

MISSISSIPPI

LANDMARKS

VOLUME 16, NUMBER 2



MISSISSIPPI STATE
UNIVERSITY™

DIVISION OF AGRICULTURE,
FORESTRY, & VETERINARY MEDICINE

RESEARCH, EDUCATION, AND EXTENSION

MISSISSIPPI LANDMARKS

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VICE PRESIDENT'S LETTER



Much has changed since the last issue of *Mississippi LandMarks* reached our circle of supportive readers. Our communities have weathered an unprecedented global pandemic and devastating storms. These significant events have far-

reaching physical, social, emotional, and economic effects. And yet, our dedication to the land-grant mission has not wavered.

In challenging times, faculty and staff in the Division of Agriculture, Forestry, and Veterinary Medicine (DAFVM) quickly adapted to the changing needs of our students, clients, and stakeholders. Our videos, publications, and articles provided practical, research-based information for dealing with COVID-19. In collaboration with local emergency-management agencies, we offered helping hands in our communities for those in need of food, shelter, and assistance with their farms.

The COVID-19 crisis came at a critical time for us to maintain continuity in our Extension Service educational programs and our agricultural and forestry research in the Mississippi Agricultural and Forestry Experiment Station and the Forest and Wildlife Research Center. Despite the pandemic, our faculty and staff in the College of Forest Resources (CFR), College of Veterinary Medicine (CVM), and College of Agriculture and Life Sciences (CALS) continued their essential work.

While our research projects continued with planters rolling and animals tended, much of our work progressed through the use of technology. Many of our face-to-face interactions with clients shifted to virtual meetings and exchanges via social media. A sharp rise in the number of people planting gardens and starting backyard flocks generated an increase in demand for reliable information.

Spring 2020 brought the pride of graduation but without the traditional pomp and circumstance. MSU and DAFVM administrators worked to develop alternative celebrations for our graduates. CVM honored 86 doctors of veterinary medicine and 31 veterinary-medical technologists. CALS awarded 328 undergraduate degrees and 48 graduate degrees. CFR awarded 71 undergraduate degrees and 15 graduate degrees. We wish our graduates all the best and know they will represent MSU well in their endeavors to have a positive impact on the world.

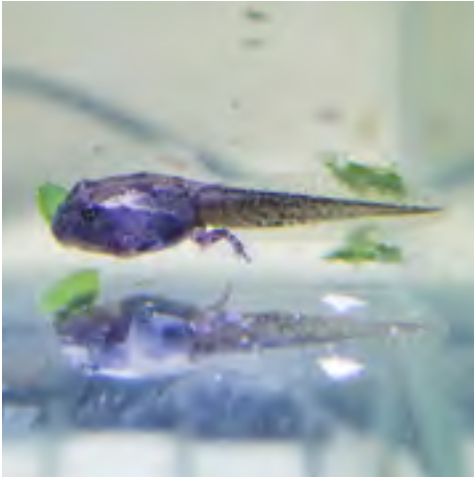
In closing, we congratulate Dr. George Hopper on his retirement and appreciate his years of service to MSU and DAFVM. At the request of President Mark Keenum and Provost David Shaw, we have assembled an interim leadership team to secure a smooth transition of services to our stakeholders, clients, and students. I want to thank the administrators now performing interim leadership roles in our division. We look forward to working together.

Thank you for your continued interest in our work that supports all Mississippians!

REUBEN MOORE
Interim Vice President

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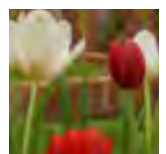
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ON THE COVER

The Mississippi State campus seemed relatively deserted and quiet in spring 2020 as the university took extraordinary precautions to protect students, faculty, and staff from COVID-19, but MSU continued its trifold mission of teaching, research, and public service nonetheless. (Photo by Kevin Hudson)



A photograph of two firefighters in blue uniforms. The firefighter on the left has a mustache and is looking down at a red balloon. The firefighter on the right wears glasses and is also looking down at a red balloon. They are both holding the balloons, which are inflated and have a small white object on top. The background is a plain, light-colored wall.

CARING FOR CANINES

Canine Handlers and Medics
Learn Life-Saving Techniques

Just like their human partners, canine law enforcement officers can experience injuries and other emergency medical events in the field. But medical care can take longer to access for officers that need a veterinarian.

With medical training through the MSU College of Veterinary Medicine (CVM), canine handlers and medics learn how to stabilize an injured animal until they can get to a veterinarian. Veterinarians and staff members at the college teamed up with the Mississippi Board of Animal Health, Mississippi State Fire Academy, and University of Mississippi Medical Center to offer the Working K-9 Care for Law Enforcement and Advanced Medic course.

“Canine officers are an asset to our communities,” said Dr. Carla Huston, a professor in the CVM Department of Pathobiology and Population Medicine who helped coordinate the course. “They protect their human partners and the community from everything from criminals to toxic chemicals. The better we can care for them, the longer they can remain healthy and able to do their jobs.”

Canine handlers receive training in basic health care and first aid. Medics get an added day of more intensive training that teaches them how to use supplies they have on an ambulance. Both handlers and medics learn to assess injuries and other emergencies, handle an injured animal, and treat a variety of emergency conditions. Students build a grab-and-go first-aid kit and put together an emergency plan, which includes having written contact information for area veterinarians.

The training not only teaches handlers and medics to treat injuries that can include gunshots, intoxications, burns, abrasions, broken legs, snake bites, and bee stings, but also helps them understand the dog as a patient.

“These dogs are highly trained for very specific tasks, and that could intensify a dog’s natural tendency to be aggressive if they are hurt or stoic if they are sick,” Huston said. “First-aid treatments are different for dogs. They have different anatomies, and their body systems work differently from ours. Some

medications that might be on an ambulance could permanently affect a dog’s sense of smell. For these dogs, giving that medication would end their careers.”

“Now, I have the equipment,
and I am confident that
I have the ability to save a
dog’s life if I need to.”

CHAD PONDER

Chad Ponder, a medic and instructor at the Mississippi Fire Academy, took the course in spring 2019 and has already used the skills he learned to treat an overheated search-and-rescue dog.

“I was able to cool the dog down and to handle him without causing additional stress,” said Ponder, who trains search-and-rescue teams for various rescue operations, including high-angle rope rescue, water rescue, and confined-spaces rescue. “Having these skills could be the difference between life and death for a dog, especially if we are in a remote location. But now, I have the equipment, and I am confident that I have the ability to save a dog’s life if I need to.”

The class is funded by a grant through the Mississippi Office of Homeland Security and approved by the Mississippi Board on Law Enforcement Officer Standards and Training. Class supplies are provided by the college with funds from other grants.

CVM is working to record video modules that can be used for training once funding is exhausted. Private veterinarians also are being trained to offer the course. So far, two private veterinarians have earned certification to teach the course.

BY SUSAN COLLINS-SMITH • PHOTOS BY TOM THOMPSON



A Legacy of Service

Longtime Administrator George Hopper Retires

Helping students, staff, and faculty succeed and acknowledging their contributions is the legacy of Dr. George Hopper's leadership in the Division of Agriculture, Forestry, and Veterinary Medicine.

Hopper retired on June 30, 2020. He served 15 years as the dean of the College of Forest Resources (CFR) and director of the Forest and Wildlife Research Center (FWRC) and 10 years as the dean of the College of Agriculture and Life Sciences (CALS) and director of the Mississippi Agricultural and Forestry Experiment Station (MAFES).

Dr. Reuben Moore, DAFVM interim vice president, is now serving as the MAFES interim director. Dr. Scott Willard is serving as the CALS interim dean. Dr. Loren (Wes) Burger Jr. is serving as the CFR interim dean and the FWRC interim director.

Hopper, an MSU alumnus, built great momentum in the four units he directed. His focus on student success resulted in programs that prepare graduates to enter the workforce. He instituted the Undergraduate Research Scholars program, enhanced study abroad opportunities, and emphasized the importance of internships and professional experience for all students. During his years as dean, enrollment in CFR and CALS increased by 78 percent and 65 percent, respectively.

