have no reason to be anything but thankful for the position I hold and the opportunities I have in this beautiful setting and strong university to weather the times. I will tell you a little bit about what these times look like for a forestry program that prides itself in providing hands-on, field-based experiences for students, though.

Of course we have been limited thus far in our ability to provide face-to-face and field-based instruction due to safety limitations placed on the capacities of classrooms and the passenger vans we rely on to get to off-campus field sites.

However, our faculty and staff have continued to do everything they can to provide top-notch experiences for our students. For instance, we have continued to be able to offer Land and Field Measurements and Forest Ecology labs in person within the bounds of the guidelines that we are under at the university. We also have plans to offer face-to-face experiences in many more courses in the spring 2021 semester, including Dendrology lab and our Field Experiences course. Through it all, our students have been great in making the most of the situation, and we continue to see strong enrollment across our majors.

Our Advising Center has done a phenomenal job in serving our students, including keeping up with the well-being of our COVID-19-positive and exposed students, and in helping us plan our coursework offerings for the months ahead. Perhaps the biggest observation I can offer from our experience this year is that, even though I believe our faculty have excelled in using technology to deliver as strong an education as possible under the circumstances, there is nothing like face-to-face, hands-on, field-based learning. Absolutely no other method produces the motivation, the understanding, the memories, the camaraderie, the quality, and the passion that comes from in-person experiential learning—nothing else even comes close. I can't tell you how much we look forward to the day we can return to what has always made us who we are!

WELCOME NEW EMPLOYEES!



Eileen Merritt (pre-2020 photo)

Eileen Merritt joined FREC in June 2020 as a research scientist. Her research focuses on understanding and advancing pedagogies that enhance environmental literacy and spark civic engagement. She works with **Marc Stern** of FREC, Bob Powell of Clemson, and Troy Frensley of UNC-Wilmington on an evidence-based network for improving environmental education distance learning.

Merritt developed her passion for environmental education while teaching fourth grade in Albemarle County and has also worked as a teacher educator, director for a natural history day camp, and education coordinator for the Virginia Museum of Natural History. She received her Ph.D. in educational psychology/applied developmental science and M.Ed. in science education from the University of Virginia, and a B.A. in elementary education from the College of William and Mary.

Corey Green moved into a faculty position in FREC in January 2021 as an assistant professor of forest biometrics.

Green, who most recently served as a research associate in FREC, received a B.S. in statistics and an M.S. in forest resources from the University of Georgia followed by a Ph.D. in forestry from Virginia Tech. Green specializes in forest growth and yield, forest sampling, and applications of remote sensing in forestry applications. He is very excited to join the diverse, world-class faculty in the Department of Forest Resources and Environmental Conservation working towards providing an excellent education for students and conducting research in forest management.



Corey Green

HIGHLIGHTS: TEACHING, RESEARCH, EXTENSION

National Advanced Silviculture Program comes to FREC



Photo courtesy of USDA Forest Service (pre-2020 photo).

FREC was recently awarded funding to host the fourth and final module of the USDA Forest Service's National Advanced Silviculture Program (NASP). This annual career advancement program trains early- and mid-career federal agency foresters and land managers as they work toward receiving authority to prescribe and apply silvicultural treatments on federal land. Faculty principals include **John Munsell, David Carter, Adam Coates, Scott Barrett, and Kyle Peer** of FREC, together with Verl Emrick of CNRE's Conservation Management Institute and Scott Salom of the Department of Entomology.

The module is envisioned as a multi-week, field-intensive experience, covering topics ranging from cutting-edge silvicultural treatments to operational planning, markets, pests and pathogens, and strategies for managing rare, threatened, and endangered species. The program also involves advanced virtual technologies to improve student access to forest types and silvicultural operations from across the country.

Munsell noted, "As a leader in forest management education, we are well poised to provide high-quality training for future federal silviculturists." Carter added, "NASP provides the perfect opportunity to leverage our well-known track record in silviculture science and application for the benefit of federal foresters and the millions of acres of forest land their agencies oversee."

Other coordinating NASP institutions are Oregon State University, the University of Minnesota, and the University of Massachusetts.

Reynolds Homestead raises a virtual toast to 50 years



A 1970 dedication was held on the Reynolds Homestead lawn when Nancy Susan Reynolds gave the historic property to Virginia Tech, calling for programs designed to improve the quality of life in Patrick County, both culturally and economically.



Community Enrichment Center



Experiential education



Reynolds Homestead

Supporters and staff of the Reynolds Homestead gathered online to celebrate 50 years since the 1970 dedication of the historic Patrick County property as a Virginia Tech community outreach and forestry research center. People who played key roles in transforming the former Rock Spring Plantation marked the occasion by sharing memories of the journey, followed by a toast to the Homestead's 50 years of service.

The Homestead was built in 1843 and was the boyhood home of tobacco magnate R. J. Reynolds. Today, it serves as a community hub of learning and culture, following the vision set five decades ago by Nancy Susan Reynolds. FREC faculty and graduate students conduct research on the 780-acre Reynolds



The Reynolds Homestead in Critz, Virginia, was built in 1843 and was the boyhood home of tobacco magnate R.J. Reynolds.

Homestead Forest Resources Research Center, which surrounds the Homestead. Superintendent **Kyle Peer** and staffers **Clay Sawyers** and **Debbie Bird** maintain the center and assist with conducting projects.

The restored home is filled with Reynolds family heirlooms and historical displays. It holds regular tours and hosts school field trips. To one side of the home stands the Community Enrichment Center, with several meeting spaces where community members gather for classes, art exhibitions, children's activities, lectures, and more.

The Homestead plans to mark the anniversary with a three-day celebration June 18-21, 2021. Among the plans are a farm-to-table dinner; Bushels and Barrels Local Food, Wine, and Beer Festival; and an afternoon of celebrating more than five decades of service.

Governor announces grant to fund medicinal herb project at Catawba Sustainability Center

Virginia Governor Ralph Northam has announced \$40,000 in funding for a program at the Catawba Sustainability Center. Half of the money comes from an Agriculture and Forestry Industries Development grant, matched by funds from Roanoke County. It will be used to establish and maintain a propagation center for goldenseal, ramps, and black cohosh at the center, a 377-acre farm property 20 miles east of Blacksburg.

The project is supported by **John Munsell**, FREC professor and forest management extension specialist. Its goal is to create a regional network of smaller producer plots that will include farmers, herbalists, manufacturers, and retailers. “The project will advance the capacity and capabilities of forest farmers in the New River Valley, Roanoke Valley, and Allegheny regions of western Virginia,” Munsell said. The project will also provide experiential learning for FREC’s agroforestry students, who will be able to participate in post-harvest processing as part of an expanding nontimber forest products project.

Northam and Virginia Secretary of Agriculture and Forestry **Bettina Ring**, a FREC alumna, toured the center on Dec. 14 with Guru Ghosh, vice president for Outreach and International Affairs, and Paul Winistorfer, CNRE dean.

“As Virginia’s first- and third-largest industries, agriculture and forestry are vital to the health of our economy, and they have been upended by the pandemic,” Northam said. He commended the partnership between the center and Roanoke County for “identifying innovative ways to support local farm and forest producers in responding to immediate challenges from the current health crisis and creating sustainable industry growth.”

The center, managed by Adam Taylor, will provide technical support, training for growers, plant stock, workshops and demonstrations, processing facilities, and help with the marketing of forest-grown botanicals.

