

College of Forestry & Wildlife Sciences



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Working with Nature for Society's Well Being

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- Spring Commencement, 5/7/22
- The Sustainable Future of CLT in the South: Grow, Design, Build Conference, 4/27-4/29/22



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Administration

A Message from the Dean

Dear Alumni and Friends:
Greetings from the College of Forestry and Wildlife Sciences! In this issue, we showcase current events and reflect on what was accomplished in late 2021. This fall, we welcomed many new students into our programs and recognized the appointments of George W. Peake and Alumni Professor Daowei Zhang to associate dean of research and wildlife professor Todd Steury as faculty senate chair. Our faculty-led research teams have begun several impactful studies involving invasive wild pigs' impact on water quality, the root causes of declining turkey populations and climate research. Our students have been working hard. Several graduate students have been selected to participate in prestigious award programs and have been recognized for their academic diligence. Alumni and friends of the school established Ever Auburn scholarships to provide students with additional resources and opportunities for success. In our feature stories, you'll learn how the college's online graduate programs are impacting the careers of working professionals. We also showcase the launch of the newest online Master of Science degree program, forest business and investment, designed for career advancement within the forestry industry. As we progress, we believe it is important to keep you informed with the latest updates within the school. Our alumni, students and faculty are achieving great things in their respective fields, and we hope you enjoy learning more about them in the spring 2022 issue. Together we are the future of CFWS, and we invite you to share your thoughts with us. War Eagle!
Best regards,


Janaki R.R. Alavalapati, Ph.D.
Dean, College of Forestry and Wildlife Sciences



On-Field Recognition

The College of Forestry and Wildlife Sciences 75th Anniversary Celebration was highlighted during Auburn's On-Field Recognition program Sept. 11. Dean Janaki Alavalapati, Associate Deans Scott Enebak and Daowei Zhang, and members of the 75th Anniversary planning committee, Co-chair Mark Smith, and members William Green '14 and Frank Walburn '79, were recognized on the field before a video was shown on the stadium Jumbotron showcasing the anniversary.



FEWL Academy Governor Ivey visit

Gov. Kay Ivey hosted the College of Forestry and Wildlife Sciences' Forests, Environment and Wildlife Leadership, or FEWL, Academy on Sept. 14 at the state's capitol in Montgomery, AL. During the question-and-answer session, the governor addressed a range of topics related to policy and governance. Photo credit: Governor's Office/Hal Yeager.



Advisory Council Meeting

The Auburn University College of Forestry and Wildlife Sciences hosted its 2020 Advisory Council Meeting and Dinner on Oct. 19 and 20 in Auburn, Ala. The Advisory Council started their meeting with a dinner at The Hotel at Auburn University the evening of Oct. 19 with the college's faculty and staff. The next morning the meeting officially began with breakfast and introductions by Council Chairman Cannon Lawley and Dean Alavalapati, before receiving updates from President Jay Gogue, College of Agriculture Dean Paul Patterson and Mike Phillips, director of Alabama Extension.

Contact Us

The CFWS newsletter is distributed to alumni and friends of the school. Inquiries and suggestions concerning the newsletter should be directed to the school's Office of Communications and Marketing at the address below.
Auburn University College of Forestry and Wildlife Sciences
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602 Duncan Drive • Auburn, AL 36849
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Giving

Questions concerning the school's development program, including annual and corporate giving, planned gifts and estate planning should be directed to Heather Crozier, College of Forestry and Wildlife Sciences Building, 602 Duncan Drive, Auburn, AL 36849. Inquiries may also be made by email to vannhea@auburn.edu or by phone at 334-844-2791.

Faculty Highlights

PROFESSORSHIPS

- Stephen Ditchkoff was renamed William R. and Fay Ireland Distinguished Professor
- Tom Gallagher was renamed Regions Professor in Forest Operations, Utilization, Management and Economics
- Latif Kalin was renamed Alumni Professor and named Clinton-McClure Professor
- Mark Smith was renamed Mosley Environmental Professor
- Hanqin Tian was renamed Solon Dixon Professor
- Brian Via was renamed Regions Professor of Forest Products
- Daowei Zhang was renamed George W. Peake Professor

PROMOTIONS

- William Gulsby, Associate Professor
- Wayde Morse, Full Professor
- Susan Pan, Associate Professor
- Maria Soledad Peresin, Associate Professor
- Todd Steury, Faculty Senate Chair
- Daowei Zhang, Associate Dean of Research

APPOINTMENTS

- Todd Steury, Faculty Senate Chair
- Daowei Zhang, Associate Dean of Research

Faculty, Staff and Student Awards

- Hanqin Tian was elected a fellow of the American Geophysical Union
- Christopher Lepczyk was selected as recipient of the 2021 Auburn Author Award
- Kelly Dunning named as Early Career Faculty Innovator by the National Center for Atmospheric Research
- Adam Maggard was elected president elect of the Alabama Chapter of Association of Natural Resource Extension Professionals
- Susan Pan was selected as 2020 MIT Visiting Fellow by MIT Joint Program on the Science and Policy of Global Change
- Andrew Thornton received the AU Spirt of Excellence Award for June 2021
- Lynn Von Hagen received the APSU Outstanding Alumni Award, was elected as the agent-based model workshop participant for the National Socio-Environmental Synthesis Center
- Vasavi Prakash received the 2021 Trailblazing Work in Science Policy Award, Ecological Society of America, and the 2021 Outstanding International Student Award, International Students Organization, Auburn University (Maj. Profs. Chris Lepczyk and Robert Gitzen)
- Olivia Stagner received the Unitas Malacologica Student Research Award (Maj. Profs Chris Lepczyk and Sarah Zohdy)

Research & Discovery

Graduate student and professor receive \$415,000 grant to study invasive wild pigs' impact on water quality

A graduate student and professor in the Auburn University College of Forestry and Wildlife Sciences have received a \$415,000 grant for their research on the impact of wild pigs on water quality.