Hopper engaged alumni and friends, resulting in a 40 percent increase in annual scholarships. In CFR, Hopper implemented the Bulldog Forest Program, which now contains 30,000 acres of timberland. Proceeds from the sale of resources fund faculty and staff development and student scholarships. In both colleges, the endowment has grown exponentially.

"Dr. Hopper is passionate about student education and reminds us often that we are here for the students," Moore said. "His focus on student education and his desire to see students succeed resulted in record growth for both colleges."



In addition to his focus on students, Hopper equipped faculty and staff with the tools to succeed by repairing and renovating MAFES facilities statewide. He oversaw the construction of new facilities, including the Meat Science and Muscle Biology Laboratory, the Animal and Dairy Sciences Building, the Colonel K. D. Johnson Courtyard at Thompson Hall, and the Mid-South Forestry Equipment Show pavilion, as well as the renovation of the Dorman Lake Lodge. Several other projects are underway, including construction of the Poultry Science Building, new forestry greenhouses, and a wildlife, fisheries, and aquaculture environmental education center and aviary.



A call to service led Hopper to lead professional organizations on the national stage. He served as president of the National Association of University Forest Resources Programs and as chair of the Experiment Station Committee on Organization and Policy, the governing body of the Agricultural Experiment Station Section of the Association of Public and Land-Grant Universities Commission on Food, Environment, and Renewable Resources. He served as chair of the Board of Natural Resources for the Association of Public Land-Grant Universities.

Dr. Greg Bohach, former DAFVM vice president, noted Hopper's service to the land-grant system.

"His leadership has exemplified the highest level of excellence, enhancing the performance of the land-grant system in the

state, region, and nation, and helping to attain the triad mission of learning, research, and service on behalf of our citizens and stakeholders," Bohach said.

Hopper and his wife, Dr. Missy Hopper, will remain in Starkville while she continues to work as a professor in the MSU College of Education and president of the national honor society Phi Kappa Phi.

Reflecting on his retirement, Hopper said, "I am honored to have led these incredible colleges and research units at my alma mater. I appreciate all of the people who have supported me along the way and who will continue to support our units. Serving Mississippi State has been the highlight of my life."

BY KAREN BRASHER • PHOTOS BY DAVID AMMON



Soil to Shelf

Connecting Growers and Producers with New Markets

What started as a backyard beekeeping hobby in 2001 for Austin Smith's father has grown into a bustling family business.

The Smiths manage 1,400 colonies from their Petal, Mississippi, headquarters. They produce honey, beeswax candles, and other beeswax products and are looking for new markets.

"We have our products in a lot of south Mississippi grocery stores, but we'd like to get into some new places in south Mississippi and throughout the state," Smith said. "We have a popular product, and I think people in other parts of the state and neighboring states would love to have access to our products."

Matching farmers with retailers is what Soil to Shelf was all about. At the December event, Smith and about 40 other producers had the opportunity to meet grocers and other retailers who are interested in buying their products. Fruit and vegetable growers, specialty foods producers, and other farmers learned how to get their products on local store shelves.

The MSU Extension Service, Mississippi Power, Mississippi Farm Bureau Federation, Mississippi Department of Agriculture and Commerce, and Southern Sustainable Agricultural Research and Education Center partnered to host the meeting in Jackson.

"Our grocery stores are such an important part of keeping a small town strong," said Dr. Rachael Carter, community

development specialist with the Extension Center for Government and Community Development. “Building relationships between local grocers and retailers and our agricultural producers has the potential to grow Mississippi’s rural economies. Extension is dedicated to providing the support our producers need, and we are pleased to have the opportunity to work with our partners on this.”

The project is part of Extension’s new Local Flavor program, which supports the growth of the local foods industry by connecting growers, retailers, and others in the food industry.

Garry Ford, who recently retired and purchased 3 acres of land in Amite County for vegetable and small-fruit production, is new to farming and wants to learn about the crops that are in demand.

“I wanted to find out what products buyers are interested in,” Ford said. “Knowing what items clients want will help me plan my 2020 crops.”

Grocery representatives expressed interest in all locally grown produce, but they especially want items—such as peanuts and okra—that don’t hold up well when shipped long distances and stored in warehouses. Patrick Morris, senior category manager of produce for Louisiana-based Rouses Markets, said his retail company has always purchased locally grown produce.

“We’ve traditionally done business with mostly Louisiana farmers, but we are looking to buy from more Mississippi growers,” Morris said. “You have a different soil type here than we do in Louisiana. You can do some unique things here that we can’t in Louisiana.”

Mississippi Commissioner of Agriculture and Commerce Andy Gipson said the event will help producers and retailers deliver the products consumers want.

“The Soil to Shelf workshop expands market opportunities for growers, allows retailers access to locally produced food items, and ultimately creates a stream of commerce that allows Mississippians to buy local food and homegrown products,” he said.

In addition to meeting retailers, participants learned about the requirements for selling direct to retailers and about programs that can help them reach new markets, including Genuine Mississippi, the Farm to School Program, and the U.S. Department of Agriculture food safety courses Good Agricultural Practices and Good Handling Practices. They also heard presentations from Extension experts on farm production planning and finances and marketing farms online.

BY SUSAN COLLINS-SMITH





TINY TOAD

A Work of ART

Olaf the crested toad is almost 2 months old in this photo. (Submitted by Diane Barber)

In a partnership between MSU and the Fort Worth Zoo, researchers have hatched highly endangered Puerto Rican crested toads through in-vitro fertilization using semen collected in the wild.

The first of these toads was named Olaf after the snowman in the movie *Frozen*, a tribute to the frozen sperm used to create him. Olaf can truly be called a work of art. He was produced through “assisted reproductive technologies”—ART—a process developed by scientists in the Mississippi Agricultural and Forestry Experiment Station (MAFES) and the Forest and Wildlife Research Center (FWRC). ART is being used to help preserve threatened amphibians from extinction.

This pioneering technology allows zoos, researchers, and other conservationists to expand the genetic material used to help maintain a genetically diverse, self-sustaining population of crested toads without removing the animals from the wild.

ART includes hormone therapies, sperm cryopreservation, and in-vitro fertilization. MSU is home to the country’s only National Amphibian Genome Bank, a repository of cryopreserved sperm from several of the world’s most threatened and endangered amphibian species.

Dr. Carrie Vance, an assistant research professor in the College of Agriculture and Life Sciences Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology who coleads the project, said Olaf is an example of how ART can enhance amphibian populations.

“Olaf represents the first time we used cryopreserved sperm from a wild Puerto Rican crested toad as a new genetic line to be combined with an egg from a captive female,” said Vance, who is also a MAFES scientist. “What’s more is that both of Olaf’s parents have since died of natural causes, so Olaf is truly the last of this particular genetic line.”

“As an indicator species, it is important to determine why amphibian populations are disappearing and to try and help populations recover.”

DR. ANDY KOUBA

ART is one facet of a larger species survival plan, which also includes habitat restoration, disease control, and establishing an assurance colony in captivity, Vance said. She has partnered with Dr. Andy Kouba, an FWRC scientist, for more than 20 years developing innovative reproductive technologies for threatened and endangered species. Kouba is professor and head of the College of Forest Resources Department of Wildlife, Fisheries, and Aquaculture.

The researchers have also applied ART to the Mississippi gopher frog, considered one of the most endangered in the U.S. Their pioneering work resulted in thousands of Mississippi gopher frogs being produced by zoos around the country and reintroduced into their native habitat.

“Many of the techniques we use on species like the Puerto Rican crested toad were developed using the Mississippi gopher frog, which was the first endangered species ever produced from frozen sperm,” Kouba said.

“Globally, an estimated 30 to 40 percent of amphibians are threatened with extinction,” he continued. “In the U.S., that



Graduate student Isabella Burger withdraws a sample of cryopreserved amphibian sperm. (Photo by Dominique Belcher)

number is closer to 50 percent. ART has led to millions of tadpoles from threatened and endangered species being released into the wild.”

Kouba added that amphibians serve as indicator species for the health of their surrounding ecosystems.

“They are the canary in the coal mine,” Kouba said. “Anything happening in the environment soaks through their permeable skin. Amphibians also have aquatic and terrestrial life stages, so scientists can understand two different environments. As an indicator species, it is important to determine why amphibian populations are disappearing and to try and help populations recover.”

