Investigating attitudes toward short-term vacation rentals

New program addresses needs of urban tree canopies

HEROES IN A HALF SHELL

AND OTHER TALES OF THE POWERFUL WAYS ALUMNI HELP SPECIES THRIVE
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“When this first got going, I was working with open-source technology to try and figure out how the technology could benefit us in forest management because the shortcomings using planes and satellites were obvious.”

STEPHEN LOGAN
Page 20

“This approach involves no genetic engineering or even hybrid breeding.”

SCOTT MERKLE
Page 7

“I was able to ... go dip netting with cottonmouths, process a coyote and other animals and see the infamous Stumpy the radioactive alligator.”

KAYLA CLAIBORNE
Page 10

“This study has major implications for regulations and management practices in the future.”

KAMAL GANDHI
Page 14

Bird’s-eye view
Unmanned aerial vehicles are making the lives of landowners and foresters easier by calculating harvested area, confirming protection of wetlands in relation to harvest areas or even identifying potential beetle damage before it’s visible. PAGE 20

Acting neighborly
known as Airbnb, VRBO or HomeAway, short-term vacation rentals can have polarizing effects in communities. But attitudes can change, even block by block or neighborhood by neighborhood, according to research by a Warnell alumna. PAGE 22

Saving a species
Whether it’s the humpback chub population in the Colorado River or mountain gorillas in the Democratic Republic of Congo, the balancing act alumni face often has more to do with human effects on the ecosystem than other animals or Mother Nature. PAGE 28

Adapting to change
A new degree program in community forestry and arboriculture at Warnell is an opportunity for students who have a passion for the outdoors and want to contribute to improving their neighborhood or community. PAGE 36
National Recognition, Plans for the Future

“To teach, to serve and to inquire into the nature of things” is our well-known motto of the University of Georgia. I’m delighted to share that two of our service activities received national recognition this fall. Our Warnell Outreach program received the National Woodland Owners Association Family Forests Education Award as the country’s outstanding forestry and natural resources extension group. This is their fourth time in 20 years to earn this recognition. Also, Warnell staff member and SFI coordinator Chase Cook and the Georgia State Implementation Committee (SIC) received the Sustainable Forestry Initiative National SIC Award for 2019, their second such recognition.

During Homecoming events we recognized Brad Southern (BSFR ’82, MFR ’84) as our Distinguished Alumnus. Brad is CEO of LP Building Products in Nashville and was recognized earlier this year as forest products CEO of the Year. Our Distinguished Young Alumnus is Dr. Michael Cherry (BSFR ’10, PhD ’14), who is moving from Virginia Tech to accept the Kleberg Professorship at Texas A&M-Kingsville. We also recognized Brittany Barnes, Andy McLendon, and Suzanne Tate with Alumni Staff Awards. They each serve our school so well.

Perhaps most importantly for the future, this year we will write a new strategic plan to guide us through 2025. Our school plan will support the University goals adopted this fall in each of our mission areas: teaching, research and service. We are reaching out to our alumni, employers and supporters as we work to complete our draft plan by April 1. We welcome your input and ask for your assistance when we contact you.

Thanks for all you do to help keep our programs among the very best anywhere.

Go Dawgs,

Dale Greene,
Dean
Student Ambassadors take part in a team-building exercise before the start of the fall semester. PAGE 9
Daniel Markewitz stands in front of 11-year-old trees of Schizolobium amazonicum and Parkia multijunga planted by Aaron Joslin (MS ’07, PHD ’18) and recently retired professor Larry Morris. He hopes to let these trees grow through another food crop rotation in this unique agroforestry system.

**Studying soils in the Amazon**

Professor Daniel Markewitz spent two months last year in Manaus, Brazil, as part of a Fulbright Scholarship. His work takes him to the shores of the Amazon River, where he will work with Rita Mesquita (PHD ’86) at Brazil’s INPA organization to investigate soil diversity in relation to tree diversity and agroforestry management.

“There is a lot of interest in understanding how nitrogen-fixing trees affect soil nitrogen both in native forests and in managed agroforestry systems,” says Markewitz. “We often think of red clay soils in Georgia and the tropics as being infertile, but rates of tree growth can be quite impressive. So we want to understand how do soils supply the essential plant nutrients for rapid growth.”

While in Brazil, Markewitz shared advanced analytical techniques using near-infrared spectroscopy, which he hopes will allow him to measure soil nutrients with high spatial resolution so he can map soil diversity on top of existing maps of stand-level tree diversity. He will return this summer with students, and he hopes to use the experience as an opportunity to lead future UGA trips in the Amazon.

Markewitz has more than 20 years of experience researching agroforestry systems in Brazil.
The Big Idea

Warnell hosted the first-ever Forest Innovation Reviews event, or FIRz, last fall. It featured a day of short TED-style presentations, all aimed at solving challenges in the forestry industry. The winning presentation received $10,000 toward their project—and Warnell’s own Scott Merkle was crowned the champion! His proposal would connect remaining ash trees to researchers via an app, with the help of citizen scientists across the country.

“The combination of these groups working together could result in pest- and pathogen-resistant trees for landowners and others to plant in a relatively short amount of time,” says Merkle. “This approach involves no genetic engineering or even hybrid breeding. Instead, it uses the genes that our native trees already possess, but greatly accelerates the repopulation of the species using conventional breeding, plant propagation and planting.”

“This award is a much-appreciated nod to the collective work of SFI-certified mills and landowners, state agencies and our supporting organizations. To be recognized among our peers across the U.S. and Canada is both humbling and gratifying for us.”

CHASE COOK, program coordinator for the Georgia SFI Implementation Committee, after receiving the Implementation Committee Achievement Award from the Sustainable Forestry Initiative

To watch the presentation, visit bit.ly/FIRz-Merkle

Awesome Editing

C. Rhett Jackson and co-author Julian Klaus received a Water Resources Research Editors’ Choice Award. This award is given to about 1% of published articles in any calendar year and is given for articles published the previous year. Jackson and Klaus received the award for their paper, “Interflow is not binary: A continuous shallow perched layer does not imply continuous connectivity.”

Jackson was also honored by AGU Publications as an outstanding reviewer. He was cited by Martyn Clark for his work in the journal Water Resources Research.
Chuck Bargeron was recently appointed co-director of the Center for Invasive Species and Ecosystem Health. Located on the UGA Tifton Campus, the center is a collaboration between Warnell and the College of Agriculture and Environmental Sciences. The center’s 10 staff members are a mix of biologists and software engineers, and their work is primarily supported by external grants, cooperative agreements and contracts. Together, they develop educational products such as national plant databases, websites and apps.

Rewarded for Working with Landowners

Warnell’s outreach programs were honored with the Comprehensive Family Forest Education Award last fall, which recognizes the innovative and comprehensive work our outreach faculty do with family-owned forestland.

The award is presented to educational institutions deemed to have delivered the most effective education program to benefit family forest owners over the past five years. This is the fourth time Warnell has received the Family Forests Education Award, which is jointly awarded by the National Association of University Forest Resources Programs and the National Woodland Owners Association. It began in 1997; Warnell received the award in 1998, 2001 and 2013.

“We are extremely proud to receive this recognition, which reflects the hard work and dedication of our outreach faculty and staff.” DALE GREENE, dean

Fellow Honors

CECIL JENNINGS was named a 2019 Fellow of the American Fisheries Society. Jennings is USGS Georgia Cooperative Fish and Wildlife Unit leader and adjunct professor.

Professor KARL MILLER, one of the country’s top deer researchers, received the Jenkins-Crockford-Hayes Wildlife Conservation Award, which honors wildlife professionals who have made significant impacts over their careers in areas including research and management techniques.

JIM BEASLEY, an associate professor of wildlife ecology and management, was named an Early Career Fellow by the Ecological Society of America.

Professor MIKE MENGAK received the Professional Award from the Berryman Institute. The award recognizes Mengak’s work and expertise in educating landowners on invasive species, including feral hogs.
The 2019–2020 Student Ambassadors stand for a photo outside Building 2.

The Next Generation of Leaders

Warnell’s Student Ambassador program continues to grow, providing students with leadership training, networking and the chance to represent Warnell at events and activities throughout the year.

This year’s group kicked off with a team-building retreat that included group activities and opportunities to get to know each other better, then wrapped up with a service project.

The 26 ambassadors play a large role in Experience UGA, a Clarke County program that brings local school-children to campus, as well as Warnell events throughout the year. The next time you’re at Warnell for an event, be sure to thank the students helping out—they are our rising stars and the future of Warnell.

Ambassadors connected at a retreat to build their friendships.

Make Room for Warnell

Every year, UGA’s Office of Student Affairs asks schools and colleges on campus to decorate a dorm room. It’s a friendly competition of sorts, with each unit pulling out all the stops to impress incoming students who are visiting residence halls as part of UGA orientation.

This past summer, Warnell’s room did not disappoint—it was decked out with a sleeping bag, lots of plants and even a stuffed bear!

‘I chose Parks, Recreation, and Tourism Management because of my love for the outdoors. Throughout my life, I have been shaped by many outdoorsmen into the person I am today. I hope to give that same guidance to others throughout my career.’