Doctoral student Elizabeth Bradley is co-principal investigator on the study, "Impacts of Wild Pigs on Water Quality and Pathogen Transmission in Water," with principal investigator Graeme Lockaby, professor of wetland biogeochemistry and environmental health.

Bradley said the research is likely to lead to significant improvements in the way wild pigs are managed, such as the need to prevent wild pigs from accessing water sources used by livestock.

With Lockaby's backing, Bradley has taken the rare position of co-principal investigator while pursuing her graduate studies.

"While beginning work on my Ph.D., I became interested in the interdisciplinary influences of wild pigs on water quality," she said. "There is so much that hasn't been studied yet on the topic, and I was particularly interested in the pathogen transmission potential of this extremely prevalent invasive species.

"As I began developing more ideas than could reasonably be accomplished within my original project's boundaries, Dr. Lockaby encouraged me to practice writing these ideas for grant proposals. When the opportunity arose to write a proposal for an agency that was interested in the potential spread of disease, we jumped on the opportunity to expand on our existing work."

The grant for the project is from the USDA Animal and Plant Health Inspection Service. Bradley cites her upbringing in Alabama's Wiregrass region as the basis of her interest in the state's natural resources, biodiversity and agricultural industry — and the critical threats they face. While working on her dissertation, she learned that 87% of pathogens carried by wild pigs have been shown to cause disease in livestock, poultry, wildlife and humans.

"Despite this, there has been very little research into evaluating this threat in Alabama," she said.



Auburn University College of Forestry and Wildlife Sciences doctoral student Elizabeth Bradley collects a water sample that will be analyzed and sequenced to determine the host animal that contributed the E. coli present in the stream. Bradley is the co-principal investigator for a new study to research the water quality impact of invasive wild pigs.

Auburn researchers seeking to make strides in future manufacturing

An interdisciplinary project involving several Auburn University faculty and fellow scientists will address the hard-hitting reality that affordable housing is out of reach for many Americans living in rural areas.

But the path of this research may lead to viable solutions that would have seemed futuristic mere years ago: planning advanced manufacturing that helps utilize waste biomaterials, which can then be produced through additive manufacturing — or 3D printing — to create housing or building components.

The study, which spans the disciplines of engineering, chemistry, forest resources and architecture, also draws strongly upon the expertise of scientists at its partner institution, the University of Idaho, with Michael Maughan, an assistant professor of mechanical engineering, at the helm.

The Auburn-led portion of the project will focus on bio-resin development as a feedstock for 3D printing, which will be done at Idaho. This process will include conversion of biomass into chemicals and nanomaterials to help improve the sustainability of the resin.

Available housing is a reality for only one-half of households, said Brian Via, the Regions Bank Professor in Auburn's College of Forestry of Wildlife Sciences and director of the college's Forest Products Development Center. Via is a principal investigator for the project funded at approximately \$3.9 million from the National Science Foundation's Research Infrastructure Improvement Program.

"The problem of lack of affordable housing is further compounded for minority groups, which experience poverty at twice the rate of other populations," he said.

While seeking solutions for this dire societal issue, the project will also investigate the environmental impact of conventional concrete and steel used in the construction of traditional buildings in comparison with tall timber buildings, which emit one-third to one-half

of the greenhouse gasses of those traditional materials, Via said.

"Recently, the U.S. is trending toward mass timber buildings as a first-generation material to reduce our carbon footprint," Via said. "However, advanced manufacturing can help to utilize more biomaterial waste from forest resources that can then be 3D printed into housing or building components.

"We will manufacture 3D-printed wall panels that can be used in housing and building construction. This will allow for precise construction in a manufacturing environment using sustainable materials that can be shipped to the construction site. Through biobased polymers and fibers, we can 3D print building components that allow for end-of-life recycling."

Research team member Maria Auaad, the W. Allen and Martha Reed Professor in Auburn's Samuel Ginn College of Engineering and director of the Center for Polymer and Advance Composites at Auburn, said the project relies in large part on developing sustainable adhesives derived from renewable forest biomass and other waste resources, typically disposed of in landfills.

"The thematic basis of our proposal is to develop innovative materials that will be environmentally friendly, less dependent on depleting petroleum resources and will use natural sources or waste products with the realization of the impact on the environment that the current generation of composite materials have at the end of their life," she said.