The pandemic has fueled interest in alleviating respiratory ailments and improving immune response through the use of medicinal herbs such as goldenseal and American ginseng, which are native to the Appalachian Mountains. However, loss of habitat and overharvesting have led to a decline in these species. “Harvesting medicinal herbs is a long-standing tradition in Appalachia, where scores and scores of species have been collected and sold for generations,” Munsell said. “However, by offering companies traceability and assurances of a stable supply, forest farming is 10 to 12 times more profitable than harvesting wild produce.”



Gov. Ralph Northam; Guru Ghosh, vice president for Outreach and International Affairs; and Jill Loope, Roanoke County economic development director, listen as Adam Taylor, manager of the Virginia Tech Catawba Sustainability Center, explains how herbal medicines are grown using shade canopies and forested plots of land. Photo by Lee Friesland.



Gov. Ralph Northam holds a piece of goldenseal root just dug from the forest floor where it is being grown at the Catawba Sustainability Center. Photo by Lee Friesland.

Professional skills course prepares seniors for careers

FREC faculty members **Chad Bolding**, **John Seiler**, and **Adam Coates** developed a one-hour course, Professional Skills in Natural Resources (FREC/NR 4004), as a result of participating in the Howard Hughes Medical Institute Inclusive Excellence Grant. The course aims to improve the professional skills of seniors in the fall semester of their final year as they begin the transition from student to professional.

The course complements traditional curricula that focus on teaching technical skills by placing an emphasis on often-intangible soft skills.

Topics include interacting with people, personal responsibility, excellence, diversity and inclusion, ethics and integrity, communication, employer outreach and job seeking, interviewing, leadership, time management, and teamwork. Students learn how to write an effective resume, prepare for an interview, and engage with employers at the CNRE career fair.

"I just wanted to let you know how much I enjoyed this assignment... I feel like every young professional should be required to read this, as it is extremely helpful in hitting all the key points about soft skills that we are no longer taught. I truly enjoyed engaging in this book, and even found myself relating back to what some past speakers have talked about in their lectures."

Student feedback about a reading assignment in the course

Guest speakers from academia, industry, and government provide instruction on elements of professionalism and principles of success across a wide spectrum of natural resources careers, sharing successes and failures along their career paths.

California conditions right for one of worst wildfire seasons

Intense heat and prolonged drought helped make this one of the worst wildfire seasons ever in California, according to **Adam Coates**, FREC assistant professor and an expert in forest fire ecology and management.

"Extreme heat occurring with dry conditions can intensify a lack of moisture because as ambient air temperature increases, fuels 'pre-heat.' Wind speed and direction and low relative humidity can also exacerbate these conditions," said Coates.

"Drought and extreme heat may also lessen the defense mechanisms

that trees and other vegetation might use to protect themselves from other potential disturbances, such as insects and pathogens," he said. "Over time, the vegetation may die, and, subsequently, new fuels may be added to a given location."



Photo courtesy of USDA.gov.

"In California and other areas, warm and dry conditions have been extended beyond the summer months and into autumn and early winter in some years," said Coates. "This essentially extends our wildfire season and provides increased chances for ignitions and conditions that are conducive to rapid fire spread. It also taxes the resources – the people,

equipment, money – used to suppress wildfire ignitions."

Coates maintains an active research program focused primarily on fire ecology, including fire behavior, fuels, fire effects, silviculture, and restoration ecology.

Grant awarded to study how plants affect microbiomes

A four-year \$500,000 USDA National Institute of Food and Agriculture (NIFA) grant has been awarded to a team of Virginia Tech interdisciplinary researchers to study how cover crops affect the extremely complex soil microbiome. On the team is FREC Associate Professor **Brian Strahm**, along with project leaders Brian Badgley and Jacob Barney, both in the School of Plant and Environmental Sciences.

The team is researching whether or not crop mixtures can be designed to change the microbiome indirectly with predictable outcomes and benefits. The project integrates key agricultural concepts of cover crops – the microbiome, biodiversity, yield, and soil health – to build a whole-system perspective.

The work will be carried out at Kentland Farm. The grant will fund two Ph.D. candidates during its four-year run.



The Virginia Tech team is researching whether or not crop mixtures can be designed to change soil microbiomes indirectly with predictable outcomes and benefits. Photo by Logan Wallace.

Forest Service funds upland pine grant

FREC faculty members **David Carter**, **Chad Bolding**, and **Adam Coates** were recently awarded a five-year \$275,000 grant from the USDA Forest Service to evaluate potential upland pine ecosystem restoration strategies. This collaborative study will involve FREC faculty and numerous Forest Service scientists and managers. Multiple restoration strategies, including prescribed fire and harvesting, and their subsequent ecosystem impacts, will be explored on the George Washington-Jefferson National Forest. The anticipated start date is May 2021.



This management unit, located on the Jefferson National Forest near New Castle, is an excellent example of the work that will be conducted as part of a Forest Service-Virginia Tech research collaboration. Photo by Adam Coates.

2020 Southern Graduate Student Grant awarded to Munsell

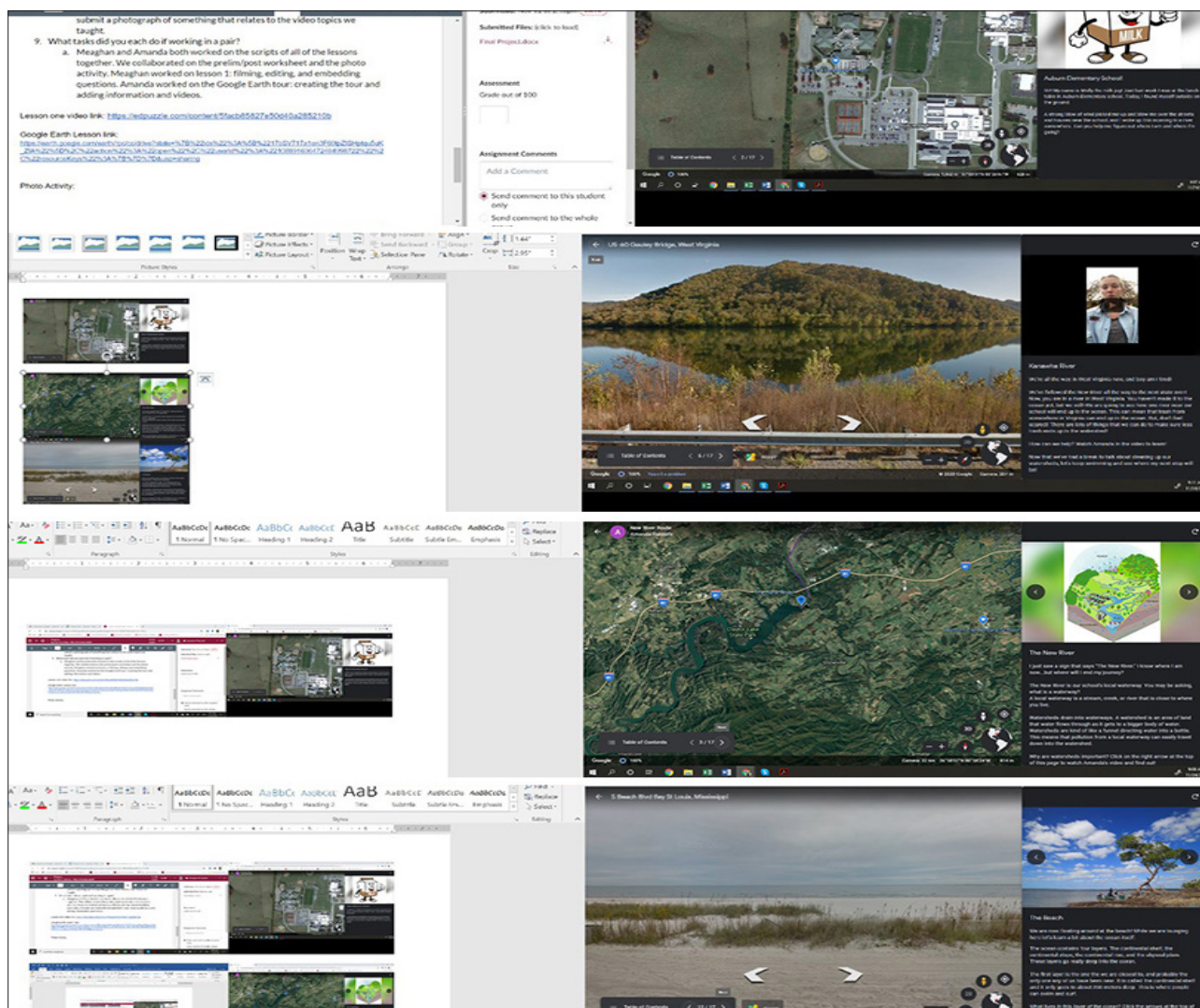
A one-year \$14,600 grant has been awarded to FREC Professor and Extension Specialist **John Munsell** and Ph.D. student Pabitra Aryal of Crop and Soil Environmental Sciences for a project entitled “Assessing Suitable Production Techniques for Ramps in Appalachia.” The 2020 Southern Graduate Student Grant is administered by the Southern Sustainable Agriculture Research and Education program of USDA NIFA.