HANNAH LOUISE YOUNG (BSFR ’20)
This past summer, I took a Maymester course, Field and Molecular Techniques, taught by Drs. Jim Beasley and Guha Dhar-marajan. Before transferring to UGA last spring, I only had domestic equine-related experience and was worried about transitioning to a wildlife major. Luckily, this class was an easy and perfect segue.

To give you an idea of how the month of May was spent, here’s a brief overview: Every morning, I woke up to the sounds of birds and herps chirping, clicking and every other onomatopoeia you could think of. I’d drive, often munching on a Pop-Tart for breakfast, to the Savannah River Ecology Lab where I’d spend the entire day (usually half inside and half outside) learning molecular processes as well as field techniques such as chemical immobilization and handling.

The class was an engaging way to start the beginning of my Warnellian journey. I was able to watch the red-cockaded woodpecker banding process, anesthetize a piglet, view a pregnant possum and see inside her pouch, go dip netting with cottonmouths, process a coyote and other animals and see the infamous Stumpy the radioactive alligator. I also learned how to shoot dart guns, set up scent stations and use telemetry devices. These are things I’d never imagined being able to do so soon in my academic career. It’s such an amazing way to make friends and connections that will last a lifetime.

Claiborne is a junior wildlife studies major who also serves as a Warnell Student Ambassador. Read more thoughts from Warnell Student Ambassadors at warnellblog.wordpress.com.
For my research, I worked in north-east Mexico with an endangered species of pollinating bat, the Mexican long-nosed bat, which pollinate the agave plants that produce tequila. I’m working with local communities to figure out how we can do bat conservation that supports the species but also supports the people and their livelihoods.

I’ve been going out and doing foraging studies of the bats, using infrared cameras and watching the bats feeding on the agaves to try and figure out what they prefer—do they like taller agave or higher densities of plants or areas with more flowering agave? We can use this information to target our management strategies to fit those preferences. We also want to incorporate bat conservation into local peoples’ livelihoods in a way that doesn’t negatively affect them.

I had my first introduction to bats when I was in the sixth grade, when I built some bat houses for my Girl Scout Silver Award project. I’ve always really loved animals, and going into college I said I wanted to be a wildlife vet. But I got my start in bat conservation as an undergrad when I assisted with a graduate student’s bat research project in Texas. That’s when I fell in love with bat conservation and I said, yes, this is what I want to do for the rest of my life.

Kristen Lear is a doctoral candidate in the Integrative Conservation PhD program.
Circling in on deer collar issues

Along with tracking adult deer, researchers would also like to understand more about a fawn’s movements. Deer collars are one approach. While technology is advancing, GPS collars that expand as a fawn grows still have significant limitations, according to research done by master’s student Zach Wesner. Here are a few of his findings.

“We want to get better collars before we deploy them.”

ZACH WESNER, MFR student studying issues with expandable GPS collars

A hurricane’s effects on a prehistoric fish

After Hurricane Michael passed over Florida’s Panhandle in 2018, the Apalachicola River experienced a drop in oxygen levels. While it affected a range of aquatic species, sturgeon were hit hard by the change.

Among adult sturgeon tagged with acoustic transmitters by master’s student Brendan Dula, 46% died as a result of low oxygen levels and habitat loss after the storm. Those that survived, he says, migrated out to the Gulf of Mexico earlier than usual.

Dula is part of a Warnell team that has been studying sturgeon in the Apalachicola for the past six years.

What’s still unclear, though, is the effect the storm had on young fish. Typically, the first year of a sturgeon’s life is the most dangerous, so upcoming samples may determine how well they fared. “Younger fish were definitely in the river when the storm hit,” he said. “Now, we’re looking at what we had this year, which is a slightly higher number than last year—so, it didn’t kill off all of them.”
A first-of-its-kind study looking at predators and prey has revealed a new dimension in the relationship.

The study, which investigated the interactions among cougar, elk and wolves in Yellowstone National Park, incorporates time and space to illustrate how prey do more than simply avoid the area where their predators hunt—and, at times, they even go to areas where other predators hunt them.

Before this study, it was unclear how elk navigated the landscape, says Michel Kohl, assistant professor and lead author of the paper. “When most people think about predators

and prey, they think, when predators are here, the prey should go somewhere else; this was the original ‘landscape of fear’ idea,” says Kohl. “But Yellowstone is a predator-rich system, so what do you do in that situation where you can’t go anywhere else?”

Apparently, according to data collected by Kohl and his study co-authors, you move to new locations depending on the time of day.

“Cougars hunted mainly in forested, rugged areas at night, whereas wolves hunted mainly in grassy, flat areas during morning and at dusk,” says Kohl. “Elk were able to sidestep both cougars and wolves by selecting for areas outside these high-risk places and times by using the forested, rugged areas during daylight when cougars were resting, and the grassy, flat areas at night when wolves were snoozing.”

A Good Hunting Companion

Finding a breed that complements your personality is important, but it’s also the memories that you make with a dog. I go somewhere every year, and without the dedication of knowing my dog was bred to do this, sometimes it might be easy to say, ‘Oh, no, it’s not worth the effort to drive 20 hours overnight to Michigan’ if I didn’t have a hunting dog. But dogs can give you a different avenue to explore the outdoors, whether it’s for running or hunting or whatever. Certainly, I wouldn’t have gone to the Upper Peninsula of Michigan if I didn’t have a hunting dog. I never would have gone to Snyder, Texas, or Beloit, Kansas, or Mitchell, South Dakota, just to say I’ve been there—I went because I was hunting with my dog.

JAMES MARTIN
Associate professor who also teaches the First-Year Odyssey course
“That Dog Will Hunt!: The Role of Canines in the Pursuit of Wild Game”
The amount of damage done to a tree stand following a major storm changes how it’s managed, according to new research by faculty members Kamal Ghandi, Elizabeth McCarty and others.

Storm size and intensity, the characteristics of the tree stand and its conditions all contribute to the overall damage. But once the storm has passed, the focus then turns to the aftermath, such as the damage done by pets and pathogens. The study, released last fall, warned that many species of bark and wood-boring beetles reproduce in the woody debris and can cause even greater economic damage over time by reproducing into healthy trees. The study offers forest managers specific management strategies for both pre- and post-wind damage situations, as well as suggestions for salvage operations.

The Hemlock wooly adelgid is one example of an invasive insect that could be identified by a new method developed with assistance from Warnell researchers.

Old Friends Predict New Enemies

A national team of scientists that includes a Warnell faculty member and former graduate students has developed a way to understand how nonnative insects might behave in their new environments.

Published last fall in the journal Ecology and Evolution, the model can help foresters predict which insect invasions will be problematic. It can help managers decide where to allocate resources to avoid widespread tree death.

“This is very important for our pine plantations here in the South,” says professor Kamal Gandhi. “This study has major implications for regulations and management practices in the future.”

Southern pine beetles are the most damaging forest insect in the southern United States and are quick to colonize wind-damaged trees. DAVID CHO

Georgia’s forestry industry supports more than 148,000 jobs in Georgia

GEORGIA FORESTRY COMMISSION (2019 REPORT)
Assessing the Damage, Moving Forward

When a powerful storm, like hurricane Michael in 2018, blows through rural Southwest Georgia, tall stands of pine trees bear the brunt of the wind and the damage can be seen for miles. Faculty members David Dickens and David Clabo are now working to help landowners untangle the damage and find a path forward after a storm.

The pair have been traveling to visit areas affected by hurricane Michael as part of a study to help landowners determine the best course of action after a storm. The process of clearing the debris is slow and costly, but the researchers hope to help chart the most economical course of action.

They’re not the only experts looking for answers after a major storm. Other projects at Warnell include:

- **Doctoral student Hannah Morris**, who has been traveling to Georgia’s uninhabited islands to better understand mortality of live oak trees after a catastrophic storm. After surveying damage done by hurricane Irma, Morris says, live oaks in a forest were disproportionately damaged.
- **Assistant professor Jason Gordon** is continuing a project he brought to Warnell from Mississippi State. He and graduate student Katrina Henn are surveying municipal officials about residents’ attitudes and preparation of public trees for storms. The goal is to understand misconceptions and gaps in knowledge, and also find ways in which policies and proactive maintenance can reduce liability.
- **Assistant professor Tripp Lowe** is using unmanned aerial vehicles to survey tree stand damage and new growth in the months after a major storm. By flying up over a forest, he says, you can get a complete picture of the scale and location of the damage, and also understand the underbrush that has grown in since the storm.

On any of our trips, we’re always promoting the Langdale Center for Forest Business and the Timber Investment Conference. We’re looking for speakers or sponsors or attendees, but at the same time, we’re recruiting. Our alumni are now fairly high up in different organizations and people look at them and say, ‘Gee, that person is a forester, but they know accounting and can read a balance sheet. Where did they learn that?’ Well, they learned it at Warnell.

So, if I’m traveling, you need to look for a good barbecue joint. What do I look for? Well, if the screen door is hanging off, I go in. It should be behind a gas station, there should be a whole lot of broken-down pickup trucks in front of it, there should be a lot of cops who go there and eat, and the smoke should be billowing out of it. If it’s not like that, then I have to be told, ‘You need to go there.’

