

# Research Matters



## RESEARCH

### Identifying Factors Limiting Tree Growth in a Recovering Swamp Forest

RNR researchers Stephanie Moothart (M.S. student) and Dr. Richard Keim are working on a project to assess swamp forest growth in the Joyce Swamp. This large wetland, on the northern land bridge between Lake Pontchartrain and Lake Maurepas, was once forested, but changes in the Pontchartrain estuary converted much of it to treeless marsh during the 20th century. Reversal of some of those changes and the prospect of upcoming ecosystem restoration projects raise the possibility of reforesting part or all of the Joyce Swamp. Salinity is the most important factor limiting the extent of forested wetlands along the coast in Louisiana. Recent hydrological changes may favor forest regrowth. Specifically, closure of the Mississippi River Gulf Outlet Canal — constructed in 1965 and closed in 2009 — has led to substantial declines in salinity. Similarly, recent openings of the Bonnet Carré Spillway linking the Mississippi River and Lake Pontchartrain, and the expected future opening of more river diversions, promise to continue the trend of decreased salinity in coming decades.

Working in collaboration with Louisiana Department of Wildlife and Fisheries, which owns much of the swamp, this project involves examining the forest-marsh transition to assess growth rates of remaining trees and relate that growth to soil conditions.



Sapwood width is measured to assess growth rates of a cypress tree in the Joyce Swamp.

The goal is to identify limiting soil factors for tree growth in the salt-affected area, and to develop a tool for choosing appropriate restoration sites based on soil characteristics. More broadly, this research is part of a series of research projects in Keim's lab aimed at identifying factors that control whether a wetland is dominated by forest or herbaceous cover.

Moothart sampled 60 baldcypress trees spread across the Joyce Swamp for tree rings, competition by neighboring trees and soil chemistry. This field work was particularly arduous because the Joyce Swamp has unusual organic soils that are weak and difficult to traverse. The sampling protocol called for avoiding trees adjacent to waterways because those trees may not be representative of the larger area, so most of the field work involved long traverses through the muck to reach sample trees. Once there, Moothart and field assistants collected soil samples and tree cores, often using ladders to reach above buttresses.

Early results show some expected patterns in soils across the swamp, especially a transition from organic soils of the southern and western Joyce Swamp to more mineral soils near where the Tangipahoa River enters the swamp. Concentrations of sea-influenced components, such as magnesium, sulfur and sodium, follow the same trend.

Managing coastal forested wetlands requires a diverse set of tools. This research will fill some knowledge gaps needed to support management decisions for these important wetlands. ■



Stephanie Moothart collects a soil sample in the Joyce Swamp.



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# RNR

School of Renewable Natural Resources



## DIRECTOR'S COMMENTS



Allen Rutherford

As we go to press with Research Matters, the faculty and staff in the School are dealing with the effects of the COVID-19 pandemic. Beginning Friday, March 13, all LSU face-to-face classes have been canceled, and over the next two weeks the faculty will be initiating online course formats to complete the semester. This is a challenging undertaking, particularly for laboratory courses.

Aside from the coronavirus, it's been a good year in the School of Renewable Natural Resources. Our programs continue to thrive. We currently have around 300 undergraduate students, an increase from 121 in 2007. The M.S. and Ph.D. programs have remained stable for the last decade and currently have 60 students. The success of these programs is a tribute to continued efforts of the School's faculty, staff and alumni. As always, we ask each of you to serve as ambassadors for the School by letting potential students know about the diverse career opportunities our programs offer.

We continue to struggle with infrastructure, space and extramural support issues, although we anticipate some of these issues will be addressed in the coming year. We look forward to beginning the reconstruction of the Aquaculture Research Station building that was gutted by fire in 2018. Looking back over my previous messages, it seems that I have spent considerable time addressing budgetary struggles. While our state and federal budgets are stable and our grant and contract funding continue to improve, we still need your support to help in areas that sustain undergraduate and graduate education not covered by state and federal budgets. We often use development-generated funds to support undergraduate and graduate travel to professional meetings to make presentations, support student research projects, and remodel and reconfigure classroom and laboratory spaces to provide for technological upgrades. These are just a few examples of the types of activities that your development gifts support.

LSU is currently working to complete the \$1.5 billion Fierce for the Future development campaign. This is an ambitious six-year fundraising program to enhance all that is LSU. With that, I would encourage each of you to get involved. Contributions to this campaign can be directed to the Renewable Natural Resources Excellence Fund (<https://securelb.imodules.com/s/1585/17/interior.aspx?sid=1585&gid=1&pgid=439&cid=1080>).

As you read this newsletter you will get a glimpse into the lives of the students we are training and the quality of your faculty. We are all proud of our long and diverse academic history and the part each of you has played in the School's continued success. We appreciate those of you who contribute financially to our program and those who promote our programs throughout the nation.

Because of the health crisis we have cancelled our scheduled homecoming activities on April 18 but tentatively plan to reschedule the event for the fall. Please do not let this keep us from staying in contact.

We look forward to hearing from each of you by email or through our Facebook page (<https://www.facebook.com/pages/School-of-Renewable-Natural-Resources-Louisiana-State-University/253444115778?ref=hl>).

Stay safe, and we will see you soon!

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## RNR Mourns the Loss of Dr. Leroy Shilling

Leroy Shilling, our friend and colleague, passed away on Sept. 19, 2019. Shilling was born April 25, 1941, to Georgia and Lee Shilling. He is survived by his wife, Darlene; sons Adam and Paul (Jenifer); and daughters Amy (Jim) and Keryl. Shilling graduated from Live Oak High School in 1959 and earned B.S. and M.S. degrees in forestry from LSU in 1963 and 1965, respectively. After graduation he worked as a research forester with the U.S. Forest Service Southern Forest Experiment Station. In 1968 he joined the Army and served with distinction in Vietnam. After his military service ended, he earned a Ph.D. from Texas A&M University. Shilling spent his professional life teaching forestry at the University of Kentucky (1971-77) and at LSU (1977-2011). Until his retirement, he served in many positions in the School of Forestry, Wildlife, and Fisheries (later School of Renewable Natural Resources). He was the director of student services from 1985 to 2000 and coordinator of undergraduate programs from 2000 until his retirement. From 1999 to 2000 Shilling served as acting assistant director for the School and spent time working with the Louisiana Cooperative Extension Service.



Dr. Leroy Shilling

He was the author of numerous publications and served as an annual leader of four to six continuing education workshops, seminars and short courses for professional natural resources managers. In his time here he was a positive influence on faculty, staff and especially students. His presence will be sorely missed. ■

## RNR Welcomes Dr. Kristin DeMarco to Faculty

The LSU School of Renewable Natural Resources welcomed Dr. Kristin DeMarco to the faculty as an instructor in January 2019. She specializes in coastal wetland ecology. DeMarco received her Ph.D. from LSU in 2018. She researched submerged aquatic vegetation habitats across northern Gulf of Mexico coastal wetlands with support from the U.S. Geological Survey Cooperative Fish and Wildlife Research Unit at RNR. Before pursuing her Ph.D., she worked with the Louisiana Coastal Protection and Restoration Authority for several years, participating in a variety of coastal wetland restoration activities, including the 2012 Coastal Master Plan. Prior to moving to Louisiana in 2010, DeMarco spent most of her time in North Carolina, receiving her M.S. in environmental management from the Duke University Nicholas School of the Environment and her B.S. from the University of North Carolina at Asheville. Currently, DeMarco is working to quantify drivers of change in aquatic communities, specifically developing predictive modeling tools necessary for coastal restoration in collaboration with state and federal partners. At RNR, DeMarco



Dr. Kristin DeMarco is a new instructor in RNR.

teaches ecology and natural resource conservation and particularly enjoys working with students and teaching science to nonscience majors. Outside of LSU, she still occasionally gets out on the water to enjoy the coastal landscape. She also spends her time chasing a magnificent toddler around and practicing yoga. ■

### School of Renewable Natural Resources Research Matters - Spring 2020

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The LSU AgCenter and LSU provide equal opportunities in programs and employment.





Fran Deville, left, president of the LSU College of Agriculture Alumni Association, presents Dr. Luke Laborde, right, with the 2019 Alumnus of the Year award for the LSU College of Agriculture.

## Dr. Luke Laborde Recognized with Several Awards

Dr. Luke Laborde garnered several awards during 2019. The LSU College of Agriculture recognized Laborde as their 2019 Alumnus of the Year. Laborde also received the 2019 Above and Beyond Partner Award presented by the National Agricultural Alumni Development Association. This award is presented to a faculty or staff member who has given freely of their time, working outside the realm of their official responsibilities, to further the goals of the institution's alumni, communications, development or student services programs and has demonstrated leadership and organizational skills to inspire others to further the success of these programs and the institution. Finally, at the 2019 state convention of Louisiana Ducks Unlimited, Laborde was named the Louisiana Ducks Unlimited 2018 Volunteer of the Year. Dr. Laborde serves as adviser to Tiger Chapter Ducks Unlimited, advises the Baton Rouge Chapter of Ducks Unlimited, chaired the 2018 State Convention of Louisiana Ducks Unlimited and chairs the National Varsity Scholarship program of Ducks Unlimited Inc. ■

## Extension Engages in Diverse Outreach Activities

With a core group of dedicated extension specialists, the School of Renewable Natural Resources serves Louisiana clients in the areas of forestry, urban forestry, forest products, fisheries and wildlife. Collectively, specialists Drs. Rich Vlosky, Cornelis de Hoop, Hallie Dozier, Michael Blazier, Julie Lively and Ashley Long offer technical education, needs-based research and timely learning opportunities to Louisianians from various sectors. Their efforts help clients maintain and gain professional credentials, deliver critical information on issues relevant to producers in their respective fields and help producers and service providers assist the people of Louisiana in a safe, responsible and professional manner.

Forestry products specialist Dr. Rich Vlosky won the prestigious Fred W. Gottschalk Memorial Award. This award, named for the first president of the Forest Products Society, recognizes exceptional service to the society by an individual member. The 2019 Gottschalk Award winner, Vlosky was honored for his consistent commitment in serving the Forest Products Society. He and graduate student Mason T. LeBlanc were featured on the cover of the spring 2019 issue of *Forests & People*, which included their opinion piece about cross-laminated timber. Vlosky is the Crosby Land & Resources Professor of Forest Sector Business Development and director of the Louisiana Forest Products Development Center.