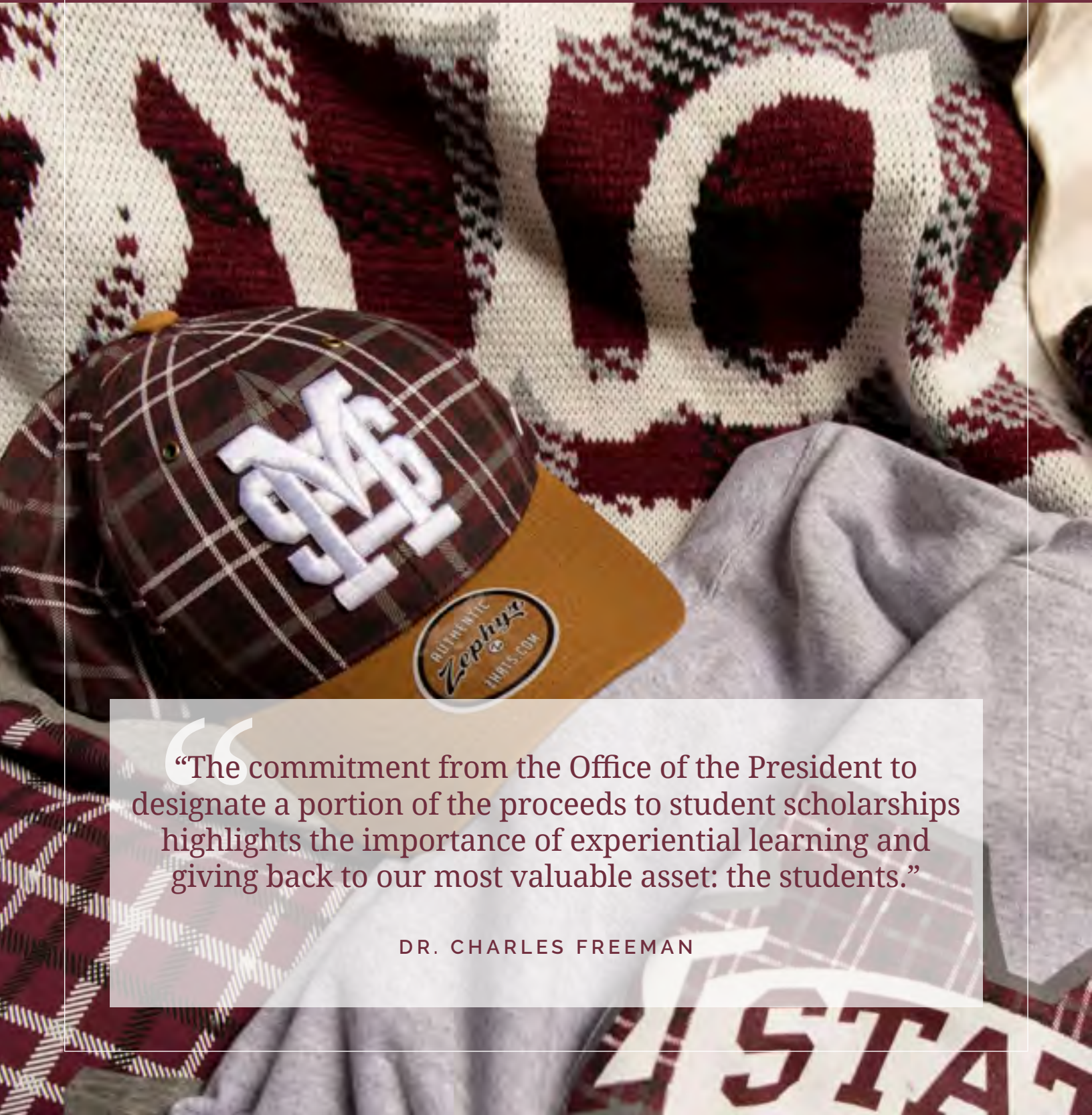
Support for the Olaf project includes funding from Disney’s Conservation Endowment Fund and the Association of Zoos and

Aquariums. Longtime funding partner, the Institute of Museums and Library Services, supported development of this work and currently sponsors the lab’s salamander research. Morris Animal Foundation also has provided previous support.

BY VANESSA BEESON

MAD FOR PLAID

Developing MSU Bully Tartan
Teaches Design and Business



“The commitment from the Office of the President to designate a portion of the proceeds to student scholarships highlights the importance of experiential learning and giving back to our most valuable asset: the students.”

DR. CHARLES FREEMAN



A class design project has created a new line of MSU-branded products, whose sales will fund future academic opportunities for students.

When Dr. Catherine Black came to the Fashion Design and Merchandising program in the School of Human Sciences, she brought with her the idea to conduct a fabric-design project for her students to use MSU colors to create a tartan, a type of plaid material. Human Sciences is a unit of the MSU College of Agriculture and Life Sciences.

"Our goal was to design a tartan, develop products to market it, and use the money from proceeds to fund a scholarship," said Black, a professor in the school.

In 4 years, she and collaborator Dr. Charles Freeman did just that. Freeman is an associate professor in Human Sciences.

"We started with me teaching a design class, and Charles teaching a product-development class," Black said. "In my class, each student designed a tartan, which is a specific plaid pattern that is registered with the Scottish Tartan Association."

Once all the students had designed their own tartans, Human Sciences Director Michael Newman narrowed down the field to 15 contenders. Images went up on a departmental website, and a small group of judges in the school narrowed this pool down to the top three finalists.

Voting then was opened up to the MSU student body and alumni. They chose the Bully tartan created by Elizabeth Costa, a 2019 fashion merchandising graduate from Dallas, Texas.

"This was my first time developing a fabric design," Costa said. "I had developed products in previous classes, so that was helpful in knowing how patterns look on products."

Costa said she tried to highlight the spirit of the Bully mascot and how he brings everyone together. Coming from a family of MSU graduates, Costa grew up with bulldog stuffed toys, so she built on that familiarity by researching the role the mascot plays in football.

"I wanted to make a design that meant something to me and paid tribute to my family's love of Bully and the Bulldogs," she said.

Once the design was selected, the next year was spent working with Barnes & Noble Campus Bookstore suppliers to develop products incorporating the tartan. Licensing came next, and the result was a blanket, t-shirts, sweatshirts, a baseball cap, a mug, a tie, and a bowtie in the Bully tartan.

Black said one reason she chose the tartan is that it is a fabric known worldwide.

"It is an easy fabric to create," Black said. "It has straight lines, and it is recognizable."

Freeman taught the product-development class, and he and Black worked with the product licensing team.

"This project has given our students an opportunity to bring an idea from concept to consumer," Freeman said. "It was a unique situation to showcase the importance of collaboration and the various moving parts involved with product development."

"The commitment from the Office of the President to designate a portion of the proceeds to student scholarships highlights the importance of experiential learning and giving back to our most valuable asset: the students," he said.

BY BONNIE COBLENTZ • PHOTOS BY KEVIN HUDSON

TESTING NEW Sweet Potato Varieties and Cover Crops TO CONTROL WEEDS

Growing interest in organic sweet-potato production sparked a project by MSU researchers that could help both organic and conventional producers better manage yield-reducing weeds.

Acreage of organic sweet potatoes doubled nationwide between 2011 and 2016. Producers in the Southeast grow half of that acreage, and Mississippi producers have expressed an interest in growing organically, according to Dr. Te-Ming Paul Tseng, a researcher with the Mississippi Agricultural and Forestry Experiment Station (MAFES) and assistant professor in the College of Agriculture and Life Sciences Department of Plant and Soil Sciences.

“Weed management research and education has not kept pace with this growing market,” Tseng explained. “But both organic and conventional growers critically need an alternative or supplemental tool to effectively manage weeds.”

So, Tseng teamed up with Dr. Mark Shankle, a research professor at the MAFES Pontotoc Ridge-Flatwoods Branch Experiment Station, and Dr. Stephen Myers, a former researcher and Extension professor at MSU who is currently an assistant professor at Purdue University. They set out to develop sweet-potato varieties that produce natural weed-suppressing compounds. A related goal is to identify cover-crop strategies that can help suppress weeds, increase nitrogen release, improve soil quality, and reduce insect pressure. Varieties that naturally suppress weeds are called allelopathic.