This project will expand economic opportunities in Appalachia by developing and expanding forest farming of ramps. The team will collect ramp bulbs and seeds from five unique environments on private and public sites in Virginia and North Carolina, including USDA Forest Service lands, and compare these ecotypes for above-and-below ground productivity. They will also evaluate their response to inoculation with arbuscular mycorrhizal fungi (AMF). A regional habitat suitability map will be created for potential ramp farmers, and outreach efforts such as a field day for growers will be conducted to support the adoption of sustainable ramp production practices and increase awareness of ramp economic potential.

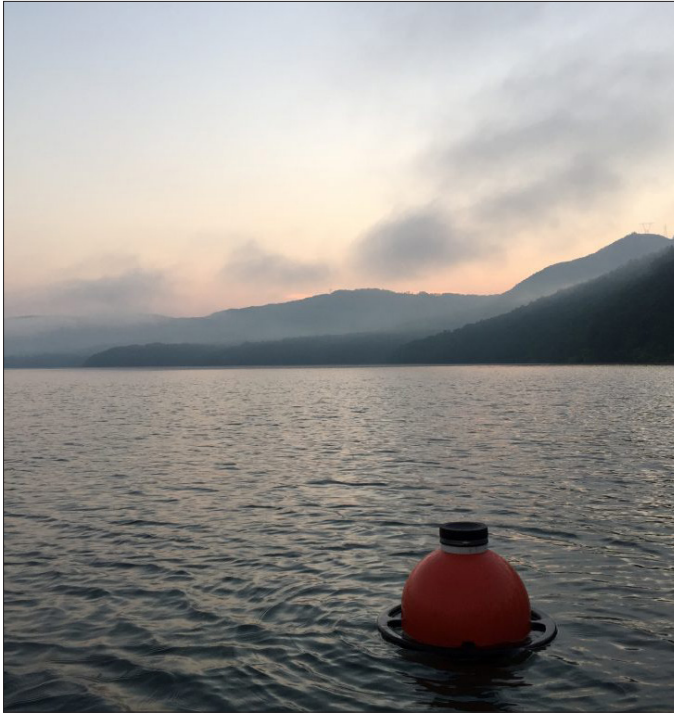
The networks involve regular meetings and the collection of data from online participants across dozens of EE organizations, who then discuss the research

Stern is also using information from these projects in his teaching. In his fall 2020 Environmental Education Service Learning course (FREC 3574), students created online EE experiences for fifth-grade students in Blacksburg, Riner, and Woodstock, and for audiences of the Southwest Virginia Wildlife Center.

The work is funded by the National Science Foundation, the North American Association for Environmental Education, the Pisces Foundation, and the National Park Foundation.



Two students in Dr. Stern's Environmental Education class—sophomore **Meaghan Looney** and (senior) **Amanda Runnels**, both natural resources conservation majors—created a virtual tour using Google Earth for students at Auburn Elementary School to demonstrate the impacts of local pollution in our waterways.



A water quality monitoring buoy on Carvins Cove Reservoir in Roanoke. This is one of the five field sites that the Virginia Tech researchers will be investigating. Photo by Cayelan Carey.

Experts forecast the health of lakes and reservoirs

The National Science Foundation has recently invested over \$1 million in the science of aquatic ecosystem forecasting and the development of an undergraduate training program in macrosystems science and ecological forecasting, led by Associate Professors **Quinn Thomas** of FREC and Cayelan Carey of Biological Sciences.

Thomas' and Carey's aquatic ecosystem forecasts 16-day water quality conditions that can be shared every day with water utilities, drinking water managers, and many other decision-makers. It deploys open-source software called Forecasting Lake and Reservoir Ecosystems (FLARE), which they developed in collaboration with Renato Figueiredo, a computer scientist at the University of Florida, and his team.

FLARE has already proven to be useful for Roanoke's drinking water utility, the Western Virginia Water Authority, at their Falling Creek Reservoir. Once a day, the authority receives a feed from 18 sensors in the reservoir, looking 16 days ahead. Managers can then be proactive about monitoring and regulating conditions like oxygen levels and temperature changes in the lake before the water gets to the treatment plant. Plans are under way to expand the project to the larger Carvins Cove Reservoir next year.

Carey and Thomas also received a grant to expand an undergraduate training program in macrosystems ecology and ecological forecasting called Macrosystems Environmental Data-Driven Inquiry & Exploration (EDDIE). Stand-alone teaching modules will analyze aquatic and terrestrial data from the National Ecological Observatory Network (NEON) and Global Lake Ecological Observatory Network (GLEON) to explore how the predictability of ecological dynamics varies among ecosystems and across different spatial scales.

"Right now, between weather forecasts and COVID-19 forecasts, I think that the public is becoming increasingly aware of the essential need to predict the dynamics of natural systems. And this work is foundational to our progress as a society," Thomas said.



\$10 million grant to foster sustainable biomass research

Chad Bolding, professor of forest operations and engineering in FREC, is a co-principal investigator on a multi-university project that will focus on the utilization of forest residues — secondary materials left behind after traditional forest products are transported to mills. The project is funded by a \$10 million competitive grant from the USDA NIFA.

The Mid-Atlantic Sustainable Biomass for Value-Added Products Consortium (MASBio) is bringing together industry partners and researchers from Virginia Tech, West Virginia University, West Virginia State University, Penn State, the State University of New York, the U.S. Forest Service's Forest Products Laboratory, and the USDA Department of Energy's Oak Ridge National Laboratory.

"My primary focus is developing cost-effective drying and processing

approaches for these residues," said Bolding. "These are low-value materials, so the margins to make them economically feasible are extremely thin." Bolding will research the practice of allowing the residues to dry on site for a period of months to reduce the transportation weight, which would allow vehicles to collect residues from more remote locations while maintaining a profit. Bolding is also working on a collaborative grant to optimize residue collection logistics.