Dr. Cornelis de Hoop was active in 2019 as he continued efforts to provide continuing education workshops on logging and worker safety to Louisiana audiences. He presented technical logger safety information to audiences through speaking engagements such as the annual Louisiana Logging Council meeting, regional forestry landowner meetings and through timely articles published in *Louisiana Logger*. De Hoop's efforts to track logging industry accidents and synthesize reports on industry safety continue, providing critical and timely information that helps steer future safety and production programming. Other extension activities include planning, hosting and teaching prescribed burner certification courses for managers. Typically, he offers a forestland short course (a three-day course) and two one-day courses for forestland burner and marshland burner certification. For more information, contact [CdeHoop@lsu.edu](mailto:CdeHoop@lsu.edu).

The Louisiana Arborist Continuing Education Program, spearheaded by Dr. Hallie Dozier, offered programs on tree valuation techniques and ground operations safety in 2019. In addition to continuing education units, Dozier also offered exam review courses for clients seeking to earn state licensure or international certification. She also recruited and coordinated private tree companies to participate in the 2019 Saluting Branches volunteer day, a national effort to honor American service men and women through volunteer tree and landscape work on properties dedicated to veterans.

Dr. Michael Blazier provides extension programming and research to Louisiana audiences on hardwood and conifer silviculture, agroforestry, bioenergy and sustainability. Some of his recent efforts include a video that educates the public about the importance of healthy forests for Louisiana's economy (see the Louisiana Agriculture playlist on YouTube at <https://www.youtube.com/playlist?list=PLuNFvoHC-if5xa9wtCVdhhplvHWqvaM1V>) and editing *Timber Tales*, a newsletter providing forestry and wildlife information.

Dr. Julie Lively, who specializes in coastal fisheries research and extension, is participating in the LSU Agcenter Agricultural Leadership Development Program. Most recently she returned from a trip to Thailand and Japan. In Thailand she visited aquaculture facilities and feed mills to explore the connections between Louisiana

soybean production and imported shrimp. In 2019 she also devoted efforts toward planning the 2020 Louisiana Fisheries Forward Summit, which is held biannually in even years. The LFF program promotes and supports professional development and improved communications among various fisheries groups. Lively also offered fisheries-related workshops and small conferences across coastal communities in south Louisiana. She and her group continue their study of changes in the crab shedding industry.

In 2019 Dr. Ashley Long, wildlife specialist, continued efforts to inform landowners about chronic wasting disease (CWD) in cervids, a highly transmissible prion disease that now occurs in all adjacent states. Through various public presentations and the publication of a CWD fact sheet, she reached hundreds of landowners and managers. She also published articles on other pertinent topics, including steps for maintaining a strong hunting tradition in Louisiana, and she led several urban "bat walks" where urban residents in Baton Rouge learned about local bat populations. Dr. Long also introduced a new natural history series that compares cartoon animals (think Rocky the Flying Squirrel) to their real-life counterparts. The series is published in *Timber Tales*, a newsletter providing forestry and wildlife information. The demand for public education about wildlife damage management continued in 2019, and Long offered multiple presentations on this topic to across Louisiana. To learn more about wildlife extension, go to [www.lsuagcenter.com](http://www.lsuagcenter.com). ■



## Nyman Featured in Award-Winning Short Film

Dr. Andy Nyman was featured in an award-winning film, "Crevasse," created by Gabe Giffin of the Louisiana Department of Wildlife and Fisheries. It focused on wetland restoration at the Pass A Loutre Wildlife Management Area. The six-minute film was entered into a film festival at the Coastal and Estuarine Research Federation 2019 Biennial Conference, where it won the Places category. Nyman worked at Pass A Loutre WMA before graduate school and has been taking LSU students enrolled in RNR 3108 there for many years. He also has had several graduate students conduct research at the management area. The film can be found at: <https://www.youtube.com/watch?v=FrLavoXe0rI&t=23s>. All the film festival entries can be found at <https://www.cerf.science/2019-film-festival>. ■

## Nyman Wins Stewardship Award

Along with 11 others, RNR faculty member Dr. Andy Nyman will be receiving a 2020 Stewardship Award from the Coalition to Restore Coastal Louisiana. According to their website, "These awards are CRCL's highest form of recognition for those who go above and beyond for our coast. CRCL's Coastal Stewardship Awards recognize individuals and groups that have made significant contributions to the conservation and restoration of Louisiana's coastal wetlands." ■



Dr. Phil Stouffer, left, and Dr. Mark Hauber (University of Illinois), represented the American Ornithological Society's journals in 2018.

## Dr. Stouffer Receives Award from American Ornithological Society

Dr. Phil Stouffer was awarded the Peter R. Stettenheim Service Award for 2019 by the American Ornithological Society (AOS) at their annual meeting in Anchorage, Alaska. The award recognizes a senior ornithologist who has provided extraordinary service to AOS. In addition to other work for the society, Stouffer served as editor in chief of the journal *The Condor: Ornithological Applications* from 2013-19, guiding the journal to the top impact factor of ornithology journals worldwide. Stouffer shared the award with Dr. Mark Hauber from the University of Illinois, who served as the editor in chief of *The Auk: Ornithological Advances*, AOS's other journal. ■

## Dr. Sabrina Taylor Heads South for Sabbatical

Dr. Taylor is currently on a six-month sabbatical in New Zealand to study the genetic population structure of fernbirds. She is taking a small blood sample from birds in the Te Anau Basin to examine fine-scale gene flow and inbreeding among birds in wetlands fragmented by agriculture and other human activities. She is also examining the validity of the five described subspecies throughout New Zealand to see whether morphological descriptions match genetic data. Stay tuned for the results!

## Dr. Taylor Recognized for Graduate Teaching

Dr. Sabrina Taylor won the Sedberry Graduate Teacher Award. She thanks her graduate students and colleagues, who make her work a pleasure and very rewarding. ■



Sabrina Taylor



## Ringelman and Students Travel to Canada

In August, Dr. Kevin Ringelman and his graduate students traveled to Winnipeg, Manitoba, Canada, for the North American Duck Symposium to present research and connect with former students.



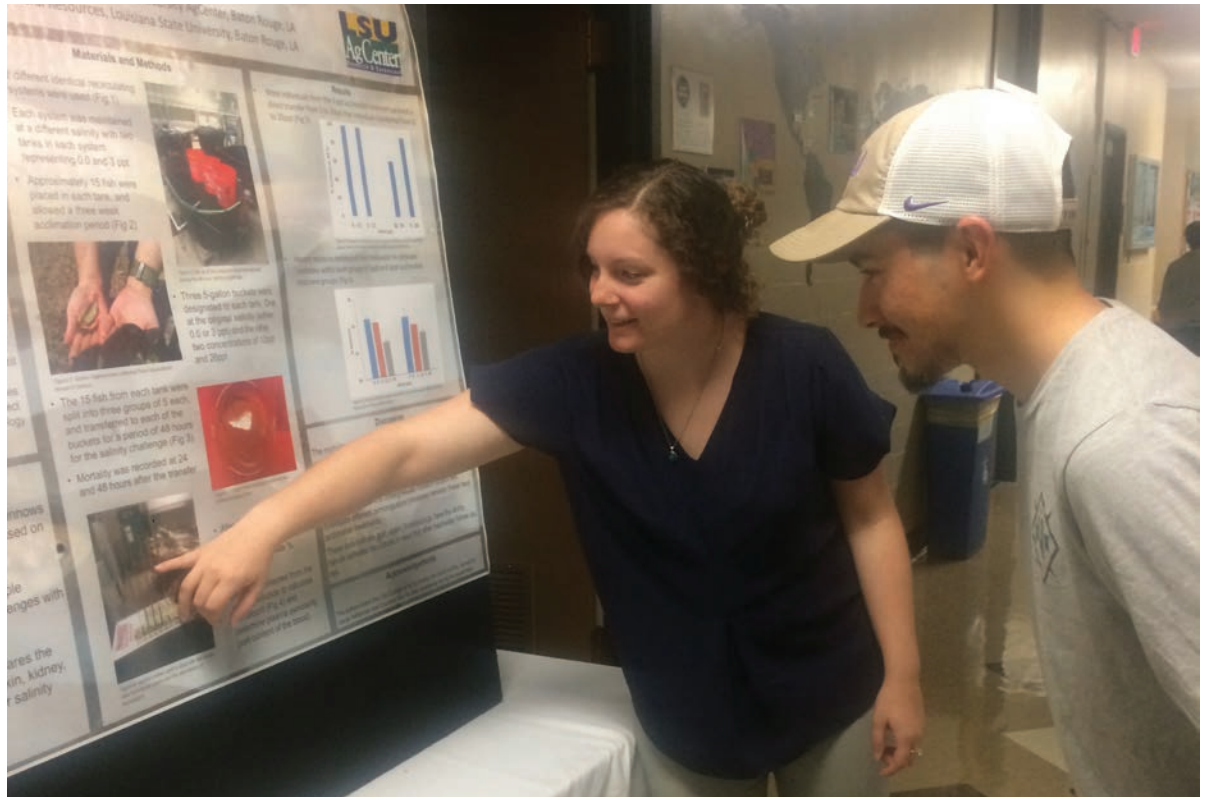


## Toe in the Water: Does a Little Salinity Now Make A Big Difference Later?

Angel Casillo (B.S. 2019) secured an LSU College of Agriculture Undergraduate Research Grant to work with faculty mentor Dr. Christopher Green to determine if some fish benefit from an initial low amount of salt in the water to prepare them for increased tolerance to higher salinity in the future. The golden topminnow, an inland and coastal inhabitant in Louisiana, served as her study fish due to its ability to withstand short periods of heightened salinity levels.