The team has made some progress, identifying two varieties that show promise for suppressing weeds, including Palmer amaranth, an aggressive, herbicide-resistant pigweed. They are now conducting repeat trials to confirm the varieties’ allelopathic performance.

If these offspring plants show weed-suppressing ability, the researchers will work with plant breeders to develop a variety that combines weed-suppression with desirable agronomic traits, including storage root quality and yield, Tseng said.

Hard-to-manage weeds, including yellow and purple nutsedge, annual grasses, common cocklebur, and pigweed species, can reduce yields by as much as 90 percent if left untreated. Herbicides registered for use in sweet-potato crops are limited and do not control some of the most troublesome weeds. This project addresses the critical need for a holistic approach for integrated weed management strategies.

“The results of our research will ultimately improve the lives and livelihoods of producers, especially organic producers, by improving financial sustainability, as well as reducing environmental impacts,” Tseng said.


Although an allelopathic variety is at least 5 years away from being available to organic growers, conventional growers could benefit sooner from the team’s cover crop study, Shankle said.

“Our conventional growers are interested in cover crops not only for weed suppression, but because these crops also help build up the soil with nutrients, and they can potentially improve soil tilth (physical condition),” Shankle said. “This could reduce fertilizer costs and help minimize skinning on potatoes when they are dug, which makes them more attractive and more desirable at market.”

The research project is supported by the Mississippi Sweet Potato Council, North Carolina Sweetpotato Commission, and U.S. Sweet Potato Council.

BY SUSAN COLLINS-SMITH • PHOTOS BY DAVID AMMON





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DR. MARK SHANKLE



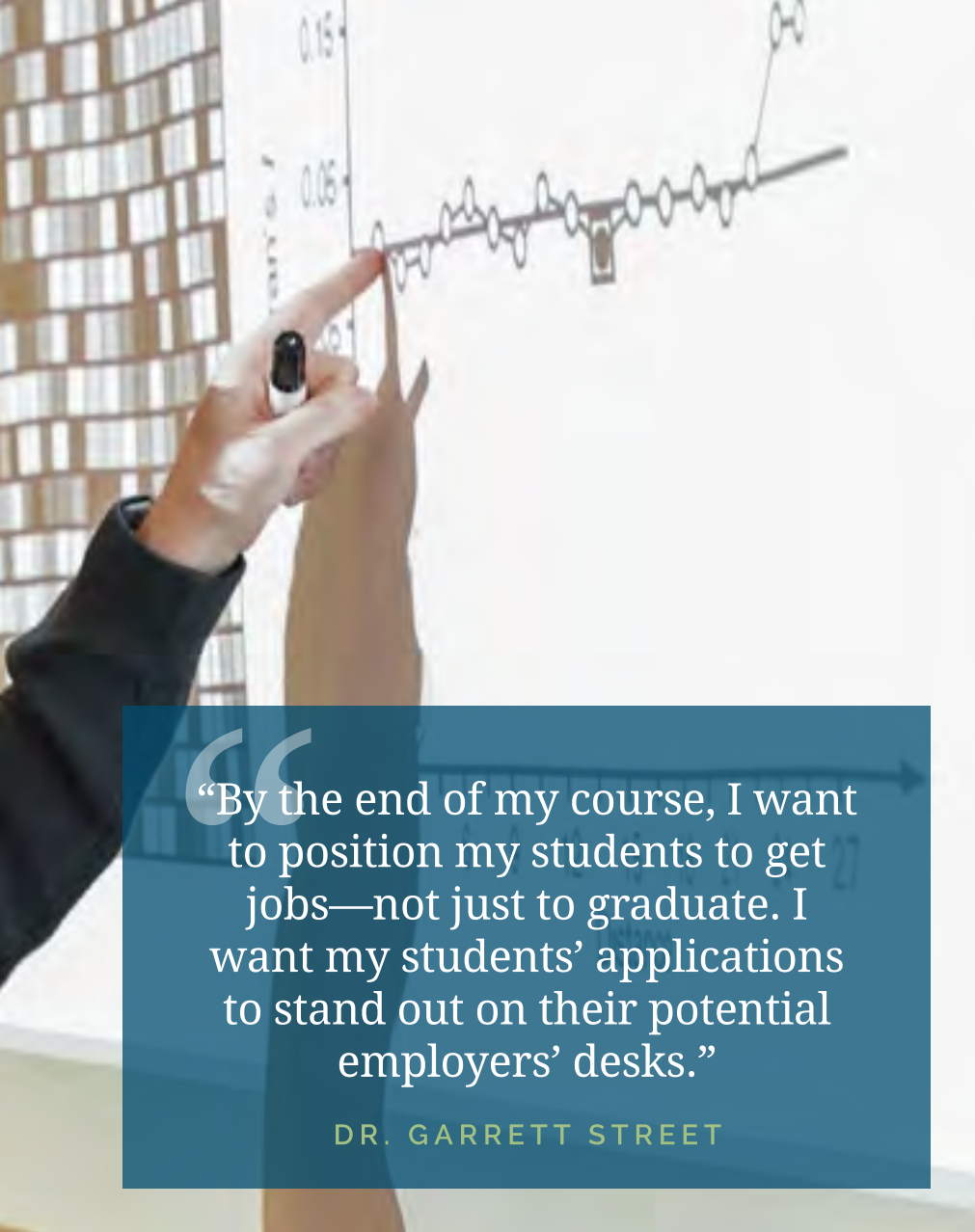
BRINGING Real-World Applications TO THE CLASSROOM

Dr. Garrett Street uses a variety of teaching philosophies in his lectures and labs, but the one always at the forefront is authentic learning—the idea that students learn best when they are dealing with real-world problems.

A simpler way to explain his approach to pedagogy, though, begins with a well-known phrase: “It is OK to be wrong.”

“You have to be wrong before you’re right,” Street explained. “You have to not know something before you know something. If you knew everything, you wouldn’t be in college. I believe students have such an ingrained fear of failure that they don’t want to speak up and ask questions.”

Street, an assistant professor of quantitative ecology in the MSU College of Forest Resources (CFR) Department of



“By the end of my course, I want to position my students to get jobs—not just to graduate. I want my students’ applications to stand out on their potential employers’ desks.”

DR. GARRETT STREET

Wildlife, Fisheries, and Aquaculture, teaches biometrics and applications of geographic information systems, as well as a graduate course in movement ecology. He also is a mentor for students in the Judy and Bobby Shackouls Honors College undergraduate research program.

Street is the most recent recipient of the CFR Outstanding Teaching Award. His work was previously recognized with the Mississippi Agricultural and Forestry Experiment Station Grantsmanship Award, the CFR Outstanding Research Award, and the MSU Office of Research and Economic Development Outstanding Research Award.

“If we as wildlife professionals are going to provide advice to landowners to help foster populations of turkey or white-tailed deer on their property, we hope to be right, but we have to acknowledge when we might be wrong,” he said. “Maybe what I tell you to do is not as important as I think it is, or maybe it is important but not on your property. A unifying theme of my

courses is to teach students to appreciate that kind of uncertainty.”

Street introduces his students to new analytical techniques and technology to show how they are used in wildlife, including accelerometer and magnetometer sensor systems.

“These devices are essentially Fitbits for animals,” he said. “They measure the direction and magnitude of an animal’s body acceleration as it moves. I let students wear these devices and observe their own accelerations to see how different behaviors—walking, sitting, jumping, or climbing—produce different signals. This allows students to see how the same technology they find in their smartphones can help them get a better look into the daily lives of animals.”

In each of his computer labs, Street gives students real-life problems that can be solved by applying modern technology and data discussed in lectures.

“I write materials that are intentionally difficult because I genuinely want my students to make constructive mistakes with my supervision so I can show them how to correct the mistake and hopefully learn from it,” he added. “Seemingly simple questions like, ‘Where will this animal go if I change its habitat?’, that are

so critical to management and conservation simply cannot be fully answered with older tools.”

Taylor Saucier, a senior in wildlife, fisheries, and agriculture, took Street’s biometrics and applications of GIS courses.