**BOB IZLAR**
Director, Langdale Center for Forest Business

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**$762M**

Estimated value of timber lost to Hurricane Michael, as calculated by the Georgia Forestry Commission. Yanshu Li, forest economics and taxation outreach specialist, has been instrumental in connecting landowners with state and federal resources.
Give Me a Sign

Clear signage, habitat improvements and adding new fishable waters were the most important attributes desired among North Georgia trout anglers, according to a recent study. Conducted by master’s student Hailey Tenharmsel and published in the North American Journal of Fisheries Management, the study is the first of two projects looking at attitudes toward trout fishing in the area. Tenharmsel is now a research assistant at Michigan State University.

What was deemed less important by anglers? Campgrounds near access points, the number of trophy streams and the cost of a fishing license.

“Incorporating transgenic trees into sustainably managed forests can have a significant impact on our overall tree health and forest productivity. Gene-edited trees can be better equipped to withstand temperature shifts or drought conditions. Lifting the ban also opens doors for new research to keep tree species from being lost forever.”

Scott Merkle, associate dean for research, one of dozens of scientists around the world who signed an open letter last fall calling for the acceptance of gene-edited and transgenic trees

The American chestnut is just one example of a tree that can once again be a viable part of forests through to the gene transfer process.

Pellet Power

Associate professor Puneet Dwivedi is part of a coalition of researchers developing concrete solutions to combat climate change. One option, says Dwivedi, is the production of wood pellets, an inherently sustainable energy product that connects a growing international market with rural communities across the Southeast.

While some say the industry is not an ideal use of forest resources, Dwivedi argues that the practice is inherently sustainable, and the amount of carbon emitted each year is sequestered by new trees that are continually being planted and simultaneously managed for the future. When viewed from a landscape perspective, rather than the perspective of individual tree or forest stand, the industry is continually renewing itself.

“People are continually planting due to strong markets in the Southeast,” says Dwivedi. “There is a need to develop data-based sustainable supply chains so that wood and wood-based products from the Southeast can reach to international markets, which are increasingly demanding wood procured from sustainably managed forestlands.”

4,947 Number of jobs across the Southeast supported by the industrial pellet industry

$2.3B Direct, indirect and induced economic impact of the industrial pellet industry.

SOURCE: CHMURA ECONOMICS & ANALYTICS

Number of jobs across the Southeast supported by the industrial pellet industry

Direct, indirect and induced economic impact of the industrial pellet industry.
A new grant through the USDA’s National Institute of Food and Agriculture is funding six fellowships for Native American students in the Forest Business program.

Launched this past fall, three students are now enrolled. Faculty members Jacek Siry, Pete Bettinger and Richard Mei have been working with the Intertribal Timber Council to recruit graduate students who can then take their degree in any direction they choose. The Langdale Center for Forest Business has had a presence at the council’s annual conference for the past several years, and their consistency is making inroads in the community.

“We want them to trust what we are proposing,” says Siry, a professor of forest economics. “It’s really advantageous and it will help them in their careers.”

“**They can connect with their tribes and they can work pretty much anywhere in the country, whether it’s on a reservation or a big city or with an investment organization. It’s a fantastic opportunity.**”

JACEK SIRY
Langdale Center for Forest Business

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**Calculating Your Worth**

Thanks to the work of forestry biometrics researcher DEHAI ZHAO, forest landowners now have a new set of equations to help calculate more than wood volume in the tree stand. This helps give American foresters a competitive edge among landowners around the world, where information on carbon sequestration and woody biomass are part of the business of growing trees.

The last time these equations were updated was the 1980s, says Zhao. At the time, tree growers only required one number: The volume of wood derived from each tree trunk in a stand. But since then, global markets for wood products have shifted to include much more. Today, metrics such as volume, green and dry weight, and carbon capture are just as important, and allow landowners to make better-informed decisions about land management and market conditions.

That’s the number of photos taken of deer by baited cameras as part of a study conducted by doctoral candidate JAMES JOHNSON. When compared with the roughly 19,000 images captured by unbaited cameras in a similar timeframe, the study highlighted potential flaws in using baited cameras to determine population estimates.

Using an unmarked spatial capture-recapture method to estimate deer numbers can be preferential to baited cameras, his study shows, because:

- It decreases risk of disease transmission and conflicts with non-target species
- It avoids potentially altering activity patterns
- It is less expensive than using bait

108,479

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**Tips for Visiting Parks**

Many of our iconic parks face seasonal crowding. In order to beat the crowds, consider foregoing a big breakfast and doing a sunrise hike. Wildlife is more active this time of day and you will have the park all to yourself.

Also, if you enjoy visiting Georgia’s many wonderful parks and historic sites, consider purchasing a State Park Pass for $50. This will allow your entire carload to enter our state parks for free for a year. These are also available for check-out at many libraries.

There is a similar pass for our federal lands, the “America the Beautiful Pass.” It is $80 and valid for entry to all National Parks, National Forests, Bureau of Land Management lands and Fish and Wildlife Refuges.

BYNUM BOLEY
associate professor, parks, recreation and tourism management
Provide Some Cover for Nests

This is a cool pic of a Caracara taking eggs from a Rio Grande nest. Caracaras only occur with turkeys in a few places in the United States, but where they do they can be important nest predators. That's because they perch and watch hens leave their nest, then go locate the eggs. We also see that owls can be important predators, but that's a future topic.

The takehome is, create and manage for nesting cover throughout the landscape to make it harder for predators to observe hens and locate nests.

MICHAEL CHAMBERLAIN professor, wildlife ecology and management

Want more wild turkey tips? Follow Chamberlain on Instagram and Twitter: @WildTurkeyDoc

The Power of Outdoor Recreation

With more than 100 stream access sites across six states, the Tennessee Valley Authority offers many opportunities for fishing, rafting, kayaking and other activities. But data to support the TVA's economic impact in the communities near its sites has been largely uncalculated—until now.

The TVA is working with faculty and students in Warnell's parks, recreation and tourism management program to pinpoint the value and impact of water-based recreation at sites across four states. Preliminary data was released last fall, but the study continues for the next year as data collection is refined and management strategies are developed. The project involves faculty members Bynum Boley, Gary Green and Kyle Woosnam.

Improving Land for Water

If a city wants to improve its water quality, upgrading the equipment at its water treatment plant is one way to go. But another option may be improving the land around the water's source, using techniques on the ground to improve the water running off into streams and rivers.

This is the idea behind a project that's also a partnership between Warnell and UGA's River Basin Center. Funded by the Georgia Forestry Commission and supported by Georgia Power Co. and the city of Columbus, Georgia, faculty member DUNCAN EKINS and master's student WESLEY GERRIN have been analyzing properties in the Middle Chattahoochee River Basin. The idea, says Gerrin, is to identify parcels that, if conserved or restored, can have the largest impact on water quality in that area of the river.

By compiling maps from multiple counties, assessing cover types, riparian areas, topography and other factors, and color-coding parcels according to priority, the team created the basis of a plan that could help improve water quality in a strategic, cost-efficient way.

Clearing the way

Warnell faculty and students have partnered with the Upper Chattahoochee chapter of Trout Unlimited for a stream rejuvenation project in the metro Atlanta area. Crayfish Creek, a tributary of the Chattahoochee River, needs some help. It's been identified by the National Parks Service as “heavily impaired,” and streambank erosion and lack of vegetation is degrading the water quality in this spawning area for wild brown trout.

The project is awaiting final approval at the federal level but is ready to start as soon as they get the green light. Work includes removing abandoned culverts that are obstructing the stream's flow and constructing new bioengineering systems to help stabilize the streambanks.

Faculty member DUNCAN EKINS and associate professor JAY SHELTON are serving as technical leaders for the project, which is also a Warnell homecoming of sorts: ANNIE COUCH (BSFR ’09) is point person for the National Parks Service, GARON BRANDON (BSFR ’14, MNR ’16) represents the Upper Chattahoochee Trout Unlimited chapter and Georgia DNR fisheries biologist HUNTER ROORP (BSFR ’10, MS ’15) is also consulting on the project. UGA's 5 Rivers Club—comprising both Warnell and non-Warnell students—is also assisting with the project, as well as members of the Oconee River chapter of Trout Unlimited.
An arborist with the University of Georgia tree team climbs a water oak in front of Myers Quad during a demonstration event this past fall. A new degree program will help more students enter the expanding field of community forestry and arboriculture. KRISTEN MORALES
Giving foresters wings

Stephen Logan is working to advance unmanned aerial system technology

BY KRISTEN MORALES
Looking up from the road, a stand of pine trees may look healthy as they tower over the rusty soil.

But a view of the trees from a different angle reveals a different story: A swath of needles the color of the soil that are embedded deep among the healthy trees. The infestation of beetles couldn't be caught without some serious boots-on-the-ground investment—or, it could be caught in minutes using an unmanned aerial vehicle, or UAV.

“We had been doing a lot of work with satellite imagery. It’s got pretty good resolution, but it’s nothing close to what UAVs can do,” says Stephen Logan (BSFR ’98, MS ’05), forest certification and quality assurance group manager with F&W Forestry. The international company handles all aspects of forestland management, and for more than a decade Logan has worked to keep the company’s technology on the cutting edge to assist landowners.

“So, our first benefit (to using UAVs) was getting high-resolution imagery of the property we’re managing,” adds Logan. “The second was up-to-date data, because a satellite image is often a year or more old. Or, you pay several thousand dollars to task a satellite to fly over and take imagery.”