Fish that were acclimated to either freshwater or 5% full-strength seawater for 15 days and then rapidly transferred to 35% seawater were able to maintain normal internal ion and water conditions through 48 hours, after which fish were euthanized and blood and muscle tissues analyzed. When fish were transferred to higher concentrations representing 75% seawater, the fish previously exposed to a small amount of salinity survived better and maintained their internal ion and water balance at levels similar to nonstressed control fish. These results may mean low salt conditions prime these fish for handling higher salinity, such as a salinity that may occur with saltwater intrusion.

Castillo presented this work at the LSU College of Agriculture Spring Invitational and was awarded third place in the undergraduate research poster session. She was also able to present this work in poster and platform presentations at the annual meetings of the Louisiana Chapter of the American Fisheries Society and the Louisiana Association of Professional Biologists. Castillo is now working as a research associate for Dr. Abigail Bockus at the Louisiana Universities Marine Consortium. ■



Angel Casillo presents her research as a poster at the LSU College of Agriculture Spring Invitational.



Rosalind Remsen and Jaden Cuti monitor leaves for pigment content and break strength in order to detect the onset of senescence and abscission.

## Vlosky to be Recognized for 10 Years as President of LSU Chapter of Phi Kappa Phi

Dr. Richard Vlosky will be recognized at the Phi Kappa Phi 2020 LSU Chapter Spring Induction and Awards Ceremony. Founded in 1897 and headquartered in Baton Rouge, Louisiana, Phi Kappa Phi is the nation's oldest, largest and most selective all-discipline honor society. Membership in Phi Kappa Phi, which is by invitation only, recognizes and rewards academic success. Equally important, the society provides its members scholarships and awards designed to serve their academic and professional needs. Since its founding, Phi Kappa Phi has initiated more than 1.5 million members into its ranks. It is a global network composed of the best and brightest from all academic disciplines — a community of scholars and professionals building an enduring legacy for future generations. The LSU Chapter was founded in 1930 and currently has nearly 1,000 active members. Over the past decade, the LSU Chapter has provided nearly \$75,000 to LSU students, faculty members and instructors. It is one of only three honor societies whose members can officially wear honor cords at LSU commencement. ■

## Researchers Study Plant Responses to Problematic Leaves

Plant leaves house the machinery that performs photosynthesis — the solar-powered production of sugar and oxygen from carbon dioxide and water. Photosynthesis drives plant life and, through food webs, practically all life on earth. Yet leaves are a liability for plants when conditions are not suitable for photosynthesis, such as during heat waves and droughts. At these times, leaves require maintenance energy and they are pervious to water loss, which can lead plants to starvation and dehydration. Furthermore, the investment that plants put into leaves can be quickly lost during hurricanes and deep freezes. To overcome these challenges, plants have adapted various strategies, including the ability to shed leaves through the processes of senescence — when plants reabsorb nutrients and sugars from leaves — and abscission — when plants activate a detachment zone between the leaf and stem. Plant species vary widely in their ability to activate these processes in response to environmental conditions, yet this ability is poorly known for most plant species.

Drs. Brett Wolfe and Hallie Dozier along with undergraduate research assistants Rosalind Remsen and Jaden Cuti recently began a pilot project to track leaf senescence and abscission in forest plants around Baton Rouge. These data will form a baseline to understand how species vary in their seasonal patterns. Next, they will subject plants to stresses such as heat and drought to test how species vary in their ability to senesce and abscise leaves and how this affects plant performance. Their goal is to improve predictions of how forests will respond to future events such as heat waves, droughts and hurricanes. ■





Jay Curole (left), the Wood Durability Lab technical director, works with IAS engineers Max Porter and Jacob West on corrosion resistance testing of wood. Scientists in the wood products industry are constantly seeking new ways to treat wood to make it more resistant to decay while taking better care of the environment.

## Wood Durability Research and Testing

Wood is a fabulous material, but it needs something extra to make it useful outdoors or wherever there is ground contact. There are many ways to make wood “durable,” and new ideas are being invented and tested all the time.

Durability of wood is the ability of a wood-based product to remain in service. Different woods have different natural resistance to attack from destructive organisms such as wood-decaying fungi and wood-destroying insects. For example, the Formosan subterranean termite (*Coptotermes formosanus*) is an aggressive insect that has been introduced to the Gulf South and has led to significant damage to wooden structures. Thus, wood and wood products used in the Gulf South must be durable! Wood can also decay and develop mold due to extensive exposure to moisture and fungi.

Whenever researchers develop new ideas for improved wood durability, someone needs to test the ideas to determine how good and reliable they are. Architects, for example, will only specify wood that is treated in a certified manner. While some of these ideas are generated within LSU, most are generated by industry. The Wood Durability Laboratory (WDL) was initiated at the RNR’s Louisiana Forest Products Development Center to assess wood durability as affected by natural resistance and /or by chemical treatments to certify the products according to industry standards.

The WDL was ISO 17025 accredited through the International Accreditation Services in 2008 for wood durability testing with additional test standards approved in subsequent years. All tests conducted by WDL include a report that details the procedures, discusses the results and provides a statistical analysis of the data. The WDL offers a complete array of accredited wood durability testing for resistance to termites, fungi and mold. The WDL also conducts wood weathering tests, lab-scale pressure treating, and wood and plastics composites manufacturing and testing. For the composites, the WDL has presses, a mat former, blender, injection molding machine, twin-screw extrusion machine, and a universal testing machine. The full set of tests offered by the WDL can be accessed at: <http://www.rnr.lsu.edu/people/wu/LabFacilities/testing/durability.htm>. The WDL can also be reached by contacting Dr. Qinglin Wu, WDL Director ([qwu@agcenter.lsu.edu](mailto:qwu@agcenter.lsu.edu)) or Jay Curole, WDL Technical Manager ([JCurole@agcenter.lsu.edu](mailto:JCurole@agcenter.lsu.edu)). ■

## RNR Researchers Study Rare Plant Communities in Arid Wetlands

Bitter Lake National Wildlife Refuge near Roswell, New Mexico, appears as alien as the UFOs that made Roswell famous. Bitter Lake, in the Chihuahuan Desert, extends from the desert floor into the floodplain of the Pecos River. In the midst of this desert environment are desert sinkholes and freshwater springs that flow onto the floodplain. Although the springs are fresh, Bitter Lake itself is ringed with snow white salts that become a salt flat as the water evaporates. This diversity of habitats juxtaposed to each

other creates unique plant and animal habitats. Three species of plants, the federally endangered Pecos sunflower (*Helianthus paradoxus*) and listing candidates leoncita false foxglove (*Agalinis calycina*) and Wright’s marsh thistle (*Cirsium wrightii*), are the research focus of Antonio Cantu (M.S.; King) and Dr. Sammy King.

The plants occur in an area of the refuge where wetland management could enhance their populations. Drought and salinity stress are common drivers of plant communities in arid environments as they can affect seed germination and plant survival. Wetland management could potentially influence these processes by reducing salinity and increasing soil moisture. To assess the potential of wetland management to recover these species, the researchers are evaluating soil and water characteristics on the refuge and their effects on plant distributions. Cantu monitors daily water depth and weekly soil and water salinity. His intensive work on the timing of seed germination and seed production is some of the initial work for these species. Cantu is also evaluating the effects of salinity and moisture on seed germination of all three species in the lab. His work is already providing important information on pre-germination requirements for these species and could lead to innovative wetland management practices for their recovery. ■



Logan Peterson (right; National Resource Conservation Service) interprets a soil sample for Jeff Beauchamp (left; U.S. Fish and Wildlife Service) and Antonio Cantu (center; M.S.; King) at Bitter Lake National Wildlife Refuge near Roswell, New Mexico.





## Exploring Drought in Bottomland Hardwood Forests

Hydrologic modifications and increased climatic variability have led to more frequent and intensified drought in floodplain forests globally, including bottomland hardwoods of the southern United States. Shifts in species composition to less flood-tolerant species has been common on many sites. While considerable research has been conducted on flood tolerance of bottomland hardwood trees, drought tolerance of bottomland hardwoods has received little attention. Regeneration processes, such as seed germination and seedling survival, may be particularly sensitive to drought conditions because these younger plants lack the well-established root systems of mature trees.

Charles "C.J." Pell (Ph.D.; King) and Nga Nguyen (Ph.D.; Keim) are addressing drought-related questions in their dissertation work through funding provided by Texas Parks and Wildlife. Pell's research uses seed germination chambers in the lab to evaluate the effects of drought on germination rates of several bottomland hardwood species. In field experiments, he is evaluating how different species allocate resources among roots, stems and leaves. The working hypothesis is that those species with greater root biomass will have greater drought tolerance. He is also using greenhouse experiments to evaluate the response of bottomland hardwood seedlings to various levels of drought.

Nga Nguyen, a native of Vietnam, brings considerable remote sensing experience to bear on the question of how well drought indices, such as the Palmer Drought Severity Index, describe drought in floodplain soils and trees. Understanding how drought stress patterns relate to climatic variables and how they vary through time across the floodplain would assist in understanding tree mortality and regeneration patterns across the floodplain and also help make decisions in water management.