Bolding will also examine processing the green materials on site and leaving the chipped product to dry before collecting it for transport. "We're working to find the right balance between reducing moisture content and minimizing processing challenges and associated hauling cost," he noted.

To better assess the environmental impacts of forest residue collection

and processing, Bolding will study the soil and water impacts of these varying methodologies and develop guidelines for best management practices for biomass recovery on underutilized and reclaimed land.

Bolding is also involved with the education and outreach components of the project. "In year four, Virginia Tech is scheduled to host a cohort of five to 10 undergraduates, with representatives from each of the schools," he said. "They'll have an immersive experience each summer, conducting research and working with industry partners to learn about sustainable biomass utilization."

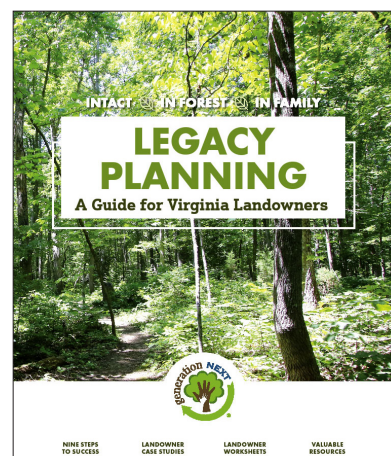
The grant will also fund outreach efforts for secondary educators, including educational toolkits and a curriculum promoting green science for fourth through sixth grade students.

Legacy Planning: A Guide for Virginia Landowners

A new resource has been developed to help Virginia families plan for the future of their forestland. "Legacy Planning: A Guide for Virginia Landowners" provides Virginia-specific support material for the Generation NEXT Legacy Planning Workshops coordinated by **Jennifer Gagnon**, FREC extension associate and Virginia Forest Landowner Education Program coordinator. The book, authored by Gagnon, Extension Forester Adam Downing, Mike Santucci of the Virginia Department of Forestry, and Extension Specialist Travis Mountain, gives woodland owners manageable steps to move through the legacy planning process.

Most woodland owners want their land to stay intact, in forest, and in the family. Unfortunately, land is most vulnerable to subdivision, land use change, and being sold out of the family when it passes from one generation to the next. With proper planning and communication, undesirable outcomes can be avoided. This new publication leads families through a nine-step process to help ensure everyone's wishes for the land are met.

The book is designed specifically for private woodland owners and natural resource professionals. The printed guides will be available in January. You can view the electronic document and marketing materials at: www.pubs.ext.vt.edu/CNRE/CNRE-121/CNRE-121.html. Please share this resource with anyone it might help.



NEON Ecological Forecasting Challenge brings collaboration

The National Ecological Observatory Network (NEON) includes 81 monitoring sites and collects open access ecological data to better understand how ecosystems across the U.S. are changing over time. The NEON Ecological Forecasting Challenge is looking to mobilize researchers and forecast answers to a complex set of ecological questions.

“Running models to predict ecological data that has yet to be collected across the U.S. is really novel, and doing it across many different fields of ecology simultaneously has never been done before,” said **Quinn Thomas**, director of the Challenge and associate professor in FREC. The Challenge highlights five different themes: aquatic ecosystems, terrestrial carbon exchange, tick populations, plant phenology, and beetle communities.

Designed and hosted by 200 contributors within the National Science Foundation-funded Ecological Forecasting Initiative Research Coordination Network (EFI-RCN), the trans-institutional Challenge will launch in 2021 and use data from NEON sites.

“From a community standpoint, the Challenge is a focal point for sharing knowledge and building a network of scientists and stakeholders engaged in the practice of ecological forecasting,” said Thomas.

Institutional stakeholders, such as the National Phenology Network and the National Oceanic and Atmospheric Administration, are partnering to refine forecasts during the Challenge and reduce the uncertainty faced when managing natural systems. Participants, whatever their experience, will have the opportunity to collectively share their forecasts, thereby improving future models.

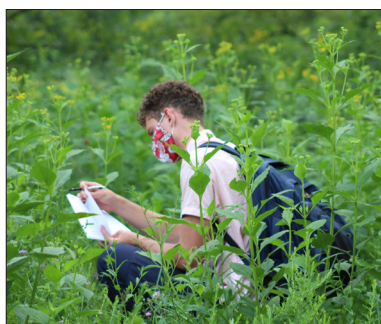
To help meet the need for education and training, Thomas will teach an ecological forecasting course in the spring, as will Michael Dietze at Boston University and Carl Boettiger at UC-Berkeley. Students in these courses will be directly participating in the Challenge.

Both undergraduate and graduate students are encouraged to join the Challenge alongside faculty, institutional researchers, and international groups. Participants can submit forecasts as individuals or teams and will be evaluated based on their forecasts’ precision and accuracy. Evaluations and data will be available in real time through an automated cyberinfrastructure.

To register for the NEON Ecological Forecasting Challenge, visit <https://ecoforecast.org/efi-rcn-forecast-challenges/>.



Abby Road, a terrestrial NEON field site located approximately 18 miles northeast of Vancouver, Washington, and situated in the western foothills of the Cascade Range in the Yacolt Burn State Forest. The site is unique in that it is a dynamically managed forest landscape. Photo courtesy of the National Ecological Observatory Network.



Students in Associate Professor **Carolyn Copenheaver's** fall 2020 Forest Ecology and Silvics lab completed exercises while following health and safety protocols.

New Blacksburg water monitoring station is up and running

A project started by **J. P. Gannon**, FREC assistant professor, has resulted in a new hydrological monitoring station on the outskirts of Blacksburg. The station allows students to monitor water outputs in an effort to assess how trail and park development affects water quality.

"This is a good opportunity for the town of Blacksburg and the university to cooperate on something that is beneficial to everyone," said Gannon, who teaches environmental informatics. "We benefit from having a nearby site where we can conduct research and help train students. For the town, they're keenly interested in how trail development is going to affect water quality in a watershed that drains into Tom's Creek."



In February 2020, J.P. Gannon, center, worked with students, left to right, Marley Gilliam, Kelly Crum, and Scott Braatz to troubleshoot the connection between the sensors and the data logger for the water monitoring station.

Three FREC students participated in most aspects of the station's construction during the spring 2020 semester. The station is currently monitoring the amount of water coming through the creek as well as its temperature, turbidity, and conductivity.

Junior **Kelly Crum** studied water flow dynamics to understand how water levels relate to landscape characteristics. **Marley Gilliam**, also a junior, researched relic coal mines in the area, attempting to remotely locate spoil piles to see if water chemistry is impacted by remnant coal. And **Scott Braatz**, a sophomore, examined the impact of trail building on water quality.

The monitoring station is located on one of two parcels purchased by the New River Land Trust, which plans to transfer the entire 552 acres to the town of Blacksburg for dedication as a park. Gannon hopes that this transfer will allow for more course-based research to take place in the future.

This project is funded by the Office of Undergraduate Research Faculty Grant Program, which aims to increase opportunities for undergraduates.

Mapping with Drones workshops offered online



The Virginia Geospatial Extension Program is hosting a series of three-day introductory-level Mapping with Drones online workshops. No prior knowledge or experience with drones is required. The workshops are targeted to natural resource professionals, planners, public safety professionals, agricultural operators, realtors, inspection teams, and educators and are being coordinated by **John McGee**, FREC professor and geospatial extension specialist, and **Daniel Cross** of the Conservation Management Institute.