Today, technology is making inroads in forest management through many fronts, including UAVs. Just as we apply it to make our lives easier through tracking packages or setting reminders, technology is also making the lives of landowners and foresters easier by calculating harvested area, confirming protection of wetlands in relation to harvest areas or even identifying potential beetle damage before it’s visible.

When Logan first graduated from Warnell, drone technology was not part of a forester’s toolbox. In fact, mapping and GIS classes were just beginning. When he came back to the University of Georgia for his master’s in forest biometrics, though, the idea was more of a reality. Since then, Logan has stayed on the forefront by developing new ways to incorporate the high-resolution imagery and spatial analysis into forest management.

Getting high-resolution photos is only the beginning, Logan says. Today, in addition to training new UAV pilots around the world for F&W, Logan also researches ways to add value to the images they’re collecting. For example, he is now flying UAVs with multispectral image capabilities, such as near-infrared technology, to combine visible and invisible portions of the electromagnetic spectrum into images that tell more of the story under the canopy.

“You can create NDVI—normalized difference vegetation index—and you can tell the difference in chlorophyll levels in foliage. One thing we found that’s been really helpful is when there’s been insect damage—we can fly those areas and detect the beetle infestation before you can see it with your eyes,” he says. “That’s something we couldn’t have done before, period. That’s been helpful when the trees are stressed.”

Logan is now working to advance the technology to perform tree counts. By combining high resolution imagery, multispectral data and machine learning, he and partner companies are working to create programs that can identify trees and their height from overhead.

If a forester’s time spent cruising can be augmented with remotely sensed information such as tree counts and heights, says Logan, it reduces field time while potentially increasing accuracy—a win for all involved.

“When this first got going, I was working with open-source technology to try and figure out how the technology could benefit us in forest management because the shortcomings using planes and satellites were obvious,” says Logan. “So, once UAVs started to take hold and become available for commercial use, we were poised to take advantage of this new tool, and it has just grown from there.”
WON’T YOU BE MY NEIGHBOR?
An alumna’s research reveals how full-time residents can feel the stress of short-term vacation rentals—and ways cities can help bridge the divide
The sharing economy is taking off with travelers increasingly staying in others’ personal homes on vacation through platforms such as Airbnb and VRBO. Also, consider renting someone’s personal car through services like Turo. This platform opens up the possibilities of renting cars that are not typically in the rental fleet with amenities such as ski racks and car top carriers. You also do not have to pay rental car tax as of right now, so it is usually cheaper than renting a car through a standard company.

Travel Tip

The sharing economy is taking off with travelers increasingly staying in others’ personal homes on vacation through platforms such as Airbnb and VRBO. Also, consider renting someone’s personal car through services like Turo. This platform opens up the possibilities of renting cars that are not typically in the rental fleet with amenities such as ski racks and car top carriers. You also do not have to pay rental car tax as of right now, so it is usually cheaper than renting a car through a standard company.

When Indigo Courtney looks out the window of Savannah’s Purrvana Café and Cat Lounge, she feels a swell of pride. The café, located in Savannah’s Starland District, is among other shops and restaurants that cater to a crowd that’s different from the city’s tourist-heavy River Street. For example, Courtney says when she worked at Purrvana over St. Patrick’s Day, she didn’t see the throngs of green-beer-drinking tourists from the café’s corner windows.

“I would say it’s definitely more quiet here, and on St. Patrick’s Day, it was definitely more quiet,” she says. “I felt like a lot of families who didn’t want that crazy River Street experience were over here.”

As a result, Courtney’s view of tourists in the Starland District is more positive than that of someone who lives in some of Savannah’s other historic neighborhoods, where carriages and trolleys abound—and open-container laws do not. In a city where only a handful of neighborhoods allow short-term vacation rentals, attitudes toward them can differ sometimes block by block, says Emily Yeager (PHD ’18), a graduate of Warnell’s Parks, Recreation and Tourism Management program who is now an assistant professor at East Carolina University.

Her dissertation, published last fall in the Journal of Travel Research, studied Savannah residents’ attitudes toward short-term vacation rentals and found that opinions changed depending on how residents interacted with visitors.

More commonly known as companies such as Airbnb, VRBO or HomeAway, short-term vacation rentals can have polarizing effects in communities. But attitudes can change, even block by block or neighborhood by neighborhood, says Yeager. In Savannah, the rise in short-term vacation rentals overlaps with an already thriving tourism industry. The city has adjusted ordinances governing the location and process of permitting short-term vacation rentals, but other laws, such as open-container ordinances that promote a party atmosphere in some neighborhoods, can change how residents interact with tourists.

“For example, the northwest portion of the city has a high concentration of bars and carriage tours. If you asked people who lived in this area’s

In Savannah, short-term vacation rentals are limited to certain neighborhoods within a special overlay district. These neighborhoods include the Downtown, Victorian and Streetcar local historic districts, which have long been popular among tourists. EMILY YEAGER

PREVIOUS PAGE: Property owners who wish to offer short-term vacation rentals must apply through a public process. Vacation rentals are limited to certain neighborhoods and are limited to a certain percentage of properties within those neighborhoods. CONTRIBUTED BY VISIT SAVANNAH
Yeager’s study was unique in that it was the first to look at the support or opposition of residents toward short-term vacation rentals. She credits her advisor, Bynum Boley (BS ’06), with encouraging her to pursue the topic.

“It’s an interesting finding that psychological empowerment had a direct relationship on support for short-term vacation rentals,” says Boley, an associate professor in the parks, recreation and tourism management program. “If residents felt their neighborhood was on show, and if they felt visitors were there because their neighborhood had some sort of unique cultural or architectural value, then they are likely to support short-term vacation rentals.”

Yeager says she learned a unique method of surveying residents from Boley and associate professor Kyle Woosnam, which resulted in knocking on more than 2,000 doors. The research also dovetailed nicely with her doctoral program—she is a graduate of the Integrative Conservation Ph.D. program, which emphasizes an interdisciplinary approach to research.

“If I hadn’t had their guidance, I wouldn’t have known to do this survey methodology, which is one of the best you can do,” she says. At the time, when she started her doctoral program, short-term vacation rentals had only been around for about six years. There was research on residents’ attitudes toward tourism, as well as impacts of short-term vacation rentals on the hotel industry, but nothing connected residents with the burgeoning short-term rental industry.

“We know from research that if residents aren’t happy with tourism, they’re going to take action politically—or they’ll just be rude to your guests. And that’s not fun for anyone,” says Yeager. “But Bynum saw the value of doing cutting-edge research, and I wanted something that would be a challenge. We weren’t doing the same old project that had been done over and over again, and he was open to making it a challenging experience.”

Yeager completed her dissertation and was offered a faculty position at her undergraduate alma mater, East Carolina, before she even walked in her graduation ceremony. She laughs when she realizes how closely her career trajectory parallels that of her advisor, Boley, who returned to his alma mater, UGA, after receiving his Ph.D. at Virginia Tech.

A North Carolina native, Yeager is now turning her research toward rural communities and examining attitudes there toward short-term vacation rentals. While Savannah is a tourism draw for its arts, history and food scene, Yeager has found that rural towns have a lot to offer in terms of natural resources.

“We have tons of water; if I could describe eastern North Carolina in one word, it would be water—tons of rivers and creeks and sounds and the ocean,” she says. “So, a lot of vacation rentals...
are popping up on these waterways. Or, they are also advertising hunting or hiking opportunities—you can hike through estuaries and see these beautiful landscapes and ecosystems that maybe you haven’t experienced before."

In Savannah, impacts of short-term vacation rentals overlap with concerns about gentrification and affordable housing. These concerns exist in rural communities too, says Yeager, but so far she’s found residents there are more concerned about losing their sense of place.

For example, riverfront properties are being purchased by nonresidents, and “no trespassing” signs make locals feel unwelcome. Or, community members who once felt comfortable with fishing off of any dock on the river now feel excluded—despite a tradition of anyone being able to fish from private docks. “It’s anything from, do you wave at people when you’re walking by on the street, to how possessive you are of your property,” she says. “I’m still working on the project and I’m hoping to have a few more revelations as I’m moving forward.”

The bottom line, adds Yeager, is that communities can benefit from local ordinances that reflect community attitudes toward short-term vacation rentals, even to the extent where laws change to reflect specific neighborhoods. Online social networks can also be incorporated into a city’s sounding board, as residents are more likely to express their experiences in an online format rather than a public listening session.

Ordinances governing short-term vacation rentals could be viewed as a Russian Matryoshka nesting doll. For example, in Savannah, the outer layer is the three historic neighborhoods where the rentals are allowed. “But then you can have neighborhoods within those districts,” she says. “The power of Savannah’s laws are really at the neighborhood level, and it’s something I’m looking forward to as a next step.”

At Savannah’s Purrvana Café, Courtney says she sees a range of Savannah—and its tourism. She lives between downtown and the Starland District and gets “the best of both worlds.”

Short-term vacation rentals also affect Courtney’s bottom line: She’s a student at the Savannah College of Art and Design and occasionally works for Airbnb by taking photos of rental properties. She admits that downtown is one vibe, while Starland offers another perspective.