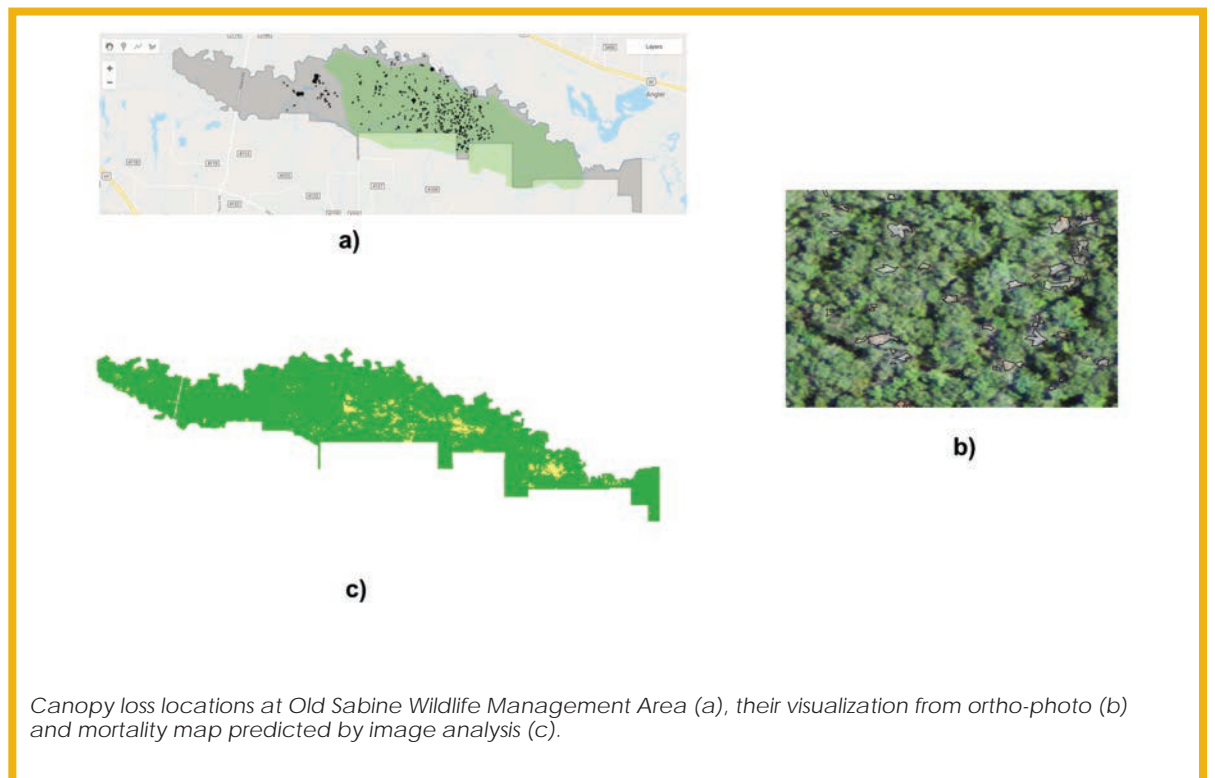
Nguyen is integrating time series of remotely sensed gross primary productivity, potential evapotranspiration, precipitation and soil moisture. Early results are showing that floodplain vegetation response to precipitation and watershed wetness varies. ■



Elm seeds are germinated in a petri dish under a controlled osmotic condition to simulate drought stress.



Ph.D. student C.J. Pell digs up an oak seedling to later measure biomass allocation in the Richland Creek WMA, Texas.



Canopy loss locations at Old Sabine Wildlife Management Area (a), their visualization from ortho-photo (b) and mortality map predicted by image analysis (c).

## Quarterly Softwood Sawtimber Supply and Demand in Louisiana, 1988-2017

Based on the only quarterly dataset in the world on sawtimber stumpage price and harvest volume, which spans from 1988 to 2017, Professor Sun Joseph Chang and former graduate student Fan Zhang (Ph.D., 2019) examined the dynamics of the supply and demand of the softwood sawtimber stumpage market in Louisiana. In addition, as a part of the effort, competition among different stumpage products, seasonality patterns in the market and the impact of some exogenous events were investigated.

Analyses of these data have led to five principal insights. The first conclusion they found is that the supply of softwood sawtimber is responsive, or elastic, to its own price, but the demand for softwood sawtimber in Louisiana is inelastic to its own price. This finding of highly elastic sawtimber supply provides a plausible explanation for the recent high lumber prices and low sawtimber prices. Second, the results of this study confirmed that as the market

preference shifts toward lumber of a smaller dimension, chip and saw stumpage products are often used as a substitute of sawtimber products, thus limiting increases in sawtimber stumpage price. Third, strong seasonality patterns were detected on both stumpage price and harvest quantity of softwood sawtimber products in Louisiana, reflecting the common observation of foresters that timber harvest activity is lower during the rainy winter season. Specifically, the volume of timber harvested is ranked as Q3 > Q4 > Q2 > Q1 with Q3, Q4, Q2 and Q1 representing the third, fourth, second and first quarter of the year, respectively. Stumpage prices, however, are greater in the rainy winter season and are ranked as Q1 > Q4 > Q2 > Q3. Fourth, the results of the study found that, when facing an outside influence like a change in trade policy, the amount harvested adjusts far quicker than the price the landowner receives for their softwood sawtimber. ■





## Exploring the Effects of Wetland Management on Marsh Accretion

Pick a given day between March and September and it is likely that you will find Ashley Booth (Ph.D.; King and Nyman) and Scott Graham (M.S.; Nyman and King) on an airboat out in the Chenier Plain marsh, completely covered in mud, sunscreen and bug bites. While exploring Louisiana's wetlands is fun in and of itself, research is what takes Booth and Graham into the marsh so frequently. As part of the Louisiana Cooperative Fish and Wildlife Research Unit, Booth and Graham are working to better understand how waterfowl management practices influence wetland sustainability.

The Chenier Plain of Louisiana and Texas serves as home to millions of migratory waterfowl each year and is characterized by forested ridges (or cheniers) interspersed with vast freshwater marshes. In the past, these freshwater marshes were often naturally impounded by surrounding cheniers. Now, much of the Chenier Plain has been artificially impounded through the construction of levees, roads and canals. Of these artificial impoundments, many are managed to produce food and habitat for waterfowl and shorebirds. While waterfowl management practices like seasonal water level drawdowns are successful at increasing food resources, intensive management may be unintentionally decreasing elevation within these impoundments.

Maintaining elevation within coastal impoundments is key for long-term wetland sustainability. In the Chenier Plain, marshes maintain elevation through root growth and the accumulation (or accretion) of aboveground plant material under flooded conditions. Flooded soils lack oxygen, a necessary prerequisite for plant decomposition, thus the plant material builds up in the soil and can increase elevation. Elevation is lost when soils are drained (as in seasonal drawdowns) and exposed to oxygen for extended periods, initiating decomposition of the stored plant material. As elevation decreases, flooding increases to the point of plant stress, making it more difficult for plants to grow and contribute to elevation gains. Within impoundments, elevation loss eventually leads to greater difficulty controlling water levels and managing for waterfowl food. Decades of seasonal drawdowns and other intensive management practices, coupled with sea level rise, are threatening the longevity of Chenier Plain coastal marshes and their ability to provide food and habitat for waterfowl.

To determine whether historic management practices have affected elevation within coastal impoundments, Scott Graham is collecting soil cores from managed and unmanaged impoundments at Rockefeller Wildlife Refuge (Grand Chenier, Louisiana). Using cesium dating techniques, Graham is able to tell how much soil an area has accreted since 1963. By comparing accretion rates between managed and unmanaged areas, Graham can identify the general effects of historic management practices. Graham has established sampling instruments (i.e., surface-elevation tables) that allow for the measurement of

current annual changes in marsh elevation in managed and unmanaged areas, which can be related to specific management techniques and prevailing environmental conditions.

In a related study, Ashley Booth is studying how changes in hydrology influence the plant and soil processes that contribute to elevation change. At Rockefeller Wildlife Refuge and J.D. Murphree Wildlife Management Area (Port Arthur, Texas), she is measuring millimeter-level changes in elevation in conjunction with rates of root decomposition and productivity for several common perennial plant species (*Phragmites australis*, *Schoenoplectus californicus*, and *Typha latifolia*). This summer, she will begin two new experiments: one designed to demonstrate the effects of hydrology on root growth and productivity in a controlled environment and another to identify the impacts of seasonal drawdowns on soil decomposition in a brackish marsh.

By understanding how historic waterfowl management practices have influenced accretion and how modification to hydrology are actively impacting wetland sustainability, Booth and Graham hope to identify specific ways to improve waterfowl management practices that will allow for continued food production along with increases in elevation. ■



Ashley Booth and Clay Tucker taking readings at a surface-elevation table at J.D. Murphree WMA. (Credit Alex Freeman)

## Root Competition Between Chinese Privet and Willow Oak

Invasive exotic species are a severe threat to native species, particularly in the southeast where mild environmental conditions can easily facilitate invasions. One invasive species that has proven difficult to control is Chinese privet (*Ligustrum sinense*), a large shrub introduced in the 1800s that has since spread throughout the southeastern United States. Chinese privet grows up to 9 meters tall and is thought to outcompete native species by forming dense thickets and deep shade; however, many native hardwoods are considered "shade tolerant" and should be able to tolerate the growing conditions created by privet. This suggests the species are competing for more than just light. Invasive species often have a large root system and fast growth rate that allow them to acquire resources such as nutrients, water or rooting space more efficiently than native plants. To isolate the effects of belowground competition occurring between Chinese privet and the native hardwood willow oak (*Quercus phellos*), Taylor Turner, a Master of Science student working with Dr. Thomas Dean, is growing them together to identify the mechanism of belowground competition by comparing the changes to belowground variables, such as root mass, length and growth rate. Further understanding of how privet grows and the reason it is able to outcompete native species will aid in management plans to prevent further invasion. Turner and Dean thank the Louisiana Department of Wildlife and Fisheries for providing the willow oak seedlings. ■



Roots of Chinese privet (left) and willow oak (right) will be excavated and tested for competition effects.