The workshop curriculum includes FAA and Small Unmanned Aircraft Systems (sUAS) terminology, current federal sUAS regulations, different sUAS platforms and associated applications, and much more. At the conclusion of the workshop, participants will be prepared to take the FAA's Remote Pilot Knowledge Test (aka Part 107) and understand the steps to plan, conduct, and document a commercial sUAS operation safely and legally. They will also gain experience processing sUAS collected data.

The same curriculum will be presented during each of the following sessions:

February 23-25, 2021

March 8-10, 2021

April 27-29, 2021

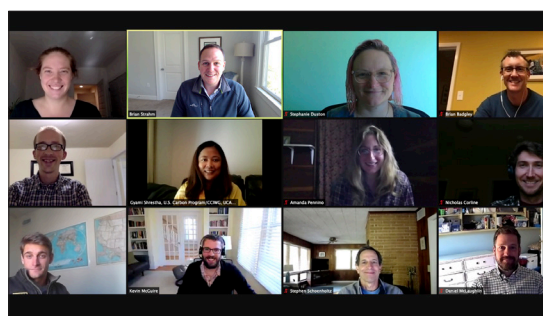
General registration for the workshop is \$150; Virginia Cooperative Extension agents are eligible for a discounted rate. Visit <https://virginiaview.cnre.vt.edu/workshops-events> for additional details and a link to register. Please register at least one month in advance in order to receive workshop materials in time.

The workshops are sponsored by the Virginia Geospatial Extension Program in partnership with Virginia Cooperative Extension, FREC and the Conservation Management Institute, VirginiaView, and the Geospatial Technician Education-Unmanned Aircraft System (GeoTEd-UAS) project team.

Faculty and grad students discuss state of carbon cycle

A group of 11 faculty and graduate students in FREC, including Associate Professor **Brian Strahm**, recently organized a semester-long discussion group around the U.S. Global Change Research Program's Second State of the Carbon Cycle Report (SOCCR2). Though the group felt like they had firm foundations in carbon cycle science as it related to their disciplines in forests, soils, and wetlands, they wanted to improve their understanding of the science in related disciplines and efforts to integrate these perspectives at the scale of the continent.

To gain this understanding, they invited Dr. Gyani Shrestha, director of the U.S. Carbon Cycle Science Program and SOCCR2 lead, to join one of their Zoom sessions. According to Strahm, "It was a great conversation that ranged from the state of the science, to the sausage-making that is synthesizing a congressionally mandated decadal report, to daily life as a federal scientist." The group, especially the students, were appreciative of Shrestha's visit and the ideas and opportunities she shared.



Special guest Dr. Gyani Shrestha, center row, second from left, joined one of the group's Zoom sessions.

Visit highlights forestry collaboration between Virginia Tech and Brazilian universities

Associate Professor Luis M.T. de Carvalho of the Federal University of Lavras (UFLA) in Brazil visited FREC in February 2020 and met with Professor **Harold Burkhart** and Assistant Professor **Stella Schons**. They discussed how to further strengthen connections as part of a collaborative agreement between Virginia Tech and UFLA, as well as the University of Campinas (UNICAMP).

“From a faculty perspective, this is an opportunity to exchange knowledge and to experience the kinds of research taking place at both universities,” Carvalho said. “For students, it’s a great chance to learn the different aspects of forestry in the two countries.”

Carvalho’s research has recently centered on land use and land cover monitoring across the main Brazilian biomes, including the development of eucalyptus plantations. In addition to eucalyptus, Brazil has had success growing loblolly pine, which is well-suited to the climate of its southern region.

UFLA is responsible for the design and implementation of Brazil’s Rural

Environmental Registry to monitor natural vegetation conservation requirements throughout the country. “We have complementary skills and data,” Schons explained. “The natural resources economics team here in FREC has collected household-level socioeconomic data since 2003 for areas of influence in eastern Amazonia.”

Schons, who is from Brazil, hopes that a separate agreement between Virginia Tech and UNICAMP will give researchers and students more opportunities to work collaboratively. She has been working closely with their Institute of Economics on conservation and development research. Schons and Associate Professor Alexandre Gori Maia presented a paper on the effects of deforestation on migration decisions in the Amazon region at the Population Association of America’s annual meeting in 2019.

Next year, Schons will teach courses on natural resource conservation and development economics at UNICAMP and forest economics at UFLA.



During a February 2020 visit, Luis M.T. de Carvalho, center, of the Federal University of Lavras in Brazil, met with Professor Harold Burkhart, left, and Assistant Professor Stella Schons to discuss collaborative efforts between their two institutions.

She hopes that the three universities will also work to develop exchange programs for undergraduate and graduate students.

Burkhart said that institutional relationships like these are central to expanding Virginia Tech’s reach in the global fields of forestry and environmental conservation. “I’m very optimistic about the future,” he said. “Virginia Tech is a global institution. Our challenge is to broaden our mission with regard to research and outreach and apply it across the world.”



Virginia's Big Tree Program balances science and community engagement



This blackhaw in Albermarle County is a national co-champion.

The formula for measuring a champion tree is deceptively simple: Add the trunk circumference (in inches) to a tree's height (in feet) and one-quarter of the tree's spread (in feet). Many of the tools required for the job are probably in your basement (100-foot tape measure, plumb bob), and many of the rest (compass, GPS receiver, rangefinder) are easy to download onto a cellphone. Brush up on some geometry and lace on a pair hiking boots and you're most of the way there.

This is as it should be, says FREC Associate Professor **Eric Wiseman**, who has coordinated the 50-year-old Virginia Big Tree Program since 2013. "We want our research to be rigorous enough to be taken seriously, but we also want the process to be simple enough so that the general public can participate in the work."

Virginia tree hunters have proven up to the challenge. According to the 2020 National Register of Champion Trees, the commonwealth has moved into first place among states in champion and co-champion trees, with 102 registered (see related story on next page).

Wiseman said that while his contributions to the state's big tree database have taken place behind the scenes, the hard work of finding and documenting big trees is accomplished by the outdoor enthusiasts and professionals who share their discoveries with him.

"I may be the point person who holds this project together," he noted, "but our success wouldn't be possible without all of the volunteers who search for trees as a hobby or as part of their profession, and the people who work in arboriculture or land management roles for state agencies or federal parks."

American Forests' efforts to document large trees dates back to 1940, but some states started tracking trees long before then. The project of measuring the maximum size and geographic distribution of trees was initially motivated by lumber industry considerations.

"You can see that history reflected in the formula we use to award points for champion trees," Wiseman said. "We give a lot of points for the trunk of the tree, but the crown spread is significantly reduced in the formula. The reason for that is because back then, the value of a tree was measured by how much board footage the trunk contained."

That priority is changing. "A lot of current interest is in the tree's growth rate and how much leaf area it has," Wiseman noted. "These are crucial metrics for ecosystem services in urban areas, because leaf area is important in filtering air pollution and intercepting storm water. And we're increasingly interested in how much carbon can be stored in trees, which makes the scaffolding of branches and the crown spread an important consideration."

Wiseman hopes that the program can be a resource for bringing environmental education to young students. "Looking for big trees involves geography, geometry, plant taxonomy, and biology, all integrated towards a specific challenge," he said. "It's a great way to get students to synthesize a lot of different cognitive skills while spending time in the outdoors."

Individuals can access the Virginia Big Tree database online to find champion trees in their neighborhoods and favorite recreation areas. American Forests offers a free downloadable handbook on how to measure big trees.