Team member Sushil Adhikari, professor in the College of Agriculture and director of Auburn's Bioenergy and Bioproducts Center, said it is his role to find ways to produce chemicals using a fast process of pyrolysis — the thermal degradation of plastic waste at high temperatures in the absence of oxygen — for resin synthesis. He will also train graduate students and postdoctoral students who will contribute to circular-based bioeconomy research.



AMIF Project Team: Auburn University faculty are part of an interdisciplinary research team that received a multimillion-dollar grant from the National Science Foundation's Research Infrastructure Improvement Program to develop composite materials from waste resources for additive manufacturing — more commonly known as 3D printing — to create more affordable and environmentally friendly housing or building components. Pictured, from left, are Auburn's lead scientists, Maria Auaad of the Samuel Ginn College of Engineering, Sushil Adhikari of the College of Agriculture and Brian Via and Maria Soledad Peresin of the College of Forestry and Wildlife Sciences.

In this research, Maria Soledad Peresin, associate professor of forest biomaterials in the College of Forestry and Wildlife Sciences, is focused on nanocellulose production, characterization and chemical modification to be included in bio-resin formulations to improve the mechanical performance of the composites for 3D printing of housing and building components.

As with Adhikari, she is enthusiastic about this venture's effect on the next generation of scientists.

"The project offers a unique opportunity to both undergraduate and graduate students to be involved in cutting-edge technologies and sustainable development," Peresin said.

That educational impact is a key component, Via said, as one endeavor of the research is to train a new STEM-based workforce and scientists for

this future industry. Stakeholders across the supply chain will also feel the impact.

"Alabama is third nationally in timberland production, while Idaho — our Pacific Northwest partner — also contributes significantly to the forest products industry," he said. "However, forest landowners often have lower-value trees that don't meet the needs of local sawmills for traditional lumber or mass timber materials such as cross-laminated timber. Therefore, we are hoping to expand a new product line for these wood species so they can be utilized more effectively for the benefit of the landowner."

College of Forestry & Wildlife Sciences

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Online Master's Degree Broadens Opportunities

Auburn University's new online forest business and investment master's degree to support career advancement for forestry, business professionals

Auburn University's new online Master of Science degree in the College of Forestry and Wildlife Sciences is designed for working professionals seeking business expertise for career advancement within the forest industry. University officials say the degree program in forest business and investment will prepare professionals for leadership positions that are critical to advancing economic development and conservation in Alabama.

An online business degree created for the forest industry

Representing 4.5% of the U.S. manufacturing gross domestic product, the forest industry encompasses a wide range of businesses, such as forest land management firms; financial institutions, including banks, creditors and insurance companies; large individual and institutional forest landowners; publicly traded timberland real estate investment trusts; product manufacturers and distributors; harvesting contractors; forestry suppliers; and forestry consultants.

Due to the complexities of the industry, forest businesses require a workforce skilled in forestry technical skills, business techniques and financial decision-making. Often, professionals have expertise in either forestry or business, but rarely both.

"To gain the required business acumen, many forestry professionals have historically sought an MBA," said Janaki Alavalapati, dean of the College of Forestry and Wildlife Sciences. "However, a traditional MBA does not provide the background and understanding of the forestry-based skills and applications that forest investment and finance companies need to function effectively in the forest business and investment sector."

Students who lack significant forestry knowledge will also gain industry-specific skills through a blended curriculum of forestry, business, finance and investments.

Taught online for the convenience of the working professional – and their employers

To acquire this business expertise, forestry professionals have typically relied upon in-person graduate programs, which can represent a hardship for those who would like to maintain their day-to-day lives.

"Traditional programs are appropriate for some individuals, but it is often impractical for working professionals to disrupt their home and work life to pursue a graduate degree



at a major university," said Marc A. Walley, president of Forest Investment Associates.

Built-in flexibility for a wide range of careers

Auburn's Master of Science in forest business and investments, or FBI, requires 31 credit hours, 16-19 from the core courses and an additional 12-15 elective topics, such as finance, business administration, supply chain management, accounting and agricultural economics.

Required classes include forest valuation and economics, forest operations and wood supply chain management, forest finance, accounting and taxation, financial analysis, forest statistics and a forest business and investments seminar. Students who do not have a forestry background or forestry degree will also need to take forest growth, silviculture and management.

While earning this degree, students can also acquire a professional graduate certificate in forest finance and investment or supply chain management with a combination of four of the required supply chain and business courses.

Enrollment in this degree program does not require completion of the GRE exam or a thesis. Auburn's Graduate School does require a 2.75 grade-point average. However, exceptions are permitted if sufficient justification is provided to the college. Students may enroll twice per year to begin their coursework in the spring or fall semesters.

For further details, students can visit this website or contact Jessica Daniel at jrd0084@auburn.edu or 334-844-1077.

New online programs make graduate education accessible and convenient

The College of Forestry and Wildlife Sciences offers several graduate programs and certificates online, allowing students from anywhere to learn from the college's expert faculty. Students in these programs come from diverse academic backgrounds, but they all sought to broaden their professional knowledge base and advance their careers.

Here, we talk to students and graduates of each program about the professional impact of these programs.