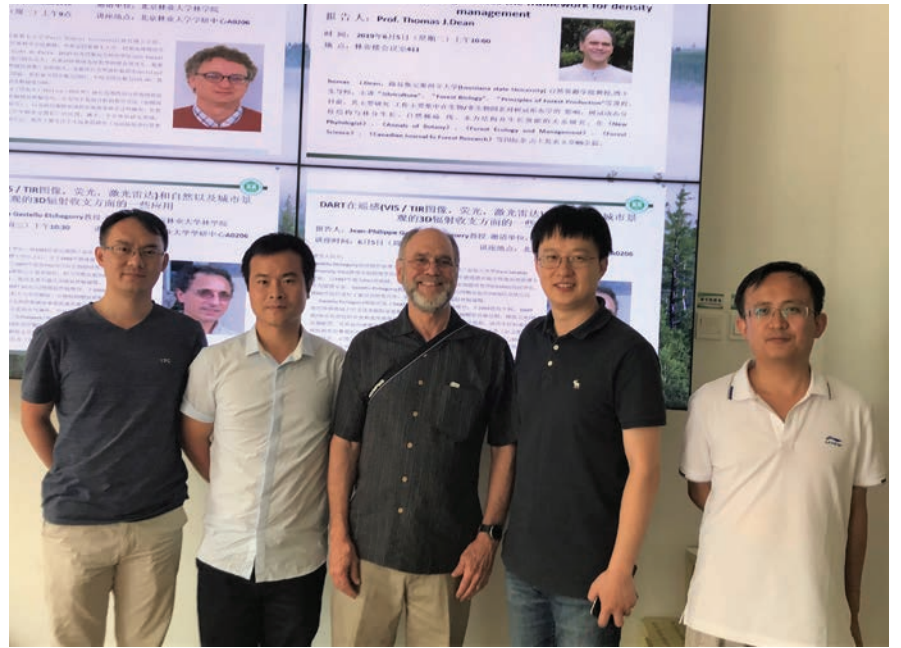
## INTERNATIONAL NEWS

### Richard Keim Participates in Several International Activities

Richard Keim traveled to U Minh Thuong National Park, Vietnam, to participate as an instructor at a program titled "Mekong WET: Building Resilience of Wetlands in the Lower Mekong Region." Funded by IUCN, this is a cooperative project between the Mekong-region Wetland University Network and the International Crane Foundation. The project pairs wetland scientists with local wetland managers in Cambodia, Laos, Thailand and Vietnam to assess ecosystem function and develop sustainable management plans.

Richard also traveled to Bangkok, Thailand, for a workshop sponsored by the Sustainable Mekong Research Network to develop projects integrating research and sustainable development in Southeast Asia. This workshop was a prelude to a new project that he is co-leading with the Mekong-region Wetland University Network to understand how rural communities in Cambodia, Laos, Thailand and Vietnam depend on hydrological ecosystem services from wetlands. The upcoming project will include both hydrological research to quantify the role of wetlands as water supplies to vulnerable rural communities and sociological research to identify how the social structures in those communities are based on that wetland ecosystem service. The applied goal of the project is to help vulnerable communities anticipate and respond to effects of global change and intensification of water resource development in the Mekong region.

Finally, Richard was an invited participant in a workshop, "Hillslope Hydrology Past, Present and Future," at the University of Luxembourg in October. The purpose of the workshop was to identify top research unknowns that prevent scientific progress in understanding how water moves through forest canopies, soils and hillslopes to become stream flow. It was convened immediately preceding another conference, "Global Change, Landscape Ageing and the Pulse of Catchments," sponsored by the European Geosciences Union as a topical Leonardo Conference. ■



Dr. Thomas J. Dean (center) stands at the Beijing Forestry University with CAF host Dr. Xiongqing Zhang (right of Dean) and BFU host Dr. Wei Xiang (left of Dean).

### Professor Thomas Dean Visits the Chinese Academy of Forestry

Dr. Thomas Dean was a guest of the Chinese Academy of Forestry in Beijing. During his visit he made four presentations, one at the academy in Beijing, one at the Beijing Forestry University, and two at the academy's Experimental Center of Subtropical Forestry near Xinyu City. Dean presented his ideas on how coordinated tree morphology explains many aspects of forest growth and population biology, forest management in the United States, and how to write a scientific paper. Dean has been working with Xiongqing Zhang, a biometrician at the academy, on several projects on Chinese fir and expects to continue this collaboration. ■



## CLASSROOM NEWS



Students were able to closely observe American Flamingos.

### Applied Estuarine Ecology of the Yucatan

The LSU School of Renewable Natural Resources, in partnership with Academic Programs Abroad, offered a class titled Applied Estuarine Ecology of the Yucatan during fall semester 2019. The class of eight RNR students was led by Drs. Kevin Ringelman, Andy Nyman and Luke Laborde and traveled to Celestun, Mexico, Jan. 3-11, 2020. Highlights of the trip included sightings of American Flamingos (*Phoenicopterus ruber*) and 122 additional species of birds, visits to mangrove swamps and mangrove restoration projects, and a visit to the Mayan ruins at Uxmal. The group was hosted by Ducks Unlimited de Mexico (DUMAC) at the John E. Walker Natural Resources and Training Center at Celestun. ■



RNR students visited mangrove restoration projects constructed using local manual labor by Ducks Unlimited de Mexico. Pictured, left to right, Ben McCullar, Dr. Andy Nyman, Melanie Holton, Hayley Jackson, Cameron Toerner, Ashlyn Sak, Kaiser Franck, Scott Graham, Dr. Kevin Ringelman, Katie Davis and Dr. Luke Laborde.





Guest speaker Kayla Kimmel from USFWS works with Ty Price and Dekka Ducote on suturing catfish.

## Aquaculture and Fisheries Club: Paving the Path for Future Scientists

The Aquaculture and Fisheries Club (AFC) within RNR is providing students interested in aquaculture and fisheries science opportunities to learn and develop technical skills through invited speakers and hands-on learning activities at our monthly meetings. In fall 2019, Kayla Kimmel of the U.S. Fish and Wildlife Service taught AFC members how to perform surgical sutures on fishes as well as how to tag particular species. The surgical suturing process is a critical part of her work as a fish biologist because she inserts acoustic transmitter tags inside alligator gar and threatened Gulf sturgeon. On a separate occasion, students had the opportunity to learn how to extract otoliths (ear bones used for aging) from fish, an important practical skill for potential fisheries biologists. AFC members volunteered in several activities, including the Louisiana Sea Grant Ocean Commotion in fall 2019, Louisiana Sea Grant and Louisiana Department of Wildlife and Fisheries' annual Derelict Crab Trap Rodeo, kayak cleanups and Coalition to Restore Coastal Louisiana events in spring 2020. Upcoming events include a tour of the Coastal Protection and Restoration Authority Mississippi River model at the LSU Center for River Studies, the annual fishing trip, the spring fish fry and the Louisiana Chapter of the American Fisheries Society (AFS) meeting. At the Louisiana AFS meeting, the club hosts a silent auction and raffle each year that serves as the club's main fundraising event, enabling the club to put on programs for members. Each semester, we look forward to increasing the amount of participation both on campus as well as with the scientific community. ■



Olivia Roy, president of the student chapter of The Wildlife Society, and Ty Price, vice president, teach an enthusiastic group of kids about Louisiana's wildlife at the 2019 West Feliciana 4-H Livestock Show.

## The Wildlife Society Engages Youth About Wildlife

In January 2020, Olivia Roy and Ty Price, undergraduates in LSU's chapter of The Wildlife Society, set up a display at the West Feliciana 4-H Livestock Show to inform pre-K through third graders about fun wildlife facts and general wildlife awareness. The event was held at the LSU AgCenter extension office in Saint Francisville. Throughout the course of the day, they interacted with about 1,000 kids from West Feliciana Parish. Upcoming chapter events include participation at the Southeastern Wildlife Conclave, which will be hosted by Haywood Community College and Western Carolina University in Clyde, North Carolina. Chapter representatives will compete in contests including orienteering, the obstacle course and archery. TWS at LSU will also be participating in various volunteering opportunities throughout the semester. ■



Members of the Tiger Chapter Ducks Unlimited celebrate with the national championship trophy for 2018.

## Tiger Chapter Ducks Unlimited Repeats as University National Champions

At the Third Term National Leadership Conference in August 2019 in Memphis, Tennessee, the Tiger Chapter Ducks Unlimited repeated as All American Chapter and national champion, ranked first of 112 university chapters across the United States for 2018. The Tiger Chapter previously won this award in 2017 and is working hard for a trifecta by winning the award again for 2019, which will be presented in May 2020. Co-chairs of the Tiger Chapter were Kay Avery, senior in wildlife ecology, and Gunther Spore, senior in finance. Advisers are Drs. Luke Laborde and Kevin Ringelman. ■





Competitors pose after the log birling competition, which was held in the pond at Burden Museum and Gardens. Pictured are (kneeling, l to r) Hunter Martin, Kathryn Kahil, Brooklyn Frerks, Nathan Apetrei, Jeanne-Marie Guillot; (standing) Graham Flucke, Cameron Toerner, Matthew Shockey, Cecilia Berryman, Jessica Francisco (holding flagpole), Rosalind Remsen, Skylar Bueche, Cheyenne Fouts, Brandon Omond, Mason LeBlanc and Jacob Meyer.

## LSU Hosts Forestry Conclave

The Society of American Foresters (SAF) student chapter at LSU hosted the 62<sup>nd</sup> annual Southern Forestry Conclave in March 2019. A total of 220 students and 20 faculty advisers from 13 forestry schools across the South attended the conclave. The overall winner was Stephen F. Austin State University (SFA), followed by University of Arkansas at Monticello and Clemson.

Most of the conclave was held at the LSU AgCenter Botanic Gardens at Burden on Essen Lane, with the Stihl ironman competition held on campus at the Parker Coliseum and the awards ceremony held in the 4-H Mini Farm. The timber estimation and pole classification competitions were held at the Bob R. Jones-Idlewild Research Station near Clinton. Half of the competition (in points) consisted of eight technical events, such as dendrology, wood ID and wildlife ID. The other half consisted of 12 physical events, such as crosscut sawing, log chopping, log rolling and pole climbing.

We extend our thanks to the alumni, businesses and other friends who helped support the forestry conclave, including SFA students who helped with setup. We could not have done it without you!

Other activities of the SAF chapter included competitions against other forestry schools at Winnfield's Louisiana Forest Festival in April, a campout at the Lee Memorial Forest in October, chainsaw training day at the LSU AgCenter Botanic Gardens at Burden, SAF national convention in Louisville, Kentucky, a successful Christmas tree sale and Arbor Day activities at the Botanic Gardens in January. At Arbor Day, students taught the public (young and old) how to do the knife throw, axe throw and crosscut events.