Virginia leads nation in 2020 Champion Trees

In October, American Forests released its 2020 Champion Trees National Register. Virginia led all states, with 102 trees registered as champions and co-champions. Notable additions to the 2020 national register from Virginia include:

- Alleghany serviceberry, Smyth County, 194 points
- American elm, City of Chesapeake, 391 points
- Black cherry, City of Norfolk, 314 points
- Red hickory, Caroline County, 278 points
- Southern magnolia, Sussex County, 342 points

Since 1970, the Virginia Big Tree Program (bigtree.cnre.vt.edu), coordinated by FREC Associate Professor **Eric Wiseman**, has promoted forest conservation and stewardship through collaboration with the Virginia Forestry Association, Virginia Cooperative Extension, and Virginia Department of Forestry. The Virginia Big Tree Register is maintained by FREC, with support from Trees Virginia. Big tree nominations are accepted year-round from the public using an online nomination form. Assistance with measuring and scoring big trees is available through a network of program volunteers.

Established in 1940, the Champion Trees National Register curates the largest specimens of nearly 600 native and naturalized tree species found in the United States. The 2020 register (americanforests.org) recognizes 654 trees as national champions or co-champions. Nominations for champion trees are accepted from anyone in the general public and are vetted annually by state big tree coordinators affiliated with forestry agencies and universities.



Alleghany serviceberry, Smyth County, 194 points.



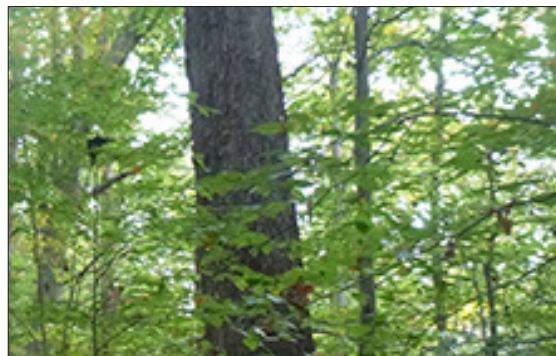
American elm, City of Chesapeake, 391 points. (pre-2020 photo).



Black cherry, City of Norfolk, 314 points.



Southern magnolia, Sussex County, 342 points.



Red hickory, Caroline County, 278 points.

New grants will expand forest farming in Appalachian woodlands and beyond



A bed of goldenseal in a forest farm in Princeton, West Virginia. Photo by Catherine Bukowski.

Two new USDA grants will benefit the Appalachian Beginning Forest Farmer Coalition (ABFFC) by streamlining the cultivation and harvesting of medicinal plants and fungi in the region so more landowners, farmers, and wild harvesters can add value to their enterprises.

According to FREC Associate Professor and Extension Specialist **John Munsell**, who leads the coalition and is principal investigator on the grants, there are scores of edible, medicinal, and decorative Appalachian species with longstanding informal markets. Forest farming is an agroforestry practice in which selections of plants, fungi, and specific tree species are intentionally grown under a well-managed tree canopy and intentionally stewarded to sustain production.

The ABFFC formed in 2015 with a \$656,000 grant from the USDA National Institute of Food and Agriculture (NIFA), which recently awarded the coalition \$593,000 in renewal funding to build on its work. The USDA National Agroforestry Center followed up with a separate grant to take the efforts to the national level.

“We have over 1,000 members in our coalition, including forest farmers, federal and state agencies, nongovernment organizations, researchers, and educators,” said Munsell. “These new grants will help the coalition expand the practice of forest farming in Appalachia and ultimately nationwide.”

Munsell hopes that American forest farmers can develop a strong reputation in the global market. “The businesses that depend upon these products have grown into a multibillion-dollar global industry, and what we see now is that some companies are willing to pay more for raw materials that have a known point of origin, assurances of stewardship, and an identifiable person, community, and forest behind it all.”

The coalition also seeks to broaden agroforestry possibilities in Appalachia through an extensive education, outreach, and market connections program, which provides training and mentorship for farmers new to the field, and helps them establish operations and cultivate crops.



SPOTLIGHT: FACULTY, STAFF, AND STUDENTS

Schoenholtz receives Outstanding Alumni Award



Stephen H. Schoenholtz

Stephen H. Schoenholtz, director of the Virginia Water Resources Research Center (VWRRC) and professor of forest hydrology and soils in FREC, has been honored with an Outstanding Alumni Award from the Penn State Forest Resources Alumni Group.

Schoenholtz graduated from Penn State in 1979 with B.S. degrees in forest science and biology. He then came to Virginia Tech and earned an M.S. degree in forest biology in 1983 and a Ph.D. in forest soils in 1990.

Schoenholtz began his faculty career at Mississippi State University in 1990. From there he relocated to Oregon State University until 2006, when he returned to Virginia Tech to start his present position. He was a Visiting Senior Research Fellow at the New Zealand Forest Research Institute in 1998.

As VWRRC director, Schoenholtz oversees a federally and state-funded center whose mission is to facilitate collaborative research, extension, and education programs to develop solutions to water resource challenges. His research and teaching programs focus on interactions between land management and water and soil resources.

The Penn State Forest Resources Outstanding Alumni Awards recognize outstanding alumni and foster closer relationships between award recipients and students, faculty, staff, and other alumni.

Sartori offered fellowship

FREC master's student **Pedro Sartori** has been offered a fellowship for field work in Brazil by the International Tropical Timber Organization (ITTO), an intergovernmental organization that promotes the sustainable conservation and management of tropical forests.

Sartori's approved proposal is the first result of a new partnership between FREC Assistant Professor **Stella Schons'** team and the Luis de Queiroz College of Agriculture, University of São Paulo (EsALQ-USP), through Dr. Pedro Brancalion. The fellowship will fund Sartori's field work in summer 2021, when he will be joining Brancalion's team, focusing on the economic and financial aspects of forest restoration using exotic species as pioneers in the Brazilian Atlantic rain forest.

Sartori graduated from his master's program in December 2020, but is staying on at FREC as a Ph.D. student.



Pedro Sartori

Seiler reappointed as Alumni Distinguished Professor

John Seiler, The Hon. and Mrs. Shelton H. Short Jr. Professor of Forestry in FREC, has been recognized as an embodiment of Virginia Tech's land-grant mission through his recent reappointment as Alumni Distinguished Professor. Faculty members receiving this decade-long appointment demonstrate extraordinary accomplishments and academic citizenship through substantive scholarly contributions in teaching, research, and engagement.

When Seiler was asked to speak at the fall 2019 university commencement, he described it as "possibly the highlight of my teaching career," but he has touched the academic lives of countless individuals during his career at Virginia Tech. "I have been blessed and very fortunate to be a part of making CNRE the number one program in the nation. I have constantly been surrounded by a great team of people," he said.



John Seiler

Seiler has received a long list of teaching awards at the college, university, state, national, and international levels. He is an expert in tree ecophysiology and has authored more than 115 refereed articles. The free vTree app he co-developed has become one of the most widely downloaded tree identification tools on the market. To students, alumni, and the public, Seiler is affectionately known as "Dr. Dendro."

He was one of an unprecedented team of 50 scientists, educators, and extension professionals who worked on the Pine Integrated Network: Education, Mitigation, and Adaptation Project (PINEMAP), which focused on planted pine forests in the Southeast, and he served as principal investigator for both the education and the silviculture and ecophysiology disciplinary groups.

Seiler assists with implementation of the Next Generation Scholars Program and serves as department lead for the Howard Hughes Medical Institute's Inclusive Excellence Program, both of which aim to increase the success of women and other underrepresented groups in forest management.

Seiler earned his bachelor's and master's degrees from Penn State and his doctorate from Virginia Tech.