Master of natural resources online degree, non-thesis

The online Master of Natural Resources, or MNR, program is designed for current and aspiring professionals who seek to increase their knowledge and skills focused on developing workable solutions to complex challenges affecting the regulation and management of natural resources and the implementation of environmental policy.

The non-thesis, 30-credit hour program can be customized to students' individual career interests and goals with a broad spectrum of courses to balance economic, health and environmental interests, including a combination with one or more of the online certificate programs in restoration ecology, forest finance and investment or One Health. Students can complete the MNR degree entirely online or through a combination of online and on-campus courses.

Restoration Ecology Online Graduate Certificate

The Restoration Ecology certificate program addresses the growing alteration, damage, degradation and destruction of numerous native ecosystems. Because of this dire situation, ecosystem restoration and management have become critical in responding to past land management choices. The program helps students to better understand natural processes in terrestrial ecosystems; informs students on relevant processes and practices; enhances students' critical thinking and communication skills and prepares them for either new professional opportunities or advancing to graduate school.

Tanner Hough, Restoration Ecology/MNR

For five years, Tanner Hough, who earned his MNR in 2021, was a canine instructor in Auburn's Canine Performance Sciences program, where he trained more than 375 canines in foundational detection work. He is currently a canine training instructor and handler at Global K9 Protection Group.

Hough, who holds a bachelor's degree in biology from Duke University, said that during his studies, the Restoration Ecology program gave him a great big-picture understanding of key environmental issues.

"The Restoration Ecology program is a great balance of Southern pine and wetland ecology topics," he said. "I believe I took away from it a better sense of the policies that shaped the landscape to its present form and how we're working to get back what we've lost through restoration ecology. It also gave me a greater understanding of the environment as a whole and how subtle changes can truly affect the entire ecosystem."



Taylor Abernathy, One Health

After completing her one health certificate, Taylor Abernathy is continuing to study for a doctorate in biomedical sciences. She plans to complete a dual DVM/Ph.D. degree at Auburn and pursue a Master of Public Health.

"In my research, I evaluate the environmental toxicity of drinking water contaminants, and the One Health certificate seemed like it would fit well," she said. "The courses for the certificate program allowed me to truly see the intersection of human and animal health and their interactions with the environment."

"I really appreciated the multidisciplinary approach and enjoyed taking classes from different colleges and schools, as I was exposed to different perspectives. Furthermore, I was able to learn about the variety of career paths that are available concerning One Health."

The program adds forestry business practices to their existing forestry skills. It also serves those with a solid foundation in business but want to become familiar with the aspects of forestry finance and economics in order to become more competitive in the job market or operate their forestry-based businesses.

Carter Crosby, Forest Finance and Investment

Carter Crosby, a district forester at Crosby Resource Management in De Ridder, Louisiana, recently received his forest finance and investment certificate. He earned bachelor's degrees in history and forestry from Louisiana State University.

"After working as a field forester, for several years I was looking for a way to further my career in the timber industry," said Crosby.



Dawson Hall, MNR

Dawson Hall, who recently graduated with a MNR, is a fish and wildlife technician at the California Department of Fish and Wildlife in Sacramento, California. He earned a bachelor's degree in parks, recreation and leisure facilities management in 2019.

When he sought a program to advance his career, he found it at Auburn.

"I became interested in the MNR program at Auburn after researching numerous online graduate programs throughout the country," he said. "Auburn was by far the best one due to the course options and online platform for out-of-state students like me."

"I became interested in becoming an environmental scientist. The courses that I have taken in the MNR program have all been beneficial for increasing professionalism in my field."

One health online graduate certificate

The One Health concept, led by the CDC's One Health office, focuses on the profound influence of health-related interactions among people, animals and the environment on disease risk, transmission and prediction efforts.

An estimated 60% of human infectious diseases and 75% of emerging human diseases have their source in domestic and wild animals. These zoonotic diseases include rabies, West Nile virus, Rift Valley fever and brucellosis, among others.

The One Health program uses a collaborative, multi-sectional and transdisciplinary approach, utilizing expertise from Auburn's College of Forestry and Wildlife Sciences and College of Veterinary Medicine and the School of Public Health at the University of Alabama at Birmingham.

"Auburn's MNR program was by far the best one due to the course options and online platform for out-of-state students like me."

While still early in my education, the certificate has allowed me to see the depth of One Health and career opportunities available in academia, government and private sectors."

Forest finance and investment online graduate certificate

With the impacts of increasing environmental issues, economic opportunities, technological advancements and changing ownership of lands, the forestry industry has grown into a more complex field in the last century. Now, forestry professionals need the ability to understand and assimilate all these factors with their financial and operational decision-making to best manage and leverage forest assets.

The Forest Finance and Investment certificate program is designed for a wide array of people in forestry, from recent graduates to seasoned professionals in real estate, banking, accounting, law or appraisal.

"This certificate was a way to broaden my skills and open up certain positions within the industry."

"What I learned gave me the confidence to step into more managerial roles and the ability to offer a knowledgeable point of view when consulting on matters with my superiors. With the new knowledge I gained from the courses, I have the ability to be more than a field forester."

Tian, Pan and Shi lead groundbreaking climate research on threat of increasing global aridity

Breakthrough climate research led by Auburn University researchers was published this week in Proceedings of the National Academy of Sciences of the United States of America, or PNAS.