In 2020, the chapter will travel to Crossville, Tennessee, where Conclave will be hosted by the University of Tennessee, Knoxville. ■



Mary Grace Lemon (left) and Whitney Kroschel (right) served as directorate fellows with the U.S. Fish and Wildlife Service

## Whitney Kroschel and Mary Grace Lemon Serve as Directorate Fellows for U.S. Fish and Wildlife Service

This summer Whitney Kroschel (Ph.D.; King) and Mary Grace Lemon (Ph.D.; Keim) served as directorate fellows for the United States Fish and Wildlife Service at the Minnesota Valley National Wildlife Refuge and Wetland Management District. Together, they developed a water management plan for the wetland management district's largest waterfowl production area, Lincoln WPA, in south central Minnesota. This opportunity allowed the students to build upon their Louisiana wetland experience and learn about prairie pothole wetlands of the Midwest. In addition, this opportunity allowed the students to gain experience working for a federal land management agency and increase their career networks with those outside of the Gulf Region. ■



The student chapter of the Society of Wetland Scientists is composed of students from a variety of departments on campus.

## Students Breathe New Life into Society of Wetland Scientists

The LSU student chapter of the Society of Wetland Scientists is an interdisciplinary student organization for undergraduate and graduate students interested in wetlands. Designed to increase student interest in learning about and conserving Louisiana's unique ecosystems, the organization is focused on education, field experience and volunteerism. The organization had dwindled to only two students in recent years, but in the fall of 2019, officers Scott Graham (RNR), Ashley Booth (RNR), Clay Tucker (Geography & Anthropology), Caleb Taylor (RNR) and Alex McClellan (OCS) brought new life to the group through monthly meetings, conference presentations and volunteer activities. Members volunteered at Ocean Commotion and a beach sweep at Bayou Sauvage National Wildlife Refuge. Several members also presented original research at annual meetings for the Louisiana Association of Professional Biologists and the Coastal and Estuarine Research Federation. In spring 2020, the club plans to take students kayaking in the Atchafalaya Basin, host a wetlands-related movie night, volunteer with the Coalition to Restore Coastal Louisiana and help host the Gulf Estuarine Research Society regional meeting. They are also planning to reinstate the organization's annual Wetland Symposium as a venue for undergraduate and graduate students to learn about wetland science, gain experience giving presentations and win prizes. If you are interested in participating in or sponsoring the LSU SWS Wetland Symposium, please contact Clay Tucker at [ctucke8@lsu.edu](mailto:ctucke8@lsu.edu). ■

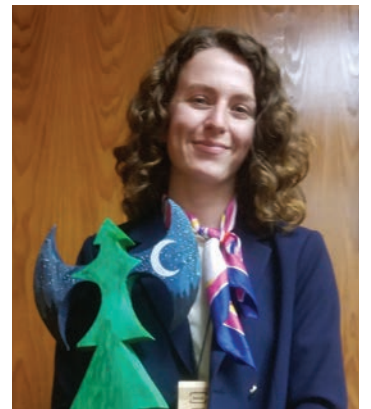
## Xi Sigma Pi Honor Society Member Wins Regional Award

Congratulations are extended to Cameron Toerner, who won the 2019 Xi Sigma Pi scholarship for the West Central Region of the U.S. LSU has been able to maintain an impressive record, winning half of the awards in recent years in a region that comprises eight universities. LSU winners include:

- 2002: Benjamin Hogue
- 2004: Angela Secott
- 2006: Matthew Reed
- 2009: Ian Stone
- 2010: Lauren Smith
- 2014: Kasie Dugas
- 2015: James Donovan (2nd place)
- 2016: Parker White (2nd place)
- 2018: Mason Leblanc
- 2019: Cameron Toerner

Also, congratulations to Jessica Francisco, who won the 2019 Xi Sigma Pi Nu Chapter Outstanding Sophomore award.

Xi Sigma Pi is an honor society for students majoring in renewable natural resource disciplines with chapters nationwide. The current officers of Chapter Nu of Xi Sigma Pi are Charles Pell, forester; Katherine Kahill, ranger; and Cameron Toerner, fiscal agent. Dr. Quang Cao is the faculty adviser. ■



Cameron Toerner won the 2019 West Central Regional Scholarship from Xi Sigma Pi.



Jessica Francisco receives the 2019 Xi Sigma Pi Outstanding Sophomore plaque from Dr. Quang Cao.





## 2019-20 RNR Scholarships

### Undergraduate Student Scholarships

F. O. Bateman Memorial Scholarship . . . . .	Alexia M. Lagrone
Pauline Bateman Stanley Scholarship . . . . .	Cameron C. Toerner
Paul Y. Burns Scholarship . . . . .	Lauren N. McFarland
Eric Fabre Memorial Scholarship. . . . .	Connor M Meche
Harold Werner Oleson Scholarship . . . . .	Lindsey C. Newton
William A. Knight Forestry Scholarship. . . . .	Matthew L. Maldonado
William A. Knight Forestry Scholarship. . . . .	Mary A. Ligenza
William A. Knight Forestry Scholarship. . . . .	Avery B. Noel
William A. Knight Forestry Scholarship. . . . .	Anastasia Penton
William A. Knight Forestry Scholarship. . . . .	Caroline Green
William A. Knight Forestry Scholarship. . . . .	Kaydence G. Dubroc
William A. Knight Forestry Scholarship. . . . .	Alexis C. Dukes
William A. Knight Forestry Scholarship. . . . .	Elayne Elnaggar
William A. Knight Forestry Scholarship. . . . .	Emilie A. Eastman
William A. Knight Forestry Scholarship. . . . .	Grace L. Miller
William A. Knight Forestry Scholarship. . . . .	Sophia R. Fontenot
William A. Knight Forestry Scholarship. . . . .	Gabrielle L. Duhe
William A. Knight Forestry Scholarship. . . . .	Jackson C. McCain
William A. Knight Forestry Scholarship. . . . .	Mary E. Koenenn
William A. Knight Forestry Scholarship. . . . .	Meredith R. Owens
William A. Knight Forestry Scholarship. . . . .	Kaila R. Wilson
William A. Knight Forestry Scholarship. . . . .	Hope E. Simpson
William A. Knight Forestry Scholarship. . . . .	Tatum Hipp
William A. Knight Forestry Scholarship. . . . .	Jackson E. Martingayle
William A. Knight Forestry Scholarship. . . . .	Owen R. Henderson
Thomas Plein Scholarship. . . . .	McKaila D. Stafford
Lehmann – FWF Alumni Association . . . . .	Kathryn E. Davis
Forestry, Wildlife, and Fisheries Alumni Association . . . . .	Katie Miranda
Forestry, Wildlife, and Fisheries Alumni Association . . . . .	Jordan A. Mouton
Forestry, Wildlife, and Fisheries Alumni Association . . . . .	Aaron M. Eaglin
Laborde Leadership Scholarship. . . . .	Jenna Cheramie

### Louisiana Forestry Foundation Scholarships

Dr. Norwin Linnartz Scholarship. . . . .	Jaden Cuti
Dr. Tom Hansbrough Scholarship . . . . .	Jessica Francisco
Henry Hardtner Scholarship . . . . .	Julianne Lamy
Juliet E. Hardtner Scholarship . . . . .	Rosalind Remsen
Weaver Brothers Scholarship. . . . .	Peyton Wood
Lyndon Erroll Dawson Jr. Scholarship. . . . .	Matthew Shockey
Robert H. Crosby Jr. Scholarship. . . . .	Christian Mallett
Roy O. Martin Jr. Scholarship . . . . .	Cameron Toerner
Jim and Doris Curtis Scholarship. . . . .	Brooklyn Frerks
Joe D. Burns Scholarship . . . . .	Skyler Bueche
Jeff Hughes Memorial Scholarship . . . . .	Jeanne-Marie Guillot
George M. Houston Scholarship. . . . .	Cheyenne Fouts
Commander Bertrand Dean Scholarship. . . . .	Mason LeBlanc

### Graduate Student Scholarships

Ben and Pauline Stanley Excellence Award for Outstanding M.S. Student . . . . .	Caleb B. Taylor
Ben and Pauline Stanley Excellence Award for Outstanding Ph.D. Student . . . . .	Vitek Jirinec
Clark M. Hoffpauer Scholarship for RNR Graduate Students . . . . .	Ashley R. Booth
Charles W. Bosch Jr. Louisiana Wildlife Federation Waterfowl Scholarship . . . . .	Jacob D. Bushaw

### Les Voyageurs

Les Voyageurs are a carefully selected group of 16 students from the College of Agriculture who represent the college and LSU in recruitment, alumni, and development activities. . . . .  
 . . . . . Elijah Hanzy, Katie Costanza

## RNR Students Awards

Allison Snider, a Ph.D. student working with Dr. Sabrina Taylor, was awarded a Werner and Hildegard Hesse Research Award by the American Ornithological Society. Allison is using DNA metabarcoding to characterize the diet of seaside sparrows (*Ammodramus maritimus*) in southeast Louisiana, with the goal of determining if diet changes following major disturbances, including the Deepwater Horizon oil spill and Hurricane Isaac. This grant is being used to support additional DNA sequencing to expand on Allison’s work, allowing for a more in-depth evaluation of sparrow diet.

Patricia Wooden, working with Dr. Michael Kaller, was awarded the 2019 L. D. Newsom Graduate Student Award in Entomology. Patricia is pursuing a M.S. in Entomology while conducting her research in the School of Renewable Natural Resources. L. D. Newsom was the first head of the LSU Department of Entomology. In his honor, one M.S. and one Ph.D. student are recognized each year for academic achievement and graduate research.

M.S. student Catrina Terry (Ringelman lab) was awarded two national-level waterfowl research scholarships: the Dave Ankney and Sandi Johnson Waterfowl and Wetlands Graduate Research Scholarship administered by Ducks Unlimited Canada, and a first place award in the Dennis G. Raveling Scholarship competition administered by the California Waterfowl Association. In addition, Catrina received the Baton Rouge Chapter Delta Waterfowl Foundation award for outstanding graduate student research.

Ph.D. student Lizzi Bonczek (Ringelman lab) was awarded second place in the national competition for the Dennis G. Raveling Scholarship, which goes to outstanding graduate students researching waterfowl. This is the first time that both the first and second place Raveling awards have gone to the same university.

M.S. student Dylan Bakner (Ringelman lab) was awarded the national-level United Waterfowlers of Florida Graduate Research Scholarship. Dylan was selected for this award because his graduate project on breeding wood ducks in Louisiana has far-reaching implications for the species throughout the southern United States.