“I’ve been to a couple rentals in the Starland District,” she adds, “and I’d say it’s definitely a relaxed vibe.”

Savannah’s generous open-container laws have given it a reputation among some tourists, like those who come for its annual St. Patrick’s Day celebration—much to the chagrin of residents. CONTRIBUTED BY VISIT SAVANNAH
For alumni working to stabilize species, navigating human interactions is often at the core of the job

Kevin McAbee (MS ’08) uses hoop nets to monitor populations of humpback chub in Desolation Canyon, Utah. Hoop nets are baited with food to attract fish into a non-stressful situation. Then, McAbee and his team collect the fish for monitoring information. CONTRIBUTED BY KEVIN MCAbee
The Colorado River snakes through seven states before crossing the Mexican border. Along the way, it’s held back by dams and distracted by reservoirs and wetlands. Depending on the season and the location, it alternates between cold, muddy and rushing or warm, clear and slow.

But the most complicated component of managing the river? The people.

“The program I work for is a partnership of 10 entities that includes state and federal organizations, environmentalists and water users,” says Kevin McAbee (MS ’08), nonnative fish coordinator for the Upper Colorado River Endangered Fish Recovery Program. The program oversees and coordinates the recovery of four endangered fish in the Colorado River north of Lake Powell. “So, in order to be able to enact meaningful conservation actions for species that can swim hundreds of miles in a year, you have to have buy-in that bypasses state boundaries; you have to do things on a big scale.”

McAbee is one of many graduates of the UGA Warnell School of Forestry and Natural Resources working to help animal species around the world survive—and thrive. But whether it’s the humpback chub population in the Colorado River or mountain gorillas in the Democratic Republic of Congo, the balancing act alumni face often has more to do with human effects on the ecosystem than other animals or Mother Nature.

On the Colorado River, what turned the tide for humpback chub, Colorado pikeminnow, razorback sucker and the bonytail involved changing the timing of dam releases to change the flow of the river. The four species, all classified as endangered, are native to the Colorado River Basin, but during the last century, new dams and changes in water use disrupted their ecosystem.

By enacting conservation methods such as adjusting water releases, habitat restoration and manually controlling invasive species that prey on the native fish, McAbee says, the multi-state and multi-agency partnership is making gains. But along the way, the partnership must also weigh the needs of landowners, municipalities and visitors on the waterways.

### PERFECT TIMING

On the Colorado River, a combination of management techniques have helped the four species make a turnaround. Some fish are propagated at a hatchery. McAbee and his team work to improve and restore habitat along the river. They also manage nonnative fish species that prey on them.

But the timing of water releases from the dams was a game-changer, he says.

“We have worked with the dam operators to change the release from the dams so it’s a more natural water regime. And that’s a big action because it has legal and political impacts—we’re changing the way dams are operated so they benefit fish, and that’s a really big deal,” says McAbee. “We recently completed a status assessment for the humpback chub, and the Fish and Wildlife Service recommended that we reclassify it from endangered to threatened. And that’s related to the dams and the change in the flow regime.”

The biggest threats to the native fish are three nonnative species: smallmouth bass, northern pike and walleye. They are voracious predators, and because it takes the native fish between 3 and 10 years to reach sexual maturity, the nonnative species eat the native ones before they have reached that point.

Originally stocked in reservoirs for recreational fishing, nonnative fish escaped through
dam outlets, entered the river system and slowly began to take over. The changes McAbee and others have implemented increase floodplain habitats, giving the fish a place of refuge after emerging from their eggs in the spring. They grow up fast over the summer and enter the river in the fall, successfully making it through their first difficult summer.

Julie Stahli (MS ’08), deputy director for the Upper Colorado Endangered Fish Recovery Program, says it’s been a learning process for all parties involved. Once they began to understand the role that wetlands and upstream inlets played in the overall success of the fish, they incorporated management of those areas for even greater success.

“Many efforts had been made with wetland habitats in sort of varying stages over the course of the program, and what they figured out was they not only had to flood the area during dam releases, but they also had to screen the wetland so no nonnative predators got in with the larvae,” she says. “Another key piece was building wetlands with downstream inlets, instead of on the upstream side so water backs in to the wetland. It allows larvae to come in and it doesn’t fill it up with sand.”

In the past year, the river saw high water flows in the spring, resulting in larger wetland areas. This provided more habitat for razorback sucker larvae, increasing their overall num-
Scientists have also seen a marked increase in the number of razorbacks in one of the systems’ lakes, where previously they weren’t notable.

Whether McAbee, Stahli and others have found a balance or the right formula for fish success is only part of the story, though. Bottom line, they say, the river can’t not be managed.

“The system has gotten so complex and there are so many stressors on the species that there’s really no way to not manage them anymore,” Stahli says. “The program we are lucky enough to work with has been built up over the years by dedicated partners. It’s always invigorating to hear how power customers and wildlife biologists and others want the same thing, which is how can we get species to survive and thrive in this ecosystem.”

McAbee agrees. “Things that we have done and that our partners have done have had an effect where we’re less concerned with the species going extinct immediately,” he says. “We still have some conservation commitments that we need to look at in perpetuity, but certainly a lot of actions we’ve enacted have worked. It’s a big success story in the Colorado River System.”
A TORTOISE TALE

Not far from Aiken, South Carolina, is a swath of land bordered by red-dirt roads and dotted by longleaf pines. This is where, in the early 2000s, South Carolina wildlife officials discovered about 10 gopher tortoise burrows. More plentiful in Florida, you can find a few other populations scattered across the South—but not typically in South Carolina.

The discovery of the burrows was significant, and it started the state on the path of habitat conservation that’s turned into a long-term project in collaboration with the University of Georgia’s Savannah River Ecology Lab to maintain and increase the preserve’s gopher tortoise population.

Andrew Grosse (BSFR ’06, MS ’09), herpetologist for South Carolina’s Department of Natural Resources, says the Aiken Gopher Tortoise Heritage Preserve is home primarily to waif tortoises—animals from throughout the species range that have been removed from the wild, due to a variety of circumstances, and can’t be traced back to their original population. When these animals are received by the Department of Natural Resources, they are initially quarantined at the Savannah River Ecology Lab, where they receive a health examination, food, water and short-term housing. After being cleared for release, they are added to the population at the preserve.

But, you can’t just take gopher tortoises and drop them into a new landscape—they tend to wander and search for familiar landmarks. In fact, the lack of a consistent network of land where they can roam is one of the largest threats to the population.

Grosse and the state Department of Natural Resources have been working with Tracey Tuberville and Kurt Buhlmann, conservation scientists at the Savannah River Ecology Lab and Warnell faculty, to release the animals into a cordoned off area for the first year on a new site. Research conducted by Tuberville found that after about a year in the large pen, about 80% to 95% of tortoises would stay in that area. This is key in creating a viable population at the preserve.

“If you release tortoises on a new landscape, they are disoriented,” says Grosse. “But once placed in a multi-acre pen, they get familiar with the surroundings for a year. Over that time, they become more comfortable and establish a social structure with the other penned tortoises. After a year, we take the walls down and the tortoises are free to roam.”

In a study similar to Tuberville’s, graduate student Rebecca McKee found high adult survival of penned and released waifs. As a student of Tuberville and Buhlmann, McKee’s thesis research, conducted at the gopher tortoise preserve outside Aiken, also found that more than 75% of the penned tortoises were recaptured within 400 meters of their original release location in the pen, further supporting Tuberville’s research.

The preserve is also home to “head-started” tortoises. Tuberville and Buhlmann collect naturally deposited eggs on the preserve and hatch them at the Savannah River Ecology Lab. There, they grow indoors through the winter and are fed a healthy diet. They are released one year later at a larger size than their wild-raised siblings and presumably less vulnerable to predators. The hope is that this effort will increase their survival into adulthood.

Habitat restoration and management, says Grosse, is the single most important factor for the long-term success of the animals.

“It takes multiple partners to accomplish these projects. Our land managers do an excellent job of managing our properties to promote the longleaf pine ecosystem,” says Grosse. “Coupled with our partnership with the Savannah River Ecology Lab, we’ve been able to make a positive impact for gopher tortoises and all the species that use the longleaf pine ecosystem. For me, it’s really exciting and just makes me proud to be part of this group.”

Hunter Young, a master’s student at Warnell who also oversees management of the Aiken Gopher Tortoise Preserve, holds a juvenile tortoise before it is released into a pen at the property. KRISTEN MORALES
SEPARATE SPACES

Conservation is also a key component to the work done by Jena Hickey (PhD ’12), a conservation scientist with the International Gorilla Conservation Programme (IGCP). Her work takes her to the Democratic Republic of Congo, Rwanda and Uganda—the three countries in the world where mountain gorillas live—where she’s part of a team that monitors habitat conditions and gorilla populations.

The gorillas live in two large, unconnected populations surrounded by an ocean of agriculture. Local farmers are dependent on crops for their income, but if they grow food that both humans and gorillas can eat, issues arise.

“It’s a cash-poor society and they really need their crops. If mountain gorillas or any other species leave the protected areas and start raiding crops, it’s a major concern for those populations,” she says. “So, our goal with IGCP is to address human-wildlife conflict through vegetation management—what can we grow in a buffer zone between the parks and the rest of the human community to reduce how often gorillas leave the parks?”