Appalachian Beginning Forest Farmer Coalition wins Herbal Insight Award

The Appalachian Beginning Forest Farmer Coalition (ABFFC) was named winner of the 2020 Herbal Insight Award, which is given by the American Herbal Product Association (AHPA) to organizations that have made significant contributions to the continued success of the herbal products industry. **John**

Munsell, professor and extension specialist in FREC, founded the ABFFC in 2015 and continues to lead the ever-growing network of forest farmers, forestland owners, universities, and governmental and nongovernmental organizations.

The ABFFC's collective aim is to use education and relationship building to increase awareness of nontimber forest products (NTFPs), such as medicinal and edible plants and other products, and to support conservation efforts through stewardship of existing plant populations and forest farming of these native botanicals.

"ABFFC assists beginning forest farmers in navigating the production, processing, and marketing of forest-farmed medicinal plants in the Appalachian region," said Holly Chittum, project scientist at the AHPA, who nominated the coalition for the award.



A bed of goldenseal in a forest farm in Princeton, West Virginia. Photo by Catherine Bukowski.



In March 2019, John Munsell, right, and volunteer Jessie Sakach plant rootlets of ramps, a type of wild onion, at Virginia Tech's Catawba Sustainability Center.

Upon hearing of the award, Munsell noted, "The AHPA is North America's premier professional society for NTFP-dependent companies with expansive global supply chains. That the coalition's efforts in Appalachia were recognized in this way reflects the hard work, partnerships, and accomplishments among a diverse range of regional stakeholders."

Many exciting new ABFFC initiatives are underway. For example, the coalition is

developing the American Forest Farming Council (AFFC), a permanent professional council that resembles other professional societies and associations with subcommittees focused on topics such as science and technology, external advocacy, and member services. The ABFFC is in the process of designing a Point-of-Harvest (PoH) training and market development program for wild harvesters of NTFPs.

ABFFC partners include Appalachian Sustainable Development, Rural Action, The Yew Mountain Center, American Botanical Council, Organic Growers School, United Plant Savers, Virginia Tech, North Carolina State University, Penn State, and Warren Wilson College. Support for the ABFFC has been provided by the USDA National Institute of Food and Agriculture.

Graduate Affairs Committee recognizes students



Garret Dettmann (pre-2020 photo)

The FREC Graduate Affairs Committee would like to thank all of our graduate students for the excellent work they do day in and day out. We know this has been a challenging year, and on behalf of the faculty, we would like to say “thank you.”

We also congratulate the 2020 outstanding FREC graduate students. We received a number of nominations, and every student was deserving of recognition. This year’s graduate student awardees were:

- **Garret Dettmann**, Outstanding Teaching Assistant
- **Stephanie Duston**, Outstanding Master’s Student
- **Corey Green**, Outstanding Ph.D. Student



Stephanie Duston (pre-2020 photo)

Green was also recognized as CNRE’s A.B. Massey Outstanding Ph.D. Student. CNRE planned to recognize this group of students at the Spring CNRE Awards Banquet, but since that did not take place this year, we recognize them now.

Congratulations to all!



Corey Green

Copenheaver wins university teaching award

The 2020 Virginia Tech Alumni Award for Teaching Excellence was given to FREC Associate Professor **Carolyn A. Copenheaver**, who has been with the department for two decades. She was also recently recognized as the 2020 recipient of the Certificate of Teaching from CNRE. Copenheaver’s courses offer students the opportunity to work in outdoor settings, think critically, work in teams, and communicate effectively. In 2018, she was the first female to receive the Carl Alwin Schenck Award from the Society of American Foresters for her outstanding educational contributions.

Sponsored by the Virginia Tech Alumni Association, the Alumni Awards for Excellence are awarded to faculty and staff annually who exhibit excellence and dedication in their respective fields.



Carolyn Copenheaver

Water Center interns forge ahead to research environmental justice



In February 2020, interns Nizhoni Tallas, left, and Ross Cooper attended a national meeting of water institute leaders in Washington, D.C., with faculty and staff of the Virginia Water Resources Research Center. Photo by Stephen Schoenholtz.

Nizhoni Tallas and **Ross Cooper**, 2020 interns at the Virginia Water Resources Research Center (VWRRC) in FREC, connected with faculty and staff virtually to complete projects that explore the ways in which water informs issues of environmental justice. The internship program aims to provide undergraduate students across the university the chance to focus on a specific research question or outreach project related to water and to further the water center's mandate to disseminate new information about water issues pertinent to Virginia.

"Our students can design the internship to align with their interests," explained **Stephen Schoenholtz**, VWRRC director. "Some students are interested in the biophysical side of water, while others prefer to focus on the policy and human dimensions aspects of water."

Junior natural resources conservation major Tallas is a member of the Diné tribe and grew up in northeastern Arizona. The internship gave her the chance to reach out to Virginia's tribal communities and talk to them about water issues. Tallas, who received a 2019 Udall Scholarship in tribal policy, said, "My objective was to create a booklet of these communities to help build a connection between those groups and the students and faculty here at Virginia Tech."

Cooper's internship project focused on bodies of water that are deemed polluted according to water quality standards and the ways that socioeconomic measures could potentially influence cleanup strategies. His project looked at the disparities in income and environmental quality within the James River Basin. After graduation, he hopes to work with Virginia municipalities or in the nonprofit sector before starting graduate school.

A highlight for water center interns is the opportunity to visit Washington, D.C., to meet with other water researchers and policymakers while participating in the annual meeting of water institute leaders from across America.

Students interested in applying for internships with VWRRC can find more information at www.vwrrec.vt.edu/fellowships-assistantships/internship-program.



Next Generation Scholars Program increases diversity in forestry and environmental fields

The Next Generation Scholars Program is providing significant financial support to underrepresented students majoring in forestry and environmental resources management. The program was spearheaded by FREC Associate Professor **Carolyn Copenheaver**, Professor **John Seiler**, and Assistant Professor **Adam Coates**.



Emily Barrett Cook, right, pictured during a field lab in fall 2018, was the first recipient of the College of Natural Resources and Environment's Next Generation Scholarship.

The program, funded through the USDA Higher Education Multicultural Scholars Program, provides students with a \$6,500 scholarship in their senior, junior, and sometimes sophomore years, with additional funds available for professional development or summer research work.

"The goal of the program is to increase diversity at the undergraduate level, in part so that we can potentially have more diversity in the pool of graduate students pursuing careers in forestry or natural resources," Copenheaver explained. "I think the CNRE is a

welcoming place, and if students can find us, they are happy here. But there is a challenge of role models, of finding people who will keep an eye out for you and be aware of what experiences and backgrounds a student might be bringing in and how those might differ from one person to another."

For **Emily Barrett Cook**, a 2020 forestry graduate who was the program's first recipient, a career in forestry wasn't on her radar. "I came to Virginia Tech as a biochemistry major," she says, "but as a first-generation student, I was really lost in the whole process and quickly realized it wasn't a fit for me. I heard about the forest resource management concentration and jumped in, and I've loved it ever since. I saw that there were a lot more women in the class following mine, and even more in the one following that. It seems like the field is really changing, and I feel fortunate to be part of that change."

"This scholarship has impacted my life significantly, as money was something I was worried about in college," said **Heaven Aziz**, a senior studying environmental resources management. "But beyond that, it made me realize that there are people at the college looking out for me who are willing to go out on a limb for me. I'm so much more comfortable with my professors in CNRE, and that's translated to my interactions with other professors."