M.S. student Jacob Bushaw (Ringelman lab) was awarded the LSU School of Renewable Natural Resources Charles Bosch Scholarship, which is intended to support research on hunted, migratory waterfowl.

Jessica Francisco won the 2019 Outstanding Sophomore award, given by chapter Nu of Xi Sigma Pi last semester. This award is given to an RNR junior who was enrolled as a sophomore in either forestry or wildlife habitat the previous year.

Cameron Toerner won the 2019 Regional Scholarship, given by Xi Sigma Pi for the West Central Region, which comprises eight universities. She was also the Outstanding Sophomore last year.

M.S. student Courtney Murr (Green lab) won an award at the Society of Environmental Toxicology and Chemistry North America 40th Annual Meeting in Toronto, Canada. Courtney Murr placed first in the Best Student Presentation Award competition in the M.S. Poster category. The poster is titled “Use of a zebrafish model to identify anti-convulsant properties of phytocannabinoid extracts.” This work is funded from the LSU AgCenter’s Therapeutic Cannabis Research Committee.

Alicia McAlhaney (M.S. 2018, currently a research associate in RNR) was awarded Outstanding Graduate Student Paper at the 20th Biennial Southern Silvicultural Research Conference in Shreveport in March. The title of her presentation was “Comparison of Individual-Tree Competition Metrics in an Uneven-Aged, Baldcypress (*Taxodium distichum*) and Black Willow (*Salix nigra*) Floodplain Forest.”

Ashley Booth (Ph.D.; King/Nyman) was the recipient of the Clark Hoffpauer Scholarship from the School of Renewable Natural Resources. In addition, Ashley received a Coastal Estuarine Research Federation 2019 Travel Grant to support her travel to their annual meeting in Mobile, Alabama.

Antonio Cantu (M.S.; King) was the recipient of the Student Travel Award to the North American Crane Workshop in Lubbock, Texas. Antonio gave a presentation on the status of wetlands and cranes in Mexico and he was also elected as a student representative on the board of the North American Crane Working Group.

Scott Graham (M.S.; Nyman/King) was the recipient of three scholarships: Glasgow Memorial Scholarship for Ecology of the Yucatan class, John Barton Sr. College of Agriculture Wildlife Scholarship, and the Rockefeller State Wildlife Scholarship. Scott also won the award for the best Poster Presentation at the 2019 Louisiana Association of Professional Biologists Meeting and was





## STUDENT NEWS

the recipient of a Graduate Student Association Travel Award to the Coastal Estuarine and Research Federation's Annual Meeting in Mobile, Alabama.

Jenna Cheramie, senior in Wildlife Ecology, is the 2019 recipient of the Laborde Award for Leadership in Renewable Natural Resources. The award is presented annually to a full-time undergraduate student who has completed at least 96 hours of coursework with a GPA of 3.0 or greater and who has demonstrated leadership in student organizations and activities associated with the LSU School of Renewable Natural Resources.

Samantha Pettibone, Naya Black and Ty Price, undergraduates working with Dr. Ashley M. Long, were awarded funding through the A. Wilbert's Sons LLC Research Internship to conduct field research on bats and amphibians near Baton Rouge. Pettibone

and Black will be examining use of various artificial structures by bats for roosting. Price will be examining the effects of traffic noise and environmental conditions on amphibian distributions and call characteristics.

Cameron Rutt, a Ph.D. candidate in Dr. Phil Stouffer's lab, received an outstanding student presentation award during the 2019 annual meeting of the American Ornithological Society. The Mark E. Hauber Award is conferred to the student with the best oral presentation in the field of avian behavior and comes with a \$500 honorarium. Cameron presented on the results of one of his dissertation chapters, where he examined how experimentally isolating small forest fragments negatively affects understory birds in the Amazon Rainforest. This research was recently published in the journal Biological Conservation. ■



## GRADUATE NEWS



Dylan Bakner (M.S. student) is working with Dr. Ringelman to examine wood duck and black-bellied whistling duck breeding ecology across the southeastern United States.



Amanda Ceming-Barbato (M.S. student) is working with Dr. Keim to understand how water moves in soils, specifically heavy clay soils of forested wetlands where root channels may play an important role in water availability to trees and floodplain hydrology, at field sites near Baton Rouge.



Courtney Poirier (Ph.D. student) is working with Dr. Keim to examine mechanisms of subsurface connections between rivers and floodplain forests at field sites in Louisiana and Texas.



Adelodun Majekobaje (Ph.D. student) is working with Dr. Dean to examine the physiological response of terrestrial ecosystems to future climate scenarios.



Jane Kunberger (M.S. student) is working with Dr. Long to study the influence of pine management on bats in central Louisiana.



Madeline Gill (M.S. student) is working with Dr. Nyman to examine the successional ecology of Roseau cane stands in coastal tidal marshes across southern Louisiana.



Amanda Popovich (M.S. student) is working with Dr. Kelso on juvenile Gulf sturgeon in the Peal River system.



Lauren Swam (M.S. student) is working with Dr. Megan La Peyre to define areas along the Louisiana coast that are suitable for oyster growth and is also studying salinity tolerance of oyster populations from Louisiana.





## SRNR Graduate Receives NOAA Administrator's Award

Ken Riley, SRNR (SFWF) graduate (M.S., 2002), was recently named as a recipient of the 2019 Administrator's Award from the National Oceanic and Atmospheric Administration. The award is the agency's highest honor and is granted by the under-secretary of commerce for oceans and atmosphere who serves concurrently as the administrator of NOAA. Ken was recognized with three others for "foresight, ingenuity, and hard work developing OceanReports, a web-based geospatial application for analyzing U.S. ocean neighborhoods." This is the "first of its kind smart web application that revolutionizes the way ocean data is accessed, analyzed, and visualized for the entire U.S. Exclusive Economic Zone," and offers powerful new planning process tools for siting, permitting, and environmental review. ■



Ken Riley

## Science Thursday

President Craig Gothreaux has continued Science Thursday, where alumni of the School are briefed on current events and research conducted by faculty and graduates. Alumni gather at the RNR Building the first Thursday of the month during spring and fall semester for social time with refreshments and appetizers at 5:45 p.m. followed by a topical presentation at 6:15 p.m. Speakers to date include:

Dr. Ashley Long, "Zombie deer apocalypse caused by Chronic Wasting Disease: Fake news or sound science?"

Mr. Larry Reynolds, "Waterfowl migration patterns and trends: Are ducks a thing of the past in Louisiana?"

Mr. Ryan French, "Fishing vs. Trespassing: Louisiana coastal property ownership"

Dr. Melissa Baustian, "Coastal Impacts of harmful algal blooms"

Dr. Bret Collier, "Let's talk turkey!"

Additional functions will be scheduled. Watch for announcements! ■

## Alumni Officers

Officers of the SRNR/FWF Alumni Association elected last April:

Craig Gothreaux, President

Rachel Villani, President-elect

Luke Laborde, Secretary-treasurer

Louis Heaton, At-large Board Member

Tanner Jones, At-large Board Member

Claire Coco, At-large Board Member

Craig can be contacted at 337-280-0544 or [cgothreaux@gmail.com](mailto:cgothreaux@gmail.com). ■

## Hall of Fame

Ray Aycock, B.S.F. '66, M.S. WM '68, was inducted into the School of Renewable Natural Resources Hall of Fame at the 2019 Annual Meeting. During a career of over 30 years with the U.S. Fish and Wildlife Service, Ray helped to identify and establish over 20 national wildlife refuges through Louisiana, Arkansas and Mississippi; initiated the first ever Red-cockaded Woodpecker surveys in Louisiana, the first ever Bald Eagle nesting surveys in Louisiana; established the Longleaf Pine Initiative in south Mississippi; and initiated the Partners for Fish and Wildlife program. He was a representative of the Department of Interior at the incident command center for the BP Oil Spill in 2010. Ray lives on 6 acres in Flora, Mississippi, with his wife of 56 years, Betsy. He is president of the Mississippi Bayou Bengals TAF chapter. ■



RNR alumnus Joe Harvey (center right) and family were awarded 2020 Outstanding Forest Landowner by the Feliciana Forestry Association. Pictured, left to right, are Mark Hurst (B.S.F. '86; consulting forester on the property); Harvey's wife, daughter, mother and sister; Harvey (B.S.F. 2002); and Mike Thomas (B.S.F. '89), who presented the award for the association.

## Joe Harvey honored as Feliciana Outstanding Landowner

The family of RNR alumnus Joe Harvey (B.S.F. 2002) was honored by the Feliciana Forestry Association with the 2020 Forest Landowner of the Year award. The 850 acre property located in West Feliciana parish was originally purchased by Joe's great-grandfather and expanded by his grandfather. About 700 acres of it is in pine timberland. Recently, they planted 3 acres of pecans and plan to expand it to 10 acres. Consulting forester Mark Hurst (B.S.F. '86) helps the family maintain the land with proper thinnings, harvests and prescribed burns. The award was presented at the annual meeting of the Feliciana Forestry Association on January 23, 2020, in St. Francisville. ■

## We Want To Hear From You!

The alumni news is compiled and written by Luke Laborde. We are continuously working to update and manage our alumni files and database. We welcome information on promotions, career changes, passings and other important life events from all alumni. If you have any news items or address changes that you would like to share, please e-mail Luke at [llabor2@lsu.edu](mailto:llabor2@lsu.edu)





## Dale Hall Named 2019 LSU Alumni Foundation Alumnus of the Year

Dale Hall, M.S. Fisheries '75, was honored by the LSU Alumni Association as 2019 Alumnus of the Year and was inducted into the LSU Hall of Distinction. Dale, a native of Bunkie, had a 31-year career with the U.S. Fish and Wildlife Service, serving the last four as director after being nominated by President George W. Bush. As CEO of Ducks Unlimited, Dale envisioned and completed a \$2 billion capital campaign for wetlands conservation, the largest of its kind in the history of natural resource conservation by a nongovernmental entity. In 2018, Dale was inducted into the hall of fame of the LSU School of Renewable Natural Resources. He is currently retired and living with wife Sarah in Collierville, Tennessee. ■



Dale Hall, recipient of the 2019 LSU Alumni Foundation Alumnus of the Year award and inductee in the LSU Hall of Distinction.