“He is in lab the whole time, walking around, looking over our shoulders, and running around from person to person to help us,” she said. “He very much tries to create a learning atmosphere that is very welcoming and nonjudgmental. The labs are definitely challenging, but it is rewarding at the end to finally figure it out.”

Street said he designs each of his labs to give students practical and technical skills they can use in their careers.

“By the end of my course, I want to position my students to get jobs—not just to graduate,” he said. “I want my students’ applications to stand out on their potential employers’ desks.”

BY NATHAN GREGORY • PHOTO BY JONAH HOLLAND



Study Helps

Protect Raptors

in Urban Areas

“These birds do not recognize the danger of the utility structure.”

DR. SCOTT RUSH



Photo Submitted

Raptors and manmade structures can mix poorly, a fact MSU researchers are studying with an eye to finding ways to make the relationships more positive.

Many of the nation's birds of prey are protected through legislation, and enthusiasts celebrate stories of some species' abilities to thrive in urban environments and adapt to life around humans. But there is a downside. Some manmade structures that attract raptors can be fatal to the birds. And the birds can be harmful to structures, including utility systems.

Dr. Scott Rush, a Forest and Wildlife Research Center associate professor in the College of Forest Resources, said interactions of large birds with electrical transmission towers can create difficult situations.

“Many raptors have a high fidelity to nesting sites, which means they come back to the same location year after year,” Rush said. “Since some of these birds can live more than 20 years, that can cause a problem if their nesting site poses a danger to the bird or to the structure.”

The nests of these large birds can damage electrical transmission towers over time. Additionally, these locations put the birds directly into the lethal arc zone. The longer wingspans of some raptors can connect two high-voltage points on the towers, electrocuting the bird and causing a power outage.

“These birds do not recognize the danger of the utility structure,” Rush said. “When raptors have high fidelity to a particular nesting site, even if the nest is moved, they may be prone to return to that location over multiple years.”

Research efforts so far have focused on determining whether raptors will accept their nests being picked up and moved to nearby artificial sites. After a nest is moved, a deterrent is used to prevent the bird from nesting in the same location again.

There is a cost associated with building necessary structures in a way that is not nest friendly, so Rush and his team are examining factors that attract birds to a particular site. They use banding and backpack transmitters to gather data on the raptors' range and habits.

Natasha Murphy, an MSU doctoral candidate from Ireland working on a degree in forest resources, is involved with this part of the effort. She has been banding birds since 2014 in five different countries.

“When we individually mark birds, over time we can begin to track their movements and life history traits such as longevity, behavior, survival rate, reproductive success, and population trends,” Murphy said. “Bird banding is not only beneficial for scientific research, but also for management and conservation projects.”

“The information we are collecting will help us as we try to decipher how to keep raptors off utility structures, how to move them successfully, what attracts a bird to a site, and what can be done from an engineering standpoint to keep the birds from nesting on manmade structures where there could be problems,” Rush said.

BY BONNIE COBLENTZ • PHOTOS BY KEVIN HUDSON



NEW DEGREES OFFER STUDENTS OPPORTUNITIES TO LEARN AND GROW

Five new programs of study are being offered in the colleges that make up the MSU Division of Agriculture, Forestry, and Veterinary Medicine, including two online graduate degrees.

The College of Forest Resources (CFR) now has an online master's program in conservation education, while the College of Agriculture and Life Sciences (CALS) now offers an online graduate degree in animal and dairy sciences.

Dr. Andy Kouba, head of the CFR Department of Wildlife, Fisheries, and Aquaculture, said the establishment of a conservation education program makes MSU the first university in the Southeastern Conference to offer such a degree.

"With heightened public interest and demand revolving around environmental issues, many conservation-education-related professions are expected to increase over the next decade," Kouba said. "This program will train our future workforce in outreach education techniques, effective management and leadership skills, and sound ecological principles to advocate for conservation of our natural resources. We are excited about the online aspect of this program, as there are quite a few people nationally interested in conservation education professions but who are currently employed and cannot afford to quit their jobs."

Wildlife, Fisheries, and Aquaculture also has a new conservation-biology concentration for undergraduate students. Kouba said students who pursue this degree will learn how to articulate the importance of biodiversity and why it is necessary to conserve species, their habitats, and ecosystems.

Students in the online animal and dairy sciences program work individually with a major professor who is an expert in their field of interest. Dr. Jamie Larson, associate professor and graduate coordinator in the CALS Department of Animal and Dairy Sciences, said these students can learn from the professors' experiences, discuss areas of interest, and learn about the

industry from those interactions, which she said will increase engagement and set the program apart from many others.

"Some of the students completing the program online will be working in industry or may have work experiences they can share, and our on-campus students can benefit from learning about that experience and knowledge," Larson said. "We see this as a two-way street with all students having a benefit, and even faculty staying in touch with what is happening today in the industry. We are excited to see the new doors this program will open."

The School of Human Sciences, a unit of CALS, now offers two new certificates: (1) a trauma-informed child advocacy certificate to complement the Human Development and Family Science bachelor's degree, and (2) a retail certificate from the Fashion Design and Merchandising major.

"Childhood traumas such as witnessing violence, experiencing a natural disaster, or being abused are deeply distressing and may impact children's mental, emotional, social, and physical health and well-being," said Dr. Lori Elmore-Staton, associate professor in Human Sciences. "Given that almost half of children in the U.S. experience one or more instances of trauma in their life, professionals working with children and families need to be equipped to respond."

The retail certificate will provide knowledge and skill sets for future professionals in the retail industry, such as digital retail, entrepreneurship, retail pricing, and inventory management.

"The certificate will also provide training for the development and management of online shopping," said Dr. JuYoung Lee, an assistant professor in Human Sciences. "Aspiring professionals with a retail background can use this certificate to further their understanding of their future career and increase competitiveness to be hired in management positions."

BY NATHAN GREGORY • PHOTO BY KEVIN HUDSON

Pathologists Monitor Cotton Virus

MSU pathologists will monitor a relatively new plant disease in Mississippi cotton fields once the growing season is in full swing.

Cotton leafroll dwarf virus (CLRDV) was first reported in Alabama in 2017. It is closely related to a cotton virus known to occur in South America. Historically, that virus has caused up to 80 percent yield losses in Brazilian cotton fields.

Since 2017, CLRDV has reportedly infected cotton in six other Southern states. While sightings have been widespread, nothing so far indicates that CLRDV is nearly as much of a threat in the U.S. as it is elsewhere.

"This virus and the associated disease are closely related to a disease known as 'cotton blue disease,' but it is not the same," said Dr. Tom Allen, an MSU Extension pathologist and Mississippi Agricultural and Forestry Experiment Station (MAFES) scientist based at the Delta Research and Extension Center in Stoneville. "We do not have cotton blue disease in the U.S. The naming situation has caused some confusion."

Allen outlined five facts producers should know about CLRDV.

CLRDV IS DIFFICULT TO DIAGNOSE IN THE FIELD.

Based on observations made during 2019, symptom expression appears to differ among cotton varieties, so telltale signs of the disease are not uniform. One symptom is brittle leaves. Another early symptom is an apparent nutritional deficiency.

"Plants with leaf distortions or a yellowish tint could be infected," Allen said, "but not all plants with these symptoms have CLRDV."

CLRDV WAS WIDESPREAD THROUGHOUT MISSISSIPPI IN 2019.