Heaven Aziz

Cydney Chambers' Next Generation Scholarship gave her the opportunity to spend the past summer conducting historical forest ecology research under Copenheaver's supervision. "When you realize that your major is comprised of people who aren't like you, it can feel intimidating to try to convey your knowledge and demonstrate expertise," she said. "With this scholarship, I've gained a confidence that I'll need to succeed in this field."

Copenheaver said that a highlight of the scholarship program is the strong mentorships that develop between faculty and students. "One of the aspects I've most enjoyed about this program is that we form strong

(continued on page 24)



Cydney Chambers

Brittany Christensen named 2020 Outstanding Senior in CNRE

For FREC environmental resource management major **Brittany Christensen**, a passion for the environment led to a commitment to restoring natural spaces for everyone to access. Her efforts to understand and participate in restoration challenges and her commitment to helping people access natural environments led to her selection as CNRE's 2020 Outstanding Senior.

"Brittany, quite simply, exemplifies an outstanding student and is very deserving of this award," said **John Seiler**, FREC Alumni Distinguished Professor. "She has a strong academic record and has been involved in numerous extracurricular activities and volunteer work, ranging from beekeeping to the restoration of Stroubles Creek."

Among Christensen's efforts were two summers as a volunteer at the Back Bay National Wildlife Refuge in Virginia Beach, her home town. She served first as an environmental education instructor for school groups, and then returned the next year to help map invasive plant species with GPS technology.

"The wildlife director had a program for invasive species mapping, and by that time I had taken dendrology and had worked in the Hahn Horticultural Garden on campus for a year, so I was already practiced in species identification," said Christensen, who has dual minors in urban forestry and watershed management.

Christensen went on to secure a role as a research assistant to then-FREC Associate Professor Susan Day, helping to collect ground data around Blacksburg for a



Brittany Christensen

research project on urban forest hydrology typologies, while also assisting on a project focused on urban soil remediation.

"We were going out into the field and measuring different dimensions of ground cover contingencies and then seeing if we could link that with aerial photography data," she explained.

More recently, Christensen was involved in the Virginia Big Tree Program, which maintains a register of the largest specimens of each tree species in the state and is coordinated by FREC Associate Professor **Eric Wiseman**.

After graduation, Christensen hoped to find work in restoration and conservation efforts to gain real-world experience in the field before starting an advanced degree. "Ultimately, I'd like to be able to give back in some way and help make sure that everyone has access to natural spaces."

Next Generation Scholars Program increases diversity in forestry and environmental fields *(continued from page 23)*

bonds with the students who are selected. It's great to work with them and see them make strides in their knowledge and confidence," she noted.

To help reach a new generation of future students, the scholarship recipients take a service-learning course taught by Seiler to learn how to effectively communicate science to a broad audience. They then develop presentations about their major and share them with area middle and high schools.

ALUMNI NEWS

Commemorative trees planted each spring

Each spring a tree is planted on the Virginia Tech campus to commemorate the graduation of undergraduate students from CNRE's four academic departments. During the planting ceremony, a symbolic item from each department is placed into the tree planting hole, and students pitch in to plant the tree.

FREC faculty lead the sourcing of the commemorative tree each year, selecting a species having cultural or ecological significance to American rural and urban forests. **John Seiler**, Alumni Distinguished Professor, has been involved with tree selection and sourcing almost every year since the plantings began. Associate Professor **Eric Wiseman** has joined Seiler in recent years. In fall 2018, Wiseman led a group of undergraduate students to create a website for the trees. All 20 living commemorative trees on campus now have a plaque next to them with the tree name, year, and a QR code that links to the profile page for each tree on PlantsMap.

The 2020 tree, a scarlet oak, was planted by Seiler and Wiseman, without a ceremony. The entry for the 2020 tree is www.plantsmap.com/organizations/25261/plants/90916.

Alumni are encouraged to send in photos or stories about their experiences with planting the commemorative trees at www.plantsmap.com/organizations/25261/collections/33343.



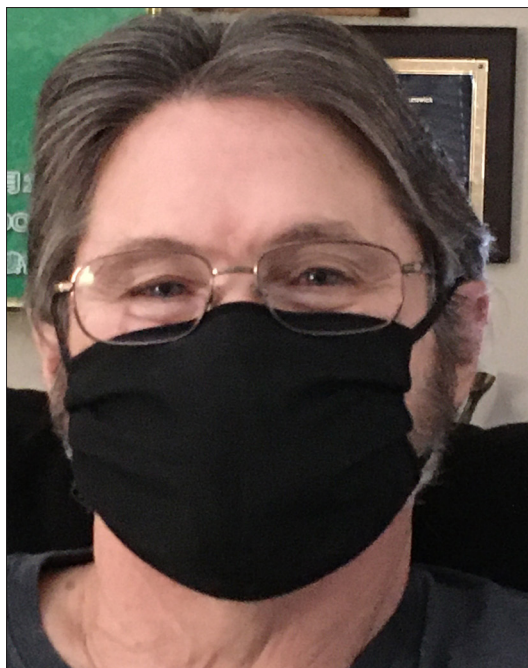
Class of 2020 scarlet oak between Cheatham and Fralin halls.



Class of 2020 scarlet oak plaque.



Green receives Lifetime Achievement Award



Edwin J. Green

Edwin J. Green (Ph.D., 1981) is the recipient of the 2020 Graduates of Distinction Lifetime Achievement Award from the SUNY College of Environmental Science and Forestry. He received his bachelor's and master's degrees from SUNY-ESF in 1976 and 1979, respectively.

Since receiving his 1981 doctorate under the direction of Professor Harold Burkhart, Green has been on the faculty at Rutgers University, where he presently is a professor of natural resource biometrics. During his career, he has had a great impact on the biometrics field with his work on Bayesian inference in forestry and is author or co-author of over 75 peer-reviewed journal articles. Green is a Fellow in both the Society of American Foresters and the American Statistical Association, has served as editor of *Forest Science*, and has worked with many graduate and undergraduate students.

The SUNY-ESF Graduates of Distinction Awards are presented to those whose accomplishments are pioneering, whose work has positively affected society, and who are inspirational to students and fellow alumni.

GRADUATE STUDENTS: CONGRATULATIONS AND WELCOME!

2020 graduates

Adam Beck - M.S. (Dr. Kelly Cobourn)

Sarah Coffey - M.S. (Dr. John Munsell)

Jonah Fielding - M.F. (Drs. Mike Aust and Chad Bolding)

Maddy Grupper - M.S. (Dr. Mike Sorice)

Adam McClure - M.S. (Dr. Adam Coates)

La'Portia Perkins - M.S. (Dr. Adam Coates)

Jason Sprouls - M.F. (Dr. Eric Wiseman)

Jason Steele - Ph.D. (Drs. Mike Aust and John Seiler)

Clay Word - M.S. (Dr. Daniel McLaughlin)

New graduate students

Emily Barrett Cook - M.F. (Dr. Chad Bolding)

Nick Corline - Ph.D. (Dr. Daniel McLaughlin)

Nick Link - M.S. (Dr. Daniel McLaughlin)

Ben Miller - M.S. (Drs. Randy Wynne and Valerie Thomas)

Tommy Phannareth - Ph.D. (Dr. Jason Holliday)

Tyler Weiglein - Ph.D. (Dr. Brian Strahm)

Forestry newsletter is published twice a year, summer and winter, by the Virginia Tech Department of Forest Resources and Environmental Conservation

Newsletter designer and coordinator: Tracey Sherman

Newsletter editors: Kathryn Hollandsworth and Helen Thompson

Newsletter photos and core stories: FREC faculty and CNRE/VT/Public news releases

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