## Supporting Scholarship!

Gifts from alumni have allowed the association to endow a scholarship to support undergraduate academic achievement in the School of Renewable Natural Resources. Receiving \$1,000 awards were:

- Katie Miranda, Freshman, Pre-veterinary Medicine
- Jordon Mouton, Sophomore, Conservation Biology
- Aaron Eaglin, Junior, Wildlife Ecology
- Katie Davis, Senior, Wildlife Ecology

Thanks to alums for your continued and generous support! ■

## In Memoriam

### Don Feduccia (M.F. '68)

Don Feduccia, 75, of Alexandria, passed away on Friday, May 17, 2019. His passions were hunting, fishing and caring for his family property. He received his bachelor's and master's degrees in forestry at LSU. He retired after 37 years of service from the Louisiana State Department of Agriculture and Forestry. Don was a lifetime member of the Louisiana Forestry Association and served as an officer for many years. He was the recipient of the Southern Forest Experiment Station's Publication of the Year Award.

### Marc Dupuy Jr.

Marc Dupuy Jr., 91, was born on Nov. 11, 1927, and passed away on April 19, 2019. He was a native and lifelong resident of Marksville, Louisiana, and a graduate of Presentation Convent, Marksville High School, Louisiana State University and LSU Law School. Dupuy was a World War II U.S. Navy Veteran, a practicing attorney for over 65 years, a lifelong avid sportsman and pilot, a dedicated wildlife conservationist and geologist and an active member in many civic and conservation organizations. He served on the board of the Louisiana Wildlife and Fisheries Foundation. Dupuy was a past recipient of "The Avoyellean of the Year" Award. He also donated an undergraduate scholarship to the School of Renewable Natural Resources.

### John Haygood (B.S.F. '51, M.G.M. '63)

John Haygood was born July 17, 1927 in Shreveport, Louisiana, and entered into rest March 5, 2019, in Bossier City, Louisiana. He received his B.S. and M.S. from LSU. He served his country during World War II in the U.S. Navy. In his position with Louisiana Department of Wildlife and Fisheries he helped restore our populations of white-tailed deer and wild turkey. He was a substitute professor at LSU. He was the resource manager for a large military base for over 25 years where he restored large wetlands, helped establish large heronries, built numerous ponds, established waterfowl refuges, helped manage threatened and endangered species, implemented important research projects, reforested abandoned areas and provided recreational opportunities for users. He was a recipient of the John D. Newsom Wildlife award.

### James Dear (B.S.F. '65, M.F. '67)

James Marvin ("Jim") Dear of Fairfax, Virginia, passed away peacefully on April 27, 2019. He was a native of Pineville, Louisiana. Jim served in the U.S. Air Force as a radar operator and then in the U.S. Naval Reserves as an intelligence officer. He graduated from LSU with bachelor's and master's degrees in forestry. Jim spent his career as a forester in the U.S. Forest Service serving in Mississippi, Arkansas, Denver and at the Washington, D.C. headquarters, where he retired in 1995.

### Bill Fuller

William Porter "Bill" Fuller passed away on Jan. 15, 2020, at his home in Kinder, Louisiana. He was born in Oakdale, Louisiana, on June 24, 1926. He attended Culver Military Academy in Indiana and graduated high school in Oakdale. After graduating,

he enrolled at Tulane University. At the end of his first semester, he enrolled in the Naval flight training program and was stationed at the Great Lakes Training Station. After being discharged, he enrolled at Louisiana State University in the School of Forestry. He became a part of Hillyer Deutsch Edwards and Hillyer Deutsch Fuller, both sawmill and lumber companies, in Oakdale. He moved to Thibodeaux in 1968, where he leased and operated a sawmill. He moved to Kinder in 1970 and designed and built a sawmill, Fuller Forest Products Inc. He served the Louisiana Forestry Association as vice president and served as president of the Southern Hardwood Producers Association. In 1969, Bill was elected to serve on the First Commerce Corporation board in New Orleans. He also served on the Public Affairs Research Council Board of Trustees and the Louisiana Cattleman's Association as both vice president and president. In 2011, he was named a member of the Louisiana Cattleman's Association Golden Spur Club in honor of his more than 30 years of dedication to the Louisiana cattle industry.

### Gary Haarala (B.S.F. '58)

Gary Richard Haarala, 83, of Meridian, passed away Thursday, Feb. 28, 2019. Mr. Haarala was a graduate of the School of Forestry at Louisiana State University. He served in the United States Army and retired from St. Regis Paper Company. He enjoyed watching football, playing softball and tennis, as well as hunting and fishing.

### John Hamner (B.S.F. '57)

John Grady Hamner passed away Aug. 29, 2019, at his home in Bellville, Georgia. He entered the United States Army in November, 1950, and served with the 1st Cavalry Division in Korea and Japan before being honorably discharged in October 1952. He graduated from Louisiana State University in 1957, receiving a Bachelor of Science Degree in forestry, and in 1961 from Yale University with a master's degree in forestry. He was employed by Union Camp Corporation in 1957 and worked as a professional forester in Georgia, Florida and Alabama until retirement in 1994.

### Paul Harp (B.S.F. '57)

Paul D. Harp, 77, died on Sept. 3, 2019. He was born in Lexington, Kentucky, on Jan. 24, 1942. He received a bachelor's degree in forestry from Louisiana State University and was owner of Austin D. Harp and Company Masonry and Elkhorn Farms. He was also a veteran of the U.S. Army. Paul was an avid sportsman, photographer and student of history.

### Bill Loe (B.S.F. '50)

William (Bill) Andrew Loe Sr., 92, died on Dec. 25, 2019. After serving in the army, Loe graduated from Louisiana State University, earning a Bachelor of Science degree in forestry. He later earned a master's degree in forestry from Louisiana Tech University. As an area forester for the LSU Cooperative Extension Service, he had a long and productive career developing educational programs benefitting private forest landowners and 4-H youth programs. His passions were hunting and fishing with his sons and grandsons and travelling the world.

### Rufus D. Logan, Jr. (B.S.F. '54)

Rufus D. "R.D." Logan Jr., 86, of Madison, Mississippi, passed away Monday, May 13, 2019, at his home. He was originally from Carthage, Mississippi, and spent his career with the Mississippi Forestry Commission from 1956-1995, in Rolling Fork, Mississippi. R.D. was a graduate of Carthage High School (1950), attended Mississippi State University for two years and graduated from Louisiana State University (LSU) in forestry in 1954. He was a dedicated member of the Lions Club and an avid LSU fan.

### Bill Sanders (B.S.F. '58)

Robert W. "Bill" Sanders, 89, of Conway, died Sunday, May 12, 2019. He was born on July 18, 1929, in Camden, Arkansas. Bill was a graduate of Camden High School and attended Southern Arkansas University before joining the U.S. Air Force during the Korean War. He graduated from Louisiana State University with a degree in forestry and worked for International Paper Company until his retirement in 1992.

### Thomas Oswald Sessions, Jr. (B.S.F. '62)

On March 27, 2019, Thomas Oswald Sessions Jr. passed away at the age of 81. He was born January 28, 1938, and grew up in Woodville, Mississippi. He received a bachelor's degree in 1962 from Louisiana State University in forestry.

### Louis E. Brunett (M.G.M. '57)

Louis E. Brunett passed away November 21, 2019. He was born July 29, 1929, in Husser, Louisiana. After high school, Louis served in the U.S. Army as an artillery officer in the 82nd Airborne. He honorably served our country for 35 years, 10 years active duty and 25 years in the reserves, attaining the rank of colonel. He taught field artillery and other military skills to his comrades at Ft. Sill, Oklahoma, where he was inducted into the Military Artillery OCS Hall of Fame in 1953. In 1952, he graduated from Southeastern Louisiana University with a Bachelor's of Science degree in horticulture, followed by an M.S. degree in wildlife biology from Louisiana State University. He began his career with the Louisiana Department of Wildlife and Fisheries as a wildlife biologist in 1957 and retired in 1988 as district supervisor of the game division. In 1975, Louis was awarded the Professional Conservation Award for his outstanding accomplishments and significant contributions to the management, enhancement and protection of the state's wildlife by the Louisiana Wildlife Federation. He initiated a program to reintroduce and increase the black bear population in Louisiana. In Florida, he started an exchange program to revitalize wildlife populations in both states. After his retirement, Louis became acquainted with nationally renowned publisher Theodore Cross. He assisted Cross in locating and identifying birds for Cross' two publications, "Birds of the Sea, Shore, and Tundra" and "Waterbirds." He put his horticulture skills to use by gardening with his Master Gardener son, Charlie. He carried on his son's love of gardening into his late 80s.



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School of Renewable Natural Resources  
Louisiana State University Agricultural Center  
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**LSU** | College of Agriculture

## School of Renewable Natural Resources

With student enrollment over 300, the School of Renewable Natural Resources is now the second largest department in the LSU College of Agriculture! We need alumni and donors more than ever to help maintain high academic and professional standards, and to prepare our graduates with real work experiences.

**You can help.** We need guest speakers, field trip and research sites, internship opportunities and jobs for our students. We also need your financial support, large or small, to support scholarships for our students. This support is particularly important in light of tuition increases resulting from dramatic cuts in state funding for higher education. Endowed chairs and fellowships help us recruit and retain faculty to accommodate increased enrollment and expand our course and research offerings.

**Join:** The SRNR/FWF Alumni Association and the College of Agriculture Alumni Association. Information on both organizations is available on our website, [www.rnr.lsu.edu](http://www.rnr.lsu.edu).

**Prospective students:** The LSU School of Renewable Natural Resources offers bachelor's degrees in natural resource ecology and management with nine areas of concentration:

- Conservation Biology
- Fisheries and Aquaculture
- Wildlife Habitat Conservation and Management
- Wetland Science
- Wildlife Ecology
- Pre-Vet Wildlife/Wildlife and Fisheries
- Ecological Restoration
- Forest Management