For example, growing tea instead of vegetables can help discourage gorillas from foraging through the fields, improving relations between gorillas and local residents.

“A lot of times, what IGCP does is to get stakeholders talking about the problems and the solutions — and the process often helps align the stakeholders to a common set of goals,” adds Hickey. “IGCP also tries to create direct community benefits from gorilla conservation.”

Revenue-sharing is one way residents can benefit from ecotourism. A one-day trek to watch gorillas in Rwanda costs tourists $1,500, while the average daily income in nearby communities is just a few dollars. By funneling some of the gorilla-tourism money into the local economy, says Hickey, it can help change attitudes toward the animals, the parks and conservation.

Poaching and the hunting of other wild animals also threatens gorillas. Forest antelopes, called duiers, are often hunted with snares. When gorillas get caught in these traps, the result can be a lost digit, a limb or even death, says Hickey.

Overall, though, she says the progress made toward mountain gorilla conservation has been a success. The population has approximately doubled from its lowest point in the 1980s, when there were between 300 and 400 gorillas. But even if the population were to continue to grow, the size and location of the parks will likely limit the overall number of gorillas. Climate change is also a concern, because as the cooler temperatures of the mountains warm, vegetation will surely shift, which may impose further limits to the mountain gorillas’ range.

One option is to increase the size of the parks, but that would mean taking land out of agricultural use—a hard sell among the local population (or, really, any population of landowners).

“It’s a super sensitive topic, and it has to be a procedure that really fairly compensates them if they are willing to move,” she says. “Let’s say it went perfectly smoothly and habitat was rehabilitated in that area—it’s still not that much more habitat. So, from the perspective of a population ecologist, how many more gorillas are we going to get out of that?”

BEYOND CONSERVATION

Above all, the graduates say their time at Warnell gave them essential skills that are used in their jobs today, and also helped them identify the human aspects of conservation.

For example, as a doctoral student, Hickey traveled to Congo to work with bonobos, another great ape. Using the capture-mark-recapture population abundance estimation method she learned in professor Mike Conroy’s class (now retired), as well as another technique called sight-resight, she and colleagues developed new approaches for how to estimate abundance.

Learning the new languages and understanding the field conditions were also key parts of her training.

While Grosse’s first experience with gopher tortoises came immediately after graduating from Warnell, where his job at the Savannah River Ecology Lab was tracking the very first group of penned tortoises, his work also incorporates landscape management—a skill learned at Warnell. Whether it’s burning or mechanically thinning trees, he now stresses to landowners what he learned as a student: The benefits of properly managing a landscape.

“Students say, ‘I really want to save X.’ But we need to think about it from an ecosystem
standpoint,” adds Grosse. “All these things have adapted together and are living together. Even if they’re not on the landscape at that time, there are other species that it benefits.”

Before she started at Warnell, Hickey said she was surprised by how human-centric the work really was.

Now, though, it all makes sense. “I feel like it’s a no-brainer now. It’s because of us that the habitats have become fragmented or there’s fewer cover types. That’s because of our footprint on the world,” she says. “And that’s probably a message we need to get to our undergraduate populations. Humans will be a major part of your work if you’re a wildlife biologist. It’s just reframing the problem.”
FORESTRY FOR THE PEOPLE

A new degree program meets a growing need for community and urban tree professionals
Bob White knew he wanted to work in the field of urban forestry, and he knew he wanted to attend Warnell. Still, when he received his degree in forest resources, there were some gaps he had to fill in on his own.

“It’s night and day between what a forester will do,” and working in a community setting, says White (BSFR ’10, MS ’12). And so, when it came time for his master’s, White assembled a committee that included community forestry expert Kim Coder.

“At the time there was not a place where I could get a degree in urban forestry—that was 10 years ago,” he adds. “But, there’s definitely a need for it.”

To meet that need, Warnell has launched a new degree emphasis tailored for students who want to work with trees in urban and community settings. Called Community Forestry and Arboriculture, the program is now accepting undergraduate and graduate students who want to join this growing field of tree professionals.

This opportunity will open doors for students who have a passion for the outdoors and want to contribute to improving their neighborhood or community.

“The world is changing. We are becoming more addicted to our concentrated infrastructures and hardscapes for survival,” said Coder, professor and Hill Fellow for Distinguished Public Service and Outreach. “But, it is greenscapes and trees that generate our quality of life beyond mere survival. Within the Warnell Community Forestry and Arboriculture program are the educational tools of change—for trees, communities and tree professionals. Trees are hope in a changing world.”

As the eighth most populated state in the country—and the 10th fastest growing—Georgia is a prime example of the need for community foresters, says Coder. As more people move into urban and suburban areas, the need for professional tree care and management grows more vital.

Before launching the degree-level program, community forestry training was available to students as a certificate. But the additional training in tree species and management, along with an internship that gets students hands-on training, will give Warnell students an edge when they enter the job market.

“The demand for qualified urban foresters is pretty good, and I’m always struck by how
little employers are asking for, in terms of qualifications. I think that’s because there’s not a large number of folks with a degree,” says White, who is a master arborist with Bartlett Tree Experts in Santa Barbara, California. “So, I’d imagine that walking into that field with a degree in urban forestry is going to be a huge asset for our graduates.”

White enjoys the arboriculture side of the field. After graduation he got a job with Bartlett working in Cincinnati, where he had to learn about a whole new set of trees and their care. He does some work with municipalities to provide outside tree assessments, but the bulk of his customers are residential.

His goals, he says, overlap peoples’ needs with the trees. With healthier trees, property values rise and liability costs go down. Professionals in the community forestry field also need to understand how policies and tree ordinances can help encourage better planning and decisions down the road, which also lowers costs.

“The driving force has to be about helping people,” he says. “It’s all about safety and education.”

Seth Hawkins (BSFR ’14) agrees. As a community forester for the Georgia Forestry Commission, Hawkins works with local municipalities to determine their tree goals. He also does trainings and outreach, such as a recent tree-planting project at Winterville Elementary School.

“I’ve been with the Commission for five years and I’ve seen a lot of growth in this area in communities,” he says. “They’re starting to see trees as an asset rather than a liability.”

Hawkins takes his tree expertise on the road a lot. On any given day, he might be speaking to children at a school, consulting with a local official or representing the Commission at a community event.

The profession, as a whole, is a mixture of science and working with people. It’s understanding plant health and biology along-side public policy. Even, at times, settling disputes among property owners or explaining why a tree was cut.

As more people make the connection between healthy trees and healthy cities, says assistant professor Jason Gordon, the field will continue to expand.

“I’ve been doing this about eight years now, and I firmly believe that tree canopy management in an urbanizing context is going to be increasingly critical to people’s well-being,” says Gordon. “With community forestry—for those of us who have had experience with more traditional types of natural resource management—we talk about how dynamic it is. The issues are unique, and it always relates back to the human dimension.”
The annual Parker Memorial Golf Tournament is coordinated by the Warnell Young Alumni Committee and is one of several ways alumni stay connected to the school. LEARN MORE ABOUT HOW YOU CAN GET INVOLVED ON PAGE 42.
The recipients of this year’s annual Alumni Awards represent Warnell well in higher education as well as in the business sector.

Brad Southern (BSFR ’82, MFR ’84), winner of the Distinguished Alumnus Award, is CEO of LP Corporation. He joined the company in 1999 and led the company’s siding business from 2005 to 2015, when he moved to the company’s OSB operation. He was named CEO in 2017, and last fall he was named North American CEO of the Year by Fastmarkets RISI.

Michael Cherry (BSFR ’10, PHD ’14) is the incoming Stuart Stedman Chair for Deer Research at the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville. He will also lead the deer research program, which has a mission to develop a scientific basis for the sustainable management and harvest of free-ranging white-tailed deer with a focus on South Texas ecosystems.
Warnell’s annual Homecoming festivities kicked off with another successful Parker Memorial Golf Tournament at the UGA Golf Course. This year’s event raised money to benefit the Robert J. Warren Graduate Fellowship, with the Parker family generously matching all money raised up to $25,000. This year’s event completed funding for the fellowship.

The centerpiece event for Homecoming Weekend was our annual dinner, where families and friends gathered for barbecue at Flinchum’s Phoenix. This event also honored our newest Alumni Award winners (see story on page 40) and our Alumni Staff Award recipients: Brittany Barnes, Andy McLendon and Suzanne Tate.

And, of course, it wouldn’t be Homecoming Weekend without a tailgate and football game. This year the weather was downright nasty—cold and rainy. But our alumni and friends persevered and gathered in Room 100, a lecture hall, for warmth and camaraderie before the game.

A highlight of the tailgate came when members of the Warnell classes of 1976–1980 gathered in the recently dedicated W.R. Allen Conference Room during Homecoming Weekend. Wayne Allen, fifth from left, was a graduate of the class of ’79.

Members of the classes of 1976–1980 gathered in the recently dedicated W.R. Allen Conference Room during Homecoming Weekend. Wayne Allen, fifth from left, was a graduate of the class of ’79.
Our Brightest Stars

We’re thankful for the incredible support we receive from our alumni and friends, and nowhere is that support more evident than our committees. These all-volunteer boards represent the highest level of commitment to Warnell.