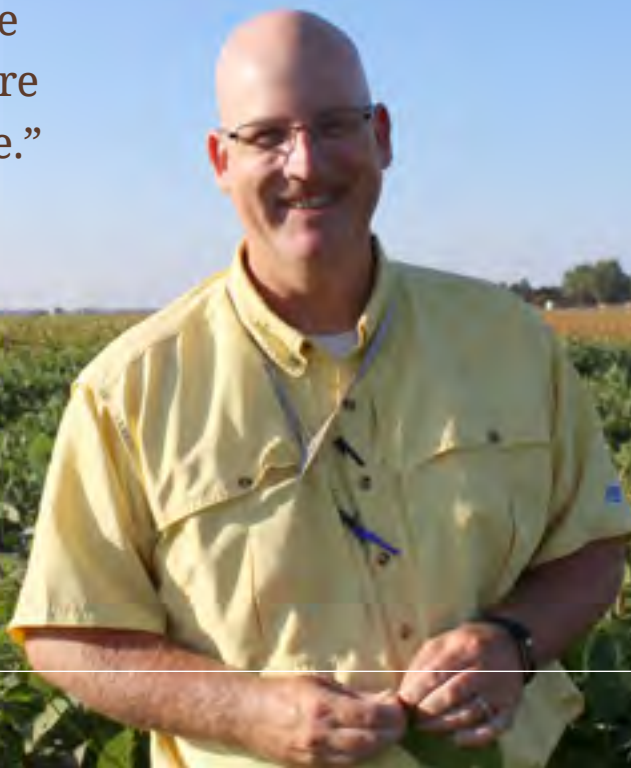
Forty Mississippi counties have had lab-confirmed CLRDV-positive plants since 2018. An additional 11 counties were suspected to have cotton plants that were infected with the virus, based on visual observations of symptomatic plants.

"It's important to note that plants expressing symptoms are not confirmation of the disease," Allen said.

"It's important to note that the plants expressing symptoms are not confirmation of the disease."

DR. TOM ALLEN

Photo by Kenner Patton



APHIDS TRANSMIT THE DISEASE THAT CAUSES CLRDV.

Even though cotton aphids are vectors of CLRDV, it is possible that not all aphids carry or transmit the virus to cotton. Allen does not recommend more aggressive aphid management as a prevention strategy.

“Be mindful that even though cotton aphids transmit the virus, this does not mean that all fields that have an aphid infestation are infected with CLRDV,” he said.

LAB TESTS ARE CURRENTLY THE ONLY WAY TO CONFIRM CLRDV.

Dr. Teresa Wilkerson, a MAFES assistant research professor at the Delta R&E Center, said that because of the variation—and sometimes absence—of symptoms, only molecular detection methods can determine whether a sample is CLRDV-positive.

“With all the new herbicides and herbicide-trait technologies, it can be rather difficult to attempt to tell apart the symptoms associated with herbicide injury or the cotton virus in the field,” she said. “Some auxin herbicides can produce similar symptoms in the leaf tissue.”

Allen said processing samples requires 2 days and involves a series of molecular procedures. Virologists are working to create a simpler and more reliable diagnostic test.

YIELD DOES NOT APPEAR TO BE SIGNIFICANTLY IMPACTED BY CLRDV.

During 2019, no fields in Mississippi with confirmed positive plants were believed to have major yield reductions. One key in avoiding the potential losses associated with the disease is avoiding late planting.

“Yield losses in some CLRDV-affected cotton fields in south Alabama in 2018 were believed to be significant,” Allen noted. “The fields in question were planted in June and likely had high levels of CLRDV infection as a result of high aphid populations. However, that was not the norm and was limited to an extremely small geography.”

MSU researchers plant-mapped cotton to help determine the impact of the virus on yield. They took samples from fields where CLRDV was present, as well as from research plots where CLRDV-positive plants were harvested, Wilkerson said. The fields and plots still managed to produce good yields.

BY NATHAN GREGORY



A symptom of cotton leafroll dwarf virus in late-stage cotton is abnormal plant growth. (Photo by Tom Allen)

INSPIRING FEMALE AND MINORITY RESEARCHERS

Dr. LaShan Simpson is tackling the problem of vascular calcification of the smooth muscle cells of the arteries, a prevalent health problem often addressed with balloon angioplasty.

It sounds like a research project in a major medical school, but the work is being done in the Mississippi Agricultural and Forestry Experiment Station. And the researchers are primarily graduate and undergraduate students. Even more notable is that the majority are women and African Americans.

“STEM fields in general have low numbers of women and minorities,” said Simpson, an associate professor in the MSU College of Agriculture and Life Sciences (CALS) Department of Agricultural and Biological Engineering. “Biomedical engineering has more than some other engineering fields, but the numbers are still low. I am conscious of this disproportion, and I want to make a difference for my students.”

Simpson takes a two-step approach to the project that involves cell culture, along with gene and protein analysis.

“We are trying to understand what is happening at the cellular level that initiates calcification, such as which genes are involved, which proteins are changed, and what are the signaling pathways,” Simpson said. “The next approach is to try to develop new, noninvasive therapies to treat calcification.”

She said the current, surgical treatment for hardening of the arteries works temporarily, but then the body tries to heal itself, and patients usually end up having a bypass performed around the problem area.

“I want to treat this at the cellular level to inhibit further calcification,” Simpson said. “We are making waves with this research, but it’s a process to get there.”

Simpson is developing a tissue model of a calcified artery, which involves taking pig arteries, decellularizing them, and then replacing the pig cells with human cells. Simpson’s lab has a bioreactor that simulates fluid flow similar to that in a functioning heart.

Dr. LaShan Simpson (center) works with students in a Department of Agricultural and Biological Engineering lab.



“I want the people
I influence to know
that hard work pays off
and, though the odds
are stacked against you,
never give up.”

DR. LASHAN SIMPSON



Students are involved in each part of the study, and Simpson said she enjoys giving her students their first “ah-ha” moment in the lab.

“Here at Mississippi State, our students are very humble and very open,” Simpson said. “They have a thirst for knowledge and jump on any opportunity they are given. I love that in students.”

Simpson, a native of Clinton, South Carolina, earned her bachelor’s, master’s, and doctoral degrees from Clemson University in biochemistry and bioengineering. She credits her mother with being her original motivation. Her passion for engaging women and minorities evolved from her own determination to persist in spite of obstacles.

“I was raised by a single mom, and I have always worked hard to prove that her sacrifices were not in vain,” Simpson said. “I want the people I influence to know that hard work

pays off and, though the odds are stacked against you, never give up.

“I remember being the only one or one of three minorities in my science classes and activities,” she said. “I know how it feels to have aspirations in an environment that is not inclusive. I hope to help students see themselves in STEM and overcome doubt that they don’t belong.”

Simpson was named 2018 CALS teacher of the year and was inducted into the MSU College of Engineering Academy of Distinguished Teachers in 2019. Last year, she also won the faculty award from the MSU President’s Commission on the Status of Women. In February, she was recognized for Excellence in Diversity and Inclusion by the Mississippi Institutions of Higher Learning. Simpson is the current president of the Mississippi Academy of Sciences.

BY BONNIE COBLENTZ • PHOTO BY DAVID AMMON



MSU President Mark Keenum (right) recognizes Barry Knight.



Keenum recognizes Michael Wood.



Keenum recognizes Jon Nash.

DIVISION HONORS THREE ALUMNI

Mississippi State's 2020 alumni of the year group includes three graduates from colleges in the Division of Agriculture, Forestry, and Veterinary Medicine. These distinguished graduates, selected from among the university's nearly 147,000 living alumni for their professional and community achievements, were honored in February by the university alumni association.

The College of Agriculture and Life Sciences (CALS) honored Barry L. Knight of Cordova, Tennessee. Knight, an Oklahoma native, holds a bachelor's degree from Oklahoma State University and a 1988 master's degree from MSU, both in agronomy. Knight began his career with positions at American Cyanamid and Monsanto Company, where he served several roles in the South. Next, he was executive vice president of Jimmy Sanders Inc. in the Memphis, Tennessee, regional office. Today, Knight is with Indigo Agriculture and oversees the world's largest agricultural laboratory as senior vice president of Global Indigo Research Partners. For his accomplishments, Knight was previously named the 2011 Alumni Fellow for CALS.

Michael W. Wood of Hot Springs, Arkansas, is alumnus of the year for the College of Forest Resources. Wood holds bachelor's and master's degrees in wood science and technology, earned from the college in 1976 and 1980, respectively. Wood began his accomplished career with Chapman Chemical Company as a research wood scientist and later served as a sales representative and regulatory affairs manager. By 1988, Wood joined Weyerhaeuser Company as an operations manager and has held a number of progressive roles, including environmental audit manager, regional environmental affairs manager, U.S. state environmental affairs team leader, and environmental team leader. More recently, Wood has led environmental managers supporting manufacturing operations in Eastern states.