Professors Hanqin Tian and Susan Pan of Auburn's College of Forestry and Wildlife Sciences, and Hao Shi, a postdoctoral fellow in the college's International Center for Climate and Global Change Research, worked with a group of international climate scientists to focus on a predictive understanding of how increasing global aridity velocity impacts species range.

"This study was inspired by animal and human behaviors in response to water deficits," said Tian, who also directs the center. "Just as nomadic people throughout history have migrated long distances or warred with farming neighbors to survive long-term drying, animals continue to migrate to find food and water in dry seasons."

The study, "Terrestrial biodiversity threatened by increasing global aridity velocity under high level warming," was published in PNAS on Aug. 30.

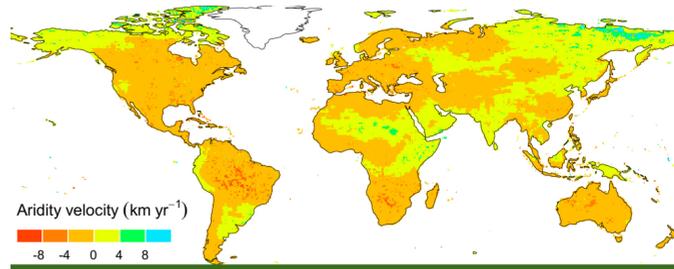
"For the first time, this study investigated the global aridity velocity in the past decades and in the future," said Pan, director of the GIS and Remote Sensing Laboratory in the College of Forestry and Wildlife Sciences.

The researchers analyzed changes in the speed and direction of global aridity and the corresponding distributions of terrestrial vertebrates and plants in the past — from 1979 to 2016 — and the future, specifically from 2050 to 2099. They also used satellite imagery to calculate spatial shifts in vegetation greenness from 1982 to 1986 and from 2011 to 2015.

The study found that both agricultural and urban areas showed a mean drying velocity in history that is increasingly affecting humans' food production system and living space.

Researchers pointed out that by the middle of the 21st century, the global average rate of aridity could reach 0.75 kilometers per year and in some areas of serious aridity exceed 8 kilometers per year. That means all affected plants and animals worldwide may need to move an average of 37.5 kilometers between 2050 and 2099. In highly arid regions, species migration of more than 400 kilometers, about the length of New York state, would be required to adapt to droughts, leaving some species, especially amphibians, unable to adapt quickly enough. Amphibians will suffer the largest aridification speed against plants, birds and mammals, the study found.

"The majority of the globe is projected to experience drying, especially in the Amazon region, which is the Earth's biodiversity champion," Shi added. "Some hotspots of the southeastern U.S., Europe and tropical Asia, which generally receive substantial precipitation and are considered water-rich, likely would experience increasingly extreme droughts and other hotspots in arid areas such as southern Africa and North America may get drier in the future."



According to a recently published climate research study by Auburn University Professors Hanqin Tian and Susan Pan of the Auburn University College of Forestry and Wildlife Sciences, and Hao Shi, a postdoctoral fellow in the International Center for Climate and Global Change Research at Auburn, the majority of the globe is projected to experience drying, especially in the Amazon region, which is the Earth's biodiversity champion. The map indicates speed distribution and hotspots of global aridity velocity during 2050 through 2099 under climate change scenario (RCP8.5). The red colors indicate drying (negative) while the blue colors indicate wetting (positive), and the unit is kilometer per year.

This research has broad significance on several levels.

"These findings can inform the design of protected area networks to avoid those areas exposed to high drying speed," said co-author Bojie Fu, a member of both the American Academy of Arts and Sciences and the Chinese Academy of Sciences.

"In those agricultural regions facing a higher drying speed, breeding and management should be improved to correspond to water stress," Pan added. "For cities that would experience long-term drying, infrastructure for water supply to both humans and urban vegetation should be well equipped, and water-saving policies should be implemented."

College of Forestry and Wildlife Sciences Dean Janaki Alavalapati said this Auburn-led research is a significant addition to the ever-growing body of knowledge on climate change.

"Climate change is likely to become one of the most significant drivers of biodiversity loss in the second half of the 21st century, and this Auburn-led research presents a stark picture of what is to come as well as what actions need to be taken," Alavalapati said. "Conserving and sustainably managing biodiversity are essential components of natural climate solutions."

Tian emphasized the need for action.

"This study underscores that strong and immediate greenhouse gas mitigation is required to avoid climate threats to biodiversity, agriculture and cities that provide people with essential goods and services," Tian said.

Auburn forestry professor's new book examines revolutionary shifts in forestland ownership

A new book by an Auburn University professor tracks the dramatic pivot in commercial forest ownership—lands once overwhelmingly owned by integrated forest products companies that have, in the past four decades or so, become the domain of institutions.

"The transformation of commercial private forest ownership in the U.S. and worldwide is an important event in the history of forestry that has significant implications on forest sustainability," said Daowei Zhang, the Alumni and George W. Peake Professor of Economics and Policy and associate dean of research in Auburn's College of Forestry and Wildlife Sciences.

Zhang's new book, "From Backwoods to Boardrooms: The Rise of Institutional Investment in Timberland," published by Oregon State University Press, investigates the history and economics of forest ownership and its significant implications.