**ALUMNI STEERING COMMITTEE**

This 13-member committee supports events, programs and fundraising initiatives for Warnell. Members serve three-year terms and assist with planning events, advise on staying engaged with other alumni, and make nominations for UGA's Bulldog 100, 40 Under 40 and other awards.

**MEMBERS**
- Jim Anderson (BSFR '91)
- Gary Capes (BSFR '80)
- Tina Johannsen (BSFR '95, MS '98)
- Amanda Lang (BSFR '05, MS '08)
- Lynn Lewis (BSFR '95, MS '99)
- Chad Lincoln (BSFR '03, MS '05)
- Brian Murphy (MS '93), past chair
- Matt Owens (MFR '06)
- Brian Stone (BSFR '99, MFR '01)
- Sharon Swagger (BSFR '04, MS '07), chair-elect
- Fred Warnell (BSFR '71), chair
- Brian Simmons (BSFR '93)

**MEET OUR NEW MEMBERS!**
- Ken Eason (BSA '04, MFR '07), Vice president, Stuckey Timberland

**YOUNG ALUMNI COMMITTEE**

This group comprises 10 alumni who all graduated in the past 10 years. Members serve three-year terms to support school activities and encourage alumni participation, including the annual Parker Memorial Golf Tournament each fall and the Sporting Clays Tournament each spring.

**MEMBERS**
- Al Bayme (BBA '06, MFR '09)
- Jase Brooks (MFR '15)
- Whitney Della Torre (AB '10, MS '13), chair
- Charles S. Evans (BSFR '12, MS '15)
- Krisha Faw (MNR '17)
- Gordon Grizzle (BSFR '13)
- Michael Ransom (BSFR '10), past chair
- Harry Sanders (BSFR '14), chair-elect
- Jackie Sherry (BSFR '11, MNR '14)
- Cade Warner (MFR '14)

**EX-OFFICIO MEMBERS**
- Carter Coe (MFR '11)
- Cory Dukes (BSFR '10, MS '12)
- Grant Harvey (BSFR '05)
- Garrett Mack (BSFR '09, MFR '11)
- Clint McNeal (BSFR '12)
- Elizabeth Miller (BSFR '10, MS '13)

For more information on our steering committees, or to learn how to get more involved, contact April McDaniel, director of alumni relations, at 706-542-7602 or aprilmcd@uga.edu.

**DEAN’S ADVISORY BOARD**

Launched in 2017 by Dean Dale Greene, this group works alongside our two alumni committees with a specific focus on strategic planning and networking across disciplines to support private giving to the school.

**MEMBERS**
- Steve Brown (Weyerhaeuser)
- Dan Forster (Archery Trade Association), chair elect
- Joe Hamilton (Quality Deer Management Association)
- Steve Johnston (Bartlett Tree Experts)
- Becky Kelley (Stone Mountain Park, retired)
- Patrick O’Rouke (Georgia Power)
- Erin Lincoln (Tetra Tech), past chair
- Brian Murphy (Quality Deer Management Association)
- Wade Nutter (Nutter & Associates)
- Michael Ransom (Southern Timber Solutions)
- Tommy Sasser (Recreational Community Consultants), chair
- Mark Williams (Georgia Department of Natural Resources)
- Chuck Williams (Georgia Forestry Commission)
On Par with our Supporters

The Harley Langdale Jr. Center for Forest Business Benefit Golf Tournament presented by Weyerhaeuser celebrated another successful year, raising $76,000 to support graduate assistantships and travel.

The annual event, which took place in November at The Georgia Club, is a great opportunity for alumni and friends of the Center for Forest Business to return to Athens, reconnect with friends and former classmates and spend a day out on the course for a good cause.

Since the tournament began more than a decade ago, it’s raised more than $1 million for the program. We appreciate the Weyerhaeuser Company for its support and hosting the event.

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David Duncan (BSFR ’05, MFR ’10), Chad Lincoln (BSFR ’03, MS ’08) and Garrett Mack (BSFR ’09, MFR ’11).
Dedicated Spaces

Warnell celebrated two room dedications this past fall, both in Building 4.

In September, Room 4-301, a popular conference room, was officially dedicated in honor of Wayne and Cindy Allen, whose generous gift made technology enhancements and other features possible in the room.

“This room is heavily used for faculty meetings, student presentations and senior projects,” said dean Dale Greene. “We are pleased and honored to dedicate the W.R. Allen Conference Room.”

In November, classroom 4-517 was dedicated in honor of the Lincoln family. This generous donation by Erin (BSFR ’08) and Chad (BSFR ’03, MS ’08) Lincoln also provided for technology upgrades in a classroom that sees many Warnell students.

Erin is also a photographer, and one new feature of the classroom is a set of photographs that she took in South Georgia. The images of forests, water and wildlife add a special feature to the classroom.

This artwork complements the new Audubon print that is now a feature in the W.R. Allen Conference Room, which was part of Allen’s donation.

“We truly appreciate the support of these families, and our students and faculty benefit greatly through their generosity,” added Greene.
$5,000-$9,999
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Mr. Barry L. Beers and Mrs. Naomi N. Beers
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Little Springs Farm LLC
Mr. Garrett D. Mack and Ms. Kelley A. Mack
Dr. J. Michael Meyers and Mrs. June R. Meyers

HERITAGE SOCIETY
The Heritage Society honors alumni and friends who make a documented bequest in a will or other planned gift to UGA. These gifts have a substantial effect on the University and Warnell for years to come, and help secure our future.

Earl D. Barrs and Wanda Taylor Barrs
John T. Brumby Jr.*
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Joe M. Stanford and Anna Grace Stanford*
David A. and Janet K. Terrell
Geoffrey David Terrell
Alfred and Joy Viola
Anna Dorothy Warnell*
Joseph Eugene Wyatt*
Anonymous

Continued on the next page
The following students invested in Warnell through a Senior Signature or a direct gift. Established in 1991, the Senior Signature plaque honors graduating students who make a difference by donating at least $50 to the University.

**FALL 2018**
- Lanier Grace Forster
- Alexia Jeanelle Goodman
- Lora Kelly Haas
- Margaret Daily Hubbard
- Mallory Lynn Pitelka
- Zachary Ryan Szemborski
- Weiyl Zhang

**SPRING 2019**
- Shannon Galina Glosenger-Thrasher
- Jacob Lloyd Higgins
- Briana Gabrielle Hutcherson
- Daniel Anthony Jones
- Morgan Marie Manning
- Bethany Laurel McDaniel
- Matthew Richard Portwood
- Jerry Clayton Reeves, Jr.
- Héctor Ivan Restrepo
- Allison Belle Sheeks
- Courtnie Diane Vickery
- Benjamin Mark Williams

**1970S**
- **LEE MCCOY (BSFR ’79)** retired after more than 38 years in the forestry industry, specifically working with wood power poles and other wood products manufacturing. His employers included Atlantic Wood Industries Inc., Cox Industries and Koppers Utility and Industrial Products.
- **ANDY STONE (BSFR ’74)** retired as President and CEO of Superior Pine Products Company and is now working with Forest Resource Consultants, Inc as Director of Family Business Services.

**1980S**
- **LAWRENCE R. GERING (PHD ’85)** retired from Clemson University.
- **CHRIS THOMSEN (BSFR ’81)** was promoted to regional forester with the Virginia Department of Forestry. Stationed in Salem, Virginia, Chris administers the agency’s management and protection programs in 29 counties covering 4 million acres of non-industrial private forestland.

**1990S**
- **KAREN WALDROP (BSFR ’96, MS ’99)** was named Chief Conservation Officer of Ducks Unlimited.

**2000S**
- **MIKE BEDNARSKI (PHD ’12)** was recently appointed fisheries chief for Virginia. Prior to moving to Virginia, Bednarski was with the Massachusetts Division of Marine Fisheries. He is also an avid black bass angler and tournament fisherman.
- **CAROLYN BELCHER (PHD ’08)** was named Chief of Marine Fisheries for Georgia DNR’s Coastal Resources Division in April of 2019.
- **ADAM SPIER (BSFR ’06, MS ’08)** is now marketing program specialist with Jackson EMC, located in Jefferson, Georgia. In this position, he provides outreach and education to residential energy members.
- **PAUL WILKES (MS ’11)** was recently appointed acting fisheries director for the Kentucky Department of Fish and Wildlife Resources. He’s been with the organization since 2011.
- **MICHAEL HOMER (BSFR ‘07, MS ‘11)** is the Texas Parks and Wildlife Inland Fisheries-Abilene Management district supervisor. He is past president of the Texas American Fisheries Society chapter, was recently elected as secretary-treasurer for the AFS Fish Habitat Section and serves as vice chairman of Abilene’s Parks and Recreation Board.
- **DANIEL SOLLENBERGER (BSFR ’07)** is the new state herpetologist for Georgia Department of Natural Resources.
ALUMNI SPOTLIGHT

Tiffany Vidal Cunningham (PhD ’17)

‘DISENTANGLING THE EFFECTS OF AGGREGATION’

The western and central Pacific Ocean is home to more than half of the global population of tuna, and Tiffany Vidal Cunningham is tracking its progress.