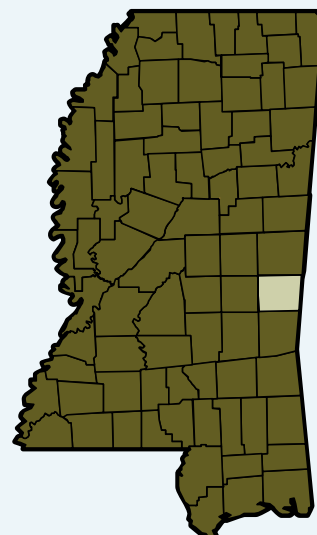
Dr. Jon Nash of Orlando, Florida, is alumnus of the year for the MSU College of Veterinary Medicine. Nash, a Starkville native, wanted to become a doctor, but he was unsure of his vocation until he learned MSU was chartering a veterinary college. Nash was in the inaugural class of early-entry students in the Doctor of Veterinary Medicine program, from which he graduated in 1991, becoming a proud fourth-generation Bulldog graduate. Over his career, Nash has been associated with several animal clinics in Florida: Howell Branch Animal Clinic, Markham Woods Animal Hospital, and Sand Lake Animal Clinic. Since 2011, he has owned and operated the five-doctor Sand Lake clinic in Orlando, which is accredited by the American Animal Hospital Association.

The 2020 honorees join those from the university's other five academic colleges being saluted for their professional and personal accomplishments. For more on the MSU Alumni Association and the 2020 awards banquet, visit alumni.msstate.edu.

BY AMY CAGLE • PHOTOS BY MEGAN BEAN



The Mississippi Arts and Entertainment Experience, also known as the MAX, is a museum that opened in 2018 in downtown Meridian. The \$50 million museum highlights Mississippi artists and celebrates the contributions of arts and entertainment enterprisers in every artistic discipline. (Photo by Kevin Hudson)



1/82: Lauderdale County

MSU in Lauderdale County:

1022 Highway 19 South
Meridian, MS 39301
(601) 482-9764
lauderdale@msstate.edu

“Lauderdale County is full of opportunities for visitors who love the great outdoors, arts and entertainment experiences, and all types of food from soul food to seafood. There is something for everyone on just about any day of the week.”

PATTY SWEARINGEN, MSU Extension County Coordinator

County seat:	Meridian
Population:	76,155
Municipalities:	Meridian, Marion
Communities:	Collinsville, Lauderdale, Toomsaba, Causeyville, Long Creek, Obadiah, Daleville
Industries:	Naval Air Station, Lockheed, Tower Automotive, Peavy Electronics, Fairbanks Scales, Kansas City Southern and Norfolk Southern Railroad
Natural resources:	Okatibbee Lake, Bonita Lakes Park, Dunn's Falls
Attractions:	MSU Riley Center, Soulé Steam Feed Works, Mississippi Arts and Entertainment Experience, Merrehope, Jimmie Rodgers Museum and Festival, Hamas Shrine Temple Theatre, Dentzel Carousel, Meridian Museum of Art
History notes:	Lauderdale County is named after Colonel James Lauderdale, who was killed in the Battle of New Orleans in the War of 1812.
Did you know?	Meridian is the home of Peavy Electronics, the largest manufacturer of audio and music equipment worldwide.

Editor's note: 1/82 is a regular feature highlighting one of Mississippi's 82 counties.

NewsNotes



Coble

Dr. Keith Coble, professor and head of the College of Agriculture and Life Sciences (CALS) Department of Agricultural Economics, received the Southern Agricultural Economics Association (SAEA) Lifetime Achievement Award. This honor recognizes those who have made significant contributions to scholarship and public service in Southern agricultural economics over the course of a career spanning 25 years or more. Coble, a recognized expert in the areas of agricultural

risk, crop insurance, and farm policy, is the current president of the Agricultural and Applied Economics Association (AAEA). An accomplished researcher, he has published in more than 90 refereed journals, including 13 articles in the *Journal of Agricultural Economics*. He also served as minority chief economist for the U.S. Senate Committee on Agriculture, Nutrition, and Forestry during the 2014 farm bill debate. The William L. Giles Distinguished Professor has served as major professor or committee member for more than 50 graduate students, taught eight undergraduate and graduate courses, and received numerous teaching awards, including the SAEA award for Distinguished Professional Contribution in the Teaching of a Course. Additionally, he serves farmers through an active program with the MSU Extension Service, publishing material and providing presentations related to crop insurance and farm policy. Coble also served on the AAEA board of directors from 2012 to 2015. He chaired two AAEA sections, including the AAEA Applied Risk Analysis section, which he cofounded.



Pieralisi

Dr. Brian Pieralisi is the new MSU Extension Service cotton specialist and scientist in the Mississippi Agricultural and Forestry Experiment Station (MAFES). He replaces Dr. Darrin Dodds, who took the helm of the CALS Department of Plant and Soil Sciences. Pieralisi will work with growers to continue refining cotton production practices in order to help them become more profitable. His activities will include cotton variety testing, as well as research and outreach

on fertility management, weed control, irrigation, harvest aids, and other areas of cotton production. A native of Leland, Mississippi, Pieralisi earned a bachelor's degree in agricultural pest management from MSU before returning to his family farm and earning a master's degree in business administration from Delta State University. He returned to MSU to work on a doctoral degree in agronomy with an emphasis on nutrient management and soil fertility. Cotton producers have relied on the resources of MSU Extension for over a century when seeking research-based information and insight in refining their production and yields. Pieralisi joins a long line of agronomists and row-crop specialists who have been at the forefront of technological advances in agriculture, and the state's cotton growers stand to benefit greatly from having his services.



Hunt

Dr. Kevin Hunt, a professor of wildlife, fisheries, and aquaculture, was honored with the Sharp Professorship in the College of Forest Resources. For nearly 20 years, Hunt's research on human interactions with wildlife has helped answer critical questions for stakeholders invested in protecting wildlife resources. Established by Jack, Mollie, and Kate Sharp of Tishomingo County, the Sharp Professorship is funded through the Sharp Forest, a 1,600-acre timber tract that

is part of the Bulldog Forest, a field-based learning resource for forestry students that also generates income from timber harvesting. In 2001, Hunt and others created the Human Dimensions and Conservation Law Enforcement Laboratory, which helps scholars delve into the sociological, psychological, geographical, anthropological, political, and economic factors that impact wildlife. His research through the Forest and Wildlife Research Center serves as a bridge between wildlife managers and the general public. Wildlife biologists and management agencies rely on Hunt and other specialists to administer, compile, and communicate large amounts of survey data. Hunt, who strives to instill a love for human dimensions in his students, advises the Wildlife Law Enforcement Club. He previously served 15 years as adviser for Minorities in Agriculture, Natural Resources, and Related Sciences, and he is graduate coordinator for the Department of Wildlife, Fisheries, and Aquaculture. Hunt also is active in several professional organizations, previously serving as president of the Mississippi Chapter of the American Fisheries Society.



Willeford

Dr. Bridget Willeford was appointed interim director for the Office of Laboratory Animal Resources and university veterinarian, succeeding Dr. Lucy H. Senter, who retired after serving as director for 15 years. This office provides veterinary care and animal husbandry resources for all animals in biomedical research, teaching, and testing programs at MSU. It is under the guidance of the university's vice president for research and economic development. During her time

at MSU, Senter worked to ensure that the university's research animals received the best possible care and that all work with animals met federal guidelines and regulations. The office plays an important role because animals in research settings need an advocate and a veterinarian who can speak for them. Willeford has served as a clinical veterinarian in the office since 2004. She is board certified by the American College of Laboratory Animal Medicine. At the College of Veterinary Medicine, she has taught classes in lab-animal health management and lab-animal technical skills, in addition to teaching a small-animal clinical experience class. A 2001 graduate of the MSU Doctor of Veterinary Medicine program, Willeford also earned a bachelor's degree from MSU in biochemistry. Willeford will make sure the animals are well cared for and provided with the daily healthcare they need and that the research is conducted appropriately.