The book tracks two major structural changes in forestland ownership in the U.S. and other parts of the world. The first major change, from 1900 to the 1980s, was the accumulation of industrial timberlands mostly from farmers and other small private forest owners. The second is the four-decade shift from industrial to institutional ownership.

"The scale of the change is truly revolutionary and impacts tens of millions of acres of mostly productive private landholdings, billions of dollars of investment, as well as forest sustainability," said Zhang. "Arguably, it is one of the top three economics and policy matters in the forest sector in the U.S. in the last 60 years."

And while Zhang and many of his peers have observed what he calls a "revolution in ownership" and its inevitable impacts, one of the publisher's book reviewers noted that no one had given the matter enough reasoned and thoughtful attention to tell the complex story of how it came about and where it may lead. Until now.

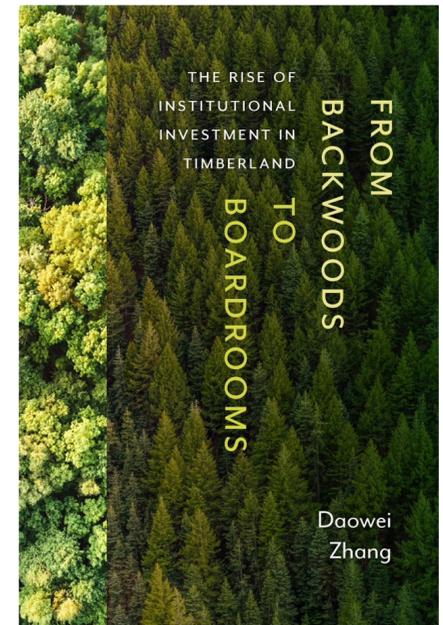
Researching and writing the book was a nine-year process. Though Zhang had been paying attention to the transformation since 1993, it was after reading that International Paper Company — one of the largest timberland owners in the world — planned to sell virtually all its timberlands, that he conceived the idea for the book in 2005.

"My feeling then was, 'the game is over,' that industrial timberland ownership was coming to an end, and that there needs to be a book about it," he said.

Zhang examines key events, economic rationale, corporate management philosophies, public policy and institutional factors through history in search of an explanation for this major shift. Assessing the impact of the ownership revolutions, he offers commentary on the future of institutional timberland investments and how they may impact global forest sustainability. He also contributes to the assessment of timberland value — a multi-century issue that fascinates economists, forest economists and tax assessors — and the empirical examination of timberland investment returns.

"I hope the book is a useful reference for forest landowners, managers, investors and anyone who's interested in the workings of the modern forest sector and the future of forest sustainability," Zhang said.

Zhang has served on the board of directors of the Pinchot Institute for Conservation and as senior forestry officer and team leader for Climate Change and Resilience at the Food and Agriculture Organization of the United Nations. He is a recipient of the Scientific Achievement Award of the International Union of Forest Research Organizations and the Society of American Foresters' Award, or SAF, in forest science. He is an SAF fellow and the author of more than 130 refereed articles, books and book chapters.



The Market and Trade Program of the U.S. Department of Agriculture National Research Initiatives Competitive Grants Program provided funding for Zhang's earlier research on the subject, and the Bradley/Murphy Forestry and Natural Resource Extension Trust in Birmingham, Alabama, provided financial support for further research that contributed to the book.

Read more about Zhang online.

Gulsby leads team researching causes of declines in turkey populations

Some regions of Alabama and the southeastern U.S. have seen wild turkey populations decline for the past 10 to 15 years. Will Gulsby, associate professor of wildlife management in the College of Forestry and Wildlife Sciences, is determined to identify these areas and develop solutions to reverse the decline.

"Wild turkey hunting has important economic and cultural benefits to Alabama and beyond," said Gulsby, whose research is funded by the Alabama Wildlife Federation and Turkeys for Tomorrow, a Mississippi-based conservation nonprofit organization. "The economic impact of hunting, fishing and

recording units across a nearly statewide region. The units record all ambient sound within their vicinity during preprogrammed times throughout the day.

To analyze these data, researchers will use a type of artificial intelligence known as a convolutional neural network, made possible by software developed by project collaborator, Michael Chamberlain of the University of Georgia's Warnell School of Forestry and Natural Resources.

"Coupling these technologies allows us to determine the timing of turkey reproductive behaviors at an unprecedented scale by maximizing data-

"Gobbling plays a role in mate attraction, so knowing when birds are gobbling can be used to determine the timing of reproductive activity," Gulsby said.

Additional objectives are determining the proportion of male turkeys capable of fertilizing clutches of eggs and capturing and fitting hens with GPS-tracking devices that will monitor when they nest, the success and failure rates of their nests, the causes of nest failure and the survival of the young turkeys after they hatch. Researchers will also collect tissue samples for subsequent disease testing.

"Having more information on aspects of turkey reproduction

research will be rewarding for all involved.

"The information gained through this research will further broaden the available information that landowners and land managers can utilize when making decisions about proper management and harvest of wild turkeys in Alabama and beyond," Gothard said.