Cunningham, who studied aquatic sciences with faculty member Brian Irwin, became adept at assessing fish populations during her time at Warnell. She now puts that knowledge to use in New Caledonia, a collection of islands in the South Pacific, working for The Pacific Community. The organization provides scientific and technical advice to member countries throughout the western and central Pacific, a region roughly spanning from Australia north to Japan, and from Indonesia to east of Hawaii. There, Cunningham focuses on catch rates of skipjack and yellowfin tuna by the commercial fishing industry.

What makes the work unique, she says, is their interface with the commercial fishing industry and using that data to evaluate trends in fish stocks. The majority of tuna in the western Pacific is caught via a method called purse seining—using a long wall of netting to encircle schools of tuna—and Cunningham works to understand catch rates and monitor the status of the populations.

“I’m in a new position funded through the Pacific E.U. Marine Partnership program focused on standardizing purse seine catch-per-unit effort in commercial fisheries,” she says. “Understanding catch rates from this particular fishery is important because it’s the dominant fishery sector for tuna in the Pacific, but we don’t use that information to inform stock assessments because of what we call hyperstability.”

Because the fishery targets schooling aggregations, she explains, the fishery catch rates might give an inaccurate picture of the overall population dynamics. The industry also uses fish aggregation devices in this portion of the Pacific, which also keeps catch rates high. “So, my job is to build models to disentangle the effects influencing catch rates,” she adds.

Overall, though, western and central Pacific tuna stocks are healthy, she says, which is a significant accomplishment and also underlines the importance of the work done by Cunningham and Pacific Community.

While she admits she hasn’t had a chance to get out on the water yet (”I’m mostly staring at my computer screen,” she says, laughing), Cunningham says skills she learned at Warnell are now put into use every day. “When I was at Warnell working with Brian, I was mostly focused on quantitative analyses, working on statistical analyses related to fish populations and the effects of climate change or environmental variability,” she says. “So, now I’m honing those statistical skills. Modeling and knowledge of statistical analyses helped me get this job.”
ALUMNI SPOTLIGHT

Shawn DeRome (BSFR ’14, MFR ’16)

WHERE BUSINESS SENSE MEETS ENVIRONMENTAL STEWARDSHIP

On any given day, Shawn DeRome’s job involves some strategy. And market research. And international affairs. And environmental stewardship.

“Part of what drew me to forestry in the first place was the combination of being able to do things outside, involving the environment, and also having a hand in industry and business,” says DeRome, a manager of business development for Rayonier, a real estate investment and land trust company that owns 2.5 million acres of timberland across the United States and New Zealand. “I’m supporting the environment while also having a good, solid job.”

Based in Fernandina Beach, DeRome analyzes timber marketing strategies and potential land purchases. She studies regional timber markets, makes projections for the coming years, investigates new parcels to add to Rayonier’s portfolio and researches how mills and end-product demand are affecting timber prices.

The experience gives her both a macro and a micro view of the timber industry, she says, and she’s able to blend her undergraduate experience with graduate work in the Langdale Center for Forest Business for a successful career.

“I kind of like knowing that I know a little bit of everything in the industry—I like the mill side, I like the land side, I like the environmental side, and I also like the business and global influence of forestry, and just being able to help our company through a variety of different outlets,” she adds. “It’s understanding the global economy, but also what’s going on at the individual mill level.”

DeRome discovered Warnell as an undergraduate student at the University of North Georgia. Her original plan was to go into agriculture, but during a zoology class her professor, also a Warnell graduate, learned of DeRome’s interests and steered her toward a career in forestry.

“So, once I looked into it, I said, ‘Yeah, this is what I want to do,’” she adds.

And she’s thankful for the training she received as a forest business student. Not only did it set her on the career path that she’s on today, but she continues to cherish the personal connections she made through faculty.

“We have the world’s best professors in terms of in-the-field industry experience and real-world knowledge,” she says. “It’s the most unique program out there, and it’s unique because of the professors we have and the opportunities and exposures you get in the program, and the opportunities you have to network. Just knowing (professors) Bob Izlar and Jacek Siry, they are all good people to know in the industry.”

Marvin Griffin

MARVIN GRIFFIN (BSFR ’14), wildlife biologist at Robins Air Force Base, received the Robins Air Force Base Fostering Leadership Award. This award recognizes leadership displayed by base employees who foster trust, confidence and respect through positive labor and management relations.

CHRISTIAN HOADLEY (BSFR ’10, MS ’14) and his wife Lydia welcomed their son, Gabriel Isaac, on Sept. 6. Hoadley is a certified professional soil scientist and certified soil classifier and owns the environmental consulting firm Earth Works Environmental in Athens.

Gabriel Isaac Hoadley

KATIE McMANNERS (BSFR ’16) and JEREMY BAILEY (BSFR ’17) are engaged and to be married in fall of 2020. Both have degrees in fisheries and wildlife, Bailey in aquatic sciences and McManners in wildlife sciences.

ELIZABETH MILLER (BSFR ’10, MS ’13) is the staff wildlife biologist at USDA Wildlife Services stations in Fort Collins, Colorado. She is one of five biologists who assist with all 50 state programs within Wildlife Services. Her position primarily focuses on predator–livestock conflict.

KATHRYN L. (BUFFINGTON) MITCHAM (BSFR ’15) and ANDREW L. MITCHAM (BSA ’15) were married July 21 in Great Smoky Mountains National Park, on the bank of the Little River where Kathryn studied on a field course with Warnell faculty member Mike Mengak. They now reside in Austin, Texas, and cheer on the dawgs every game day Saturday.
ALUMNI SPOTLIGHT

Joe Vaughn (BSFR ’16)

‘WE HAVE TO PLAY A DELICATE DANCE’

Growing up with a father who was an airline mechanic, Joe Vaughn says his family moved all over the country. But one major constant throughout his childhood was playing outside. So, a career in forestry made sense—it just took him a bit to find his path.

Vaughn graduated from high school in 2010 and the following year began spending his summers as a wildland firefighter, going out to Wyoming from May to August to battle blazes. Other months he was attending Gordon State College in Barnesville, Georgia (which, ironically, is located next door to Jordan Lumber & Supply—although it was too early in his career for Vaughn to make the connection).

Being a wildland firefighter was tough but rewarding, he says. The bonds created among his team were what kept him coming back year after year. He continued the summer job even after transferring to the University of Georgia. “So, when I entered Warnell, I thought I was possibly going to pursue wildland firefighting as a career,” he says. “But the more I learned about forestry, I saw an opportunity present itself in Georgia.”

His last summer fighting fires was in 2015, but when Vaughn graduated the following year, his career was still taking shape. Attend grad school? Enter the workforce? Vaughn is also a photographer, so he began the paperwork to start his own limited-liability corporation.

This process helped him connect with another Warnell alumnus, Jonathan Lee. Lee worked at Interfor Corp., one of the largest lumber producers in the world, and had experience starting LLCs. “Jonathan knew I was going to be a contractor, and he knew Interfor needed a contractor to work in their scale houses, so I was in the right place at the right time.”

Almost three years later, Vaughn is now a procurement forester with Interfor, where he works with the company’s stumpage program. It’s a challenging position that requires negotiations with private landowners to purchase certain types of wood to complement what’s already coming to the mills.

While photography is relegated to a hobby at this point, Vaughn looks back now and chuckles at how he was always drawn to forestry, in a way—he just needed to clear the path. The skills he learned at Warnell made that easier.

He says he’s constantly challenged by his job, and it’s something he enjoys.

“We try to carve out a niche of wood where we understand the risk of buying it, but that it will give our wood a certain benefit,” he says. “We have to play a delicate dance, which I find very fun.”
William Van Devender (MFR ’13)

‘A POSITIVE EFFECT’

It was serendipitous that William Van Devender happened upon the bi-annual Timberland Investment Conference, hosted by the Langdale Center for Forest Business. The chance encounter merged two portions of Van Devender’s life that had always been separate, and changed the course of his professional career.

Van Devender had originally planned to work in the investment community in Atlanta, but the opportunity to present in a next-generation forest management conference led him to reevaluate his career goals.

“Working as an investment analyst in Atlanta, Van Devender had thought his days working with his family’s timber business were behind him. The business, Claw Forestry, owns and manages timberland across the Southeast, as well as two limber mills in Mississippi.

When Van Devender got his undergraduate degree in business, he says, he just assumed he’d moved into a new sector. Until he happened upon the conference.

“I attended the conference and met Bob Izlar,” says Van Devender. Through Izlar, director of the Langdale Center for Forest Business, Van Devender learned about the master in forest business program. It was the perfect pairing, so to speak.

“I really did not think I would necessarily get into timberland, but I went to that conference and the understanding that there is a lot of analytics and analytical thinking involved in timberland drew me to the field,” he says. Until then, he had a different view of timberland management: Trees grow and get harvested, period.

But the more he learned, the more he was drawn to it. “I had the business side, so (the degree) really helped me marry my financial skills with the timberland business. It helped me apply my financial skills to timberland.”

In the years since graduating, Van Devender says he continues to enjoy the challenges that the field presents. He also hopes he’s able to add a new dimension to the family business—although he remains modest about his influence.

“I hope I’ve had a positive effect,” he says. “Since I’ve graduated, I’ve been involved with several large acquisitions, managing day-to-day operations, developed budgets and in general just worked to manage our business for long-term success.”
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