**Collini**

Renee Collini, who has served as an Extension associate since 2018, started a new role as an Extension climate science educator. Located at the Coastal Research and Extension Center in Biloxi, Collini will develop and deliver Extension programs to help coastal decision makers understand sea-level rise and related issues, including worsened storm surge, more frequent high-tide flooding, and integration of climate science into decision making. As the program coordinator for the Northern Gulf of Mexico Sentinel Site Cooperative, Collini serves as a liaison between researchers and decision makers to improve the ability of scientists, community leaders, and resource managers to handle sea-level rise and coastal flooding. One of Collini's programs, SLR in the Classroom, teaches students and educators the basics of sea-level rise and how to apply solutions that increase community resilience to rising seas. Another program, Resilience to Future Flooding, works with coastal communities in Mississippi, Alabama, and northwest Florida to assess their risk for flooding and to enhance community preparedness by reducing communication and fiscal barriers. She serves on the Gulf of Mexico Alliance Community Resilience and Habitat Teams, Gulf of Mexico Coastal Ocean Observing System, and Gulf of Mexico Climate and Resilience Community of Practice. Collini holds a bachelor's in biology from the University of Texas at Dallas and a master's in marine science from the University of South Alabama. She is working on a doctorate in wildlife, fisheries, and aquaculture at MSU.

**Thomasson**

Dr. J. Alex Thomasson, an expert in precision agriculture and cotton ginning, is the new head of the CALS Department of Agricultural and Biological Engineering. A 15-year veteran and endowed chairholder in Cotton Engineering, Ginning, and Mechanization in the Texas A&M Department of Biological and Agricultural Engineering, Thomasson served at Mississippi State early in his career. Thomasson was employed as an agricultural engineer and research scientist in the U.S. Cotton Ginning Laboratory for the USDA Agricultural Research Service in Stoneville, working closely with faculty in the Delta Research and Extension Center. After completing a PhD from the University of Kentucky, he served on the agricultural and biological engineering faculty from 1997 to 2004. He also was the agricultural research coordinator for the then-Remote Sensing Technologies Center, which is now the Geosystems Research Institute. Throughout his career, he has studied a suite of geospatial technologies to advance production for cotton farmers. Thomasson earned his bachelor's from Texas Tech University and master's from Louisiana State University, both in agricultural engineering. In addition to roles in academia, Thomasson retired as lieutenant commander in the U.S. Navy Reserve with 22 years of service. A fellow in the American Society of Agricultural and Biological Engineers, Thomasson has been honored numerous times for teaching and research.

**Simpson**

Dr. LaShan Simpson, an associate professor in the Department of Agricultural and Biological Engineering, was recognized for her impact in advancing diversity and encouraging understanding and respect at the Mississippi Board of Trustees of State Institutions of Higher Learning's annual Diversity Awards program. Simpson is a MAFES researcher with interests in tissue engineering, cardiovascular disease, osteogenesis, biomineralization, animal models, cell culture, histology, and cell and gene therapy. She also is focused on diversity and K-12 STEM education. A three-time graduate of Clemson University, Simpson serves as president of the Mississippi Academy of Sciences. Since joining MSU in 2013, Simpson has received the President's Commission on the Status of Women faculty award and has been inducted into the Academy of Distinguished Teachers by the Bagley College of Engineering. In 2018, she received both the Excellence in Teaching Award-Upper Division and Teacher of the Year award from the College of Agriculture and Life Sciences. She is developing a patent-pending, three-dimensional model to better study cardiovascular disease. Her innovations will help scientists rapidly understand disease processes, how the cells respond to mechanical and chemical stimuli, and potential treatments.

**Reddy**

Dr. K. Raja Reddy, a research professor in the CALS Department of Plant and Soil Sciences, received the Outstanding Contribution to Science Award from the Mississippi Academy of Sciences for his three decades of scientific discoveries. Reddy serves as director of the Environmental Plant Physiology Laboratory, which houses the Soil-Plant-Atmosphere Research unit, where climate change, remote sensing, crop models, and more are studied in relationship and application to plant physiology. Reddy is most interested in how these factors affect the physiology, growth, and development of globally important crops, such as cotton, soybeans, rice, and corn. As a MAFES researcher, Reddy has more than 300 publications, including two edited books, 30 book chapters, and 175 refereed journal articles. He is president-elect of the Mississippi Academy of Sciences. On the academic front, Reddy has trained nine master's students, 15 doctoral students, and 15 postdoctoral scientists, along with an additional 35 visiting scientists from around the world in areas such as crop stress physiology, climate change, crop modeling, remote sensing, and global food security. Previous honors include MSU's Ralph E. Powe Research Excellence Award, the Southeastern Conference Faculty Achievement Award, and the National Cotton Council's Outstanding Research Award in Cotton Physiology. He is a fellow of the Crop Science Society of America and the American Society of Agronomy.

DevelopmentCorner

Kennedy Gifts Strengthen Waterfowl, Wetland, and Gamebird Programs



James C. Kennedy is committed to supporting future leaders who will provide stewardship of natural resources. (Photo Submitted)

Whether studying a covey of quail or a team of ducks, the College of Forest Resources (CFR) boasts a coveted team of world-class experts in avian ecology. That expertise is amplified by James C. Kennedy—the leader of the flock in avian conservation.

Twelve years after establishing the first endowed chair in the college, Kennedy will establish the new James C. Kennedy Endowed Chair in Upland Gamebird Ecology. The existing James C. Kennedy Endowed Chair in Waterfowl and Wetlands Conservation will receive supplemental support to strengthen its research, teaching, and outreach.

“It is important to train the next generation of leaders. They will be responsible for the continued stewardship of our natural resources.”

JAMES C. KENNEDY

Kennedy, a fervent conservationist of waterfowl and other wildlife habitat, has conserved thousands of acres of wetlands and associated habitat in Mississippi and throughout North America. The Atlanta resident is chairman of Cox Enterprises Inc., a media company and provider of automotive services. He has established four endowed programs in wetland and waterfowl conservation and one endowed program in gamebird ecology, two of which are in CFR. Kennedy said the purpose of his investment

is to strengthen future conservation efforts in waterfowl, wetland, and gamebird ecology.

"It is important to train the next generation of leaders in these areas," Kennedy said. "They will be responsible for the continued stewardship of our natural resources."

Since 2008, the James C. Kennedy Endowed Chair in Waterfowl and Wetland Conservation program has graduated 18 graduate students and trained more than 50 undergraduate students for careers in waterfowl conservation. Many graduates, supported through the Kennedy scholarship program, have gone on to fill key positions in state and federal agencies, as well as nongovernmental organizations tasked with waterfowl conservation throughout the country.

Led by Dr. Brian Davis, James C. Kennedy Associate Professor, the program currently has 14 undergraduate researchers, three master's students, one doctoral student, and one postdoctoral fellow. The program has leveraged Kennedy's support to help raise an additional \$3 million in extramural funds for students and has produced 59 peer-reviewed publications on key aspects of waterfowl migration, habitat use, and population demographics.

Support for the new James C. Kennedy Endowed Chair in Upland Gamebird Ecology will play a crucial role in understanding population declines of species like quail and turkey across their native range. Similar to the waterfowl and wetlands conservation program, funds will be used to support graduate and undergraduate student scholarships and research on upland gamebird ecology.

Dr. George Hopper, CFR dean and director of the Forest and Wildlife Research Center, said Kennedy's generous contribution is vital in supporting the college's role as a leading authority in waterfowl, wetland, and gamebird research.

"These gifts sustain in perpetuity an internationally recognized university program of teaching, research, and service focused on waterfowl, wetland, and gamebird research," Hopper said. "Mr. Kennedy's generous support helps us develop science-based knowledge for understanding and conserving waterfowl and other wetland wildlife species and upland gamebirds as well as their habitats, while educating current and future scientists and conservationists and providing outreach to public and private stakeholders invested in these efforts."

For more on the James C. Kennedy Chair in Waterfowl and Wetland Conservation, visit www.cfr.msstate.edu/kennedychair. For more on the college, visit www.cfr.msstate.edu.

To establish an endowed chair in the MSU College of Forest Resources, contact Jeff Little, the college's director of development, at (662) 325-8151 or jlittle@foundation.msstate.edu.

BY VANESSA BEESON

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FORESTRY, & VETERINARY MEDICINE

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The Bully statue wears a bow tie featuring a tartan plaid designed by MSU students. See the related article on pages 12 and 13. (Photo by Kevin Hudson)