"The economic impact of hunting, fishing and wildlife-watching in Alabama totals \$3.88 billion per year, and wild turkeys are one of the most sought-after game species in the state."

wildlife-watching in Alabama totals \$3.88 billion per year, and wild turkeys are one of the most sought-after game species in the state."

Gulsby is gathering data from public, as well as private lands, which are rarely included as wildlife population study sites, using autonomous

processing efficiency," Gulsby said.

The team's initial priority is to define the characteristics of areas with abundant versus low turkey numbers and determine the timing of turkey gobbling across the state and the influence of hunting pressure.

allows us to better structure hunting regulations to match the species' biology, ensuring sustainable populations into the future," Gulsby said.

Tim Gothard, Alabama Wildlife Federation executive director, and Ron Jolly, co-chairman of the board of Turkeys for Tomorrow, agreed the



Emmett F. Thompson Deanship

Consider a donation to the Emmett F. Thompson Deanship endowed fund in honor of the founding dean of the Auburn School of Forestry. The Emmett F. Thompson Deanship will fund new initiatives, continuing a culture of excellence and helping to recruit and retain highly qualified deans in the future. More information about giving to Auburn's College of Forestry and Wildlife Sciences is available at sfws.auburn.edu/giving or by contacting Heather Crozier at vannhea@auburn.edu.

"Dr. Thompson truly deserves to be honored with a deanship in his name. His achievements as dean of the School of Forestry have had a major impact on developing this school to become the outstanding research and educational institution that it is today," said Dean Janaki Alavalapati.

W. Kelly Mosley Environmental Award for Achievement in Forestry, Wildlife and Related Resources

The W. Kelly Mosley Environmental Award for Achievement in Forestry, Wildlife and Related Resources was presented to three recipients at the 2021 Alabama Landowners Conference held at the 4-H Center in Columbiana, Alabama, in October to recognize their outstanding voluntary contributions promoting the wise stewardship of Alabama's natural resources. To learn more about the W. Kelly Mosley Environmental Awards Program or to submit a nomination, please visit their website at <https://sfws.auburn.edu/wk-mosley-environmental-award/>



Pictured from left to right Professor and Alabama Extension Specialist Mark Smith, executive secretary of the W. Kelly Environmental Awards Program and award recipients Dr. Salem and Dianne Saloom, J. Ryan Mitchell (not pictured) with the Alabama Cooperative Extension System nominated the Salooms for the award.



Pictured from left to right is Professor and Alabama Extension Specialist Mark Smith, executive secretary of the W. Kelly Environmental Awards Program, award recipients Roy and Becky Jordan, and Bayne Moore of the Alabama Forestry Commission who nominated the Jordans for the award.



Pictured from left to right Professor and Alabama Extension Specialist Mark Smith, executive secretary of the W. Kelly Environmental Awards Program, award recipient Gene Renfro, and Tim Albritton with the USDA Natural Resources Conservation Service who made the nomination.

Forestry alum Michael Kelly endows Ever Auburn Scholarship to the College of Forestry and Wildlife Sciences

Michael Kelly, who earned a forestry degree from Auburn 1979 and has built a successful forestry career over the past four decades, has joined his wife, Karen, in endowing two Ever Auburn scholarships — including one to the Auburn University College of Forestry and Wildlife Sciences.

Ever Auburn scholarships, a new financial aid initiative created to make the Auburn experience more accessible to high-performing and driven students who otherwise would not have the means to attend Auburn, are matched dollar-for-dollar by the Auburn University Foundation.

Michael Kelly is chairman of the board of Forest Investment Associates, a timberland investment management organization that manages nearly 3 million acres of forestland in the United States and South America.

“Ever Auburn scholarships were the perfect opportunity to invest in the leaders of tomorrow and in the future of Auburn.”

The gift is not only generous, but personal: Kelly was able to pursue his forestry degree through an academic scholarship, which he has said not only relieved some financial pressure but, more importantly, sent him the message, “You’re doing something right.” His aim is to encourage forestry students to follow in his footsteps.

The Kellys’ established an additional Ever Auburn scholarship in the Auburn University College of Human Sciences in honor of their daughter Leann, who graduated in August from that college with a degree in human development and family science.

Michael Kelly, who earned an MBA at the University of South Alabama following his Auburn education, is an active supporter of the forestry community, both regionally and nationally. He serves on the Forest History board, the National Alliance of Forest Owners Board of Directors, the Auburn University College of Forestry and Wildlife advisory council and the Auburn



Karen, Leann and Michael Kelly pictured during Leann’s recent graduation from the Auburn University College of Human Sciences.

University Research advisory board. He is a registered forester and certified forester, a fellow of the Society of American Foresters and current chair of the Southeastern Society of American Foresters.

“I’m a believer in the value of higher education and passionate supporter of Auburn,” Kelly said. “Ever Auburn scholarships were the perfect opportunity to invest in the leaders of tomorrow and in the future of Auburn.”

During the first phase of Ever Auburn, which began this fall, the Auburn University Foundation has provided matching funds for the first 150 scholarships created, doubling the impact of each donor gift.

“The initiative creates an opportunity for members of the Auburn Family, like Michael and Karen Kelly, to immediately impact students’ lives while increasing the university’s ability to attract the brightest of students,” said Janaki Alavalapati, dean of the College of Forestry and Wildlife Sciences.

CFWS honors scholarship and fellowship donors and student recipients

The College of Forestry and Wildlife Sciences hosted its 2021 Scholarship and Fellowship Recognition luncheon in August to honor benefactors and student awardees. Over 100 attendees, including donors, student recipients and administrators were present at the event which took place at the Auburn University Alumni Center.

This year the college awarded over \$260,000 in undergraduate scholarships and graduate fellowships. Many of the scholarships were awarded for the first time, including the Alabama AG Credit scholarship awarded to Evie Pearson, and the Col. Charles D Chitty Jr. Endowed Scholarship, created in honor of the Alabama Polytechnic Institute (now Auburn University) alum and 28-year active-duty U.S. Air Force veteran, awarded to Omalley McGhee.

The newly established TREASURE Forest Association, or AFTA, Scholarship in Forestry and Wildlife Sciences was also awarded for the first time to wildlife student Emily Burke and forestry student Brooks Milling.

AFTA Executive Director William Green said the Board of Directors created the scholarships to further the association’s mission to promote, educate and improve.

“I look forward to watching our relationship grow with future natural resource professionals, particularly knowing that the Association is playing an active role in the professional development of those who will one day manage our state’s forests,” Green said.

During the event, Dean Janaki Alavalapati remarked, “We are fortunate to have so many generous donors who are willing to support the educational pursuits of our students. It is a pleasure to recognize the impact that legacy is having in our college and the lives of our students.”

To view the luncheon photo gallery, visit the CFWS Flickr page at <https://www.flickr.com/photos/142022913@N06/albums/72157720221276928>



SPOTLIGHT on alumni

Written by Avy Elmore



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Why did you choose to attend Auburn?

Auburn is an exceptional academic institution, and I knew they had a respected veterinarian program because that was my planned career path. Having been raised in Opelika, attending college while staying home was the most economical choice for me.

What led you to choose your major?

While I intended on becoming a veterinarian, I experienced difficulty passing classes like organic chemistry and frankly I had to choose a different route. So, I followed my heart, which led me to Wildlife Ecology and Management. My passion and concern for animals helped me understand that I would be happy with life as long as I worked with them. I am grateful for the educational challenges as they led me down my current career path. I love using my voice and talents to address conservation issues.

How did CFWS prepare you for your career?

CFWS taught me that field experience was crucial to understanding the plights faced by many species. I also learned it is essential to be patient as change doesn’t happen overnight, but to remain vigilant in our pursuit to drive change at all levels. We can do this through encouraging our peers to be adaptable, applying pressure to policymakers and leaders, and by collaborating.

What is your current role at The Ocean Foundation?

I’m a program manager, and I oversee our Fiscal Sponsorship Program and chair the Diversity, Equity, Inclusion, and Justice, or DEI, initiative with a mission to build the capacity of environmental programs and amplify marginalized voices. Our Fiscal Sponsorship program houses over 45 projects that represent multiple international disciplines of coastal and ocean issues. I get the unique opportunity to assist each project with programmatic development and non-profit management. Additionally, as the DEI committee chair, I lead our efforts to instill these values at every level of our organization. It’s a challenging role, but there’s so much room for me to grow within it.

Why is staying involved and in touch with CFWS valuable to you?

I intentionally remain involved so that others who look like me know that they are not alone. As the sole black male

in many classes, I at times felt isolated. There is a misconception that Black, Indigenous and People of Color, or BIPOC, have no interest in the environment. This is untrue because we all have a stake in our oceans and planet, and marginalized groups are disproportionately affected by conservation issues. My goal is to continue to use my voice and influence to drive CFWS to truly represent the many communities we protect due to the nature (no pun intended) of our careers. However, leadership must be open embracing change and accepting all feedback from students and alumni, especially involving DEI challenges.

What is your favorite memory from your time at CFWS; was there a professor or faculty member who had a great influence/impact on you during your time in the college?

I loved being a member of the Auburn University MANRRS chapter, or Minorities in Agriculture, Natural Resources and Related Sciences, and attending its annual organization-wide conference. This organization made me feel at home and equipped me with the professional development I needed to succeed. I learned various skills from business management to programmatic development. MANRRS taught me to remain unapologetic in my pursuit to address the challenges facing the entire conservation community, and made me the leader I am today. Dr. Brenda Allen, Michelle Cole and Dr. Graeme Lockaby

were all tremendous influences for me during my time at Auburn. They exuded an extreme commitment to supporting my growth, but particularly Dr. Allen and Michelle Cole as they were the advisors for the Auburn University MANRRS chapter.

What is your favorite thing about being an CFWS alum?

It is always inspiring to see how the next generation of students plans to impact the conservation community. I love to learn from the youth as they often see and highlight things that generations before them may have missed. I am a firm believer we can all learn something from each other, but that is only possible if we remain active in the CFWS community.

Do you have any advice for students entering the workforce right now?

As you enter the workforce, trust yourself and the knowledge you have gained, Auburn has prepared you for this moment. I also encourage students to explore different career paths across the sector, and to find their role in this space. Following your heart will lead you down the right path.