



Megan Humphrey retrieves several types of samplers designed to passively sample phycotoxins to contribute to the development of a baseline database for Gulf estuaries.

Researchers Track Phytoplankton Toxins in Gulf Coast Estuaries

As filter feeders, oysters and other shellfish depend on microscopic organisms including plankton, algae and bacteria found naturally in the water column for food. On average, an adult oyster can filter over 50 gallons of water per day and are known to selectively sort potential food particles, expelling less desirable food items and sediment as pseudo-feces. Across estuaries in the northern Gulf of Mexico, the quantity and quality of food available may vary as many of these plankton, particularly phytoplankton (photosynthesizing plankton), have short generation times, responding to changing environmental conditions in estuaries. In addition, some phytoplankton species produce phycotoxins which may cause negative effects in organisms — directly to those feeding on the phytoplankton, but also indirectly, by species consuming these filter feeders. Yet, we have limited data on these food resources and potential phycotoxin exposure across the northern Gulf estuaries.

In 2022, Drs. Megan La Peyre, RNR professor and U.S. Geological Survey Louisiana



Postdoctoral researcher Theresa Davenport, left, and graduate student Megan Humphrey seine to collect nekton for assessment of phycotoxin tissue levels during spring 2024 at the Louisiana Universities Marine Consortium in Cocodrie, Louisiana.

Coop Unit, and Melissa Baustian, USGS Wetlands and Aquatic Research Center, initiated work across several northern Gulf estuaries to document baseline levels of filter feeder phycotoxin concentrations, and, with a larger team, to explore the spatiotemporal presence of phytoplankton species of interest identified by the National Oceanographic

and Atmospheric Administration’s National Centers for Coastal Ocean Science Phytoplankton Monitoring Network.

This work has expanded to support the research of RNR graduate student Megan Humphrey. One of Humphrey’s research chapters is focused on measuring potential phycotoxin tissue levels of common filter feeding organisms within Gulf Coast estuaries. This work has resulted in larger collaboration with researchers in the Chesapeake Bay and across the Gulf. Humphreys also spent the summer assisting academic and government project collaborators in collecting samples to measure phytoplankton and phycotoxin presence in the water column across multiple estuaries of the northern Gulf to help develop a baseline database, relating findings to local environmental conditions. This ongoing work is critical to develop a baseline for understanding how changing environmental conditions may affect phytoplankton availability and identity for the organisms that rely directly and indirectly on these food resources. ■



DIRECTOR'S
COMMENTS



Allen Rutherford

Welcome to the LSU School of Renewable Natural Resources! We are happy to restart our Research Matters publication after not publishing a 2024 edition due to the disruptions associated with vacating the RNR building for renovation.

As many of you know, the RNR building has been under renovation since January 2024. We are scheduled to reoccupy the building before the fall. The renovations will include a new roof, a heating and cooling system replacement, new chemical hoods, a new boiler, replacement of the lobby windows and exterior soffits, new flooring, paint, and interior and exterior LED lighting. All doors and paneling will be refinished. In addition, the elevators will be replaced later this year. These renovations were badly needed and very welcomed.

During renovations, we are spread across campus in multiple buildings. This has made faculty interaction and establishing a place

for our students to call home challenging. Maintaining communications is a tribute to the RNR faculty and students. We look forward to reuniting this summer.

Six RNR faculty members left the school during the last year, either through retirement or by moving to academic positions at other universities or federal agencies. We have already filled our vacant instructor position with Dr. Jackie Satter, who joined us in January. We are in the process of interviewing and filling these positions over the next several months. We do miss Drs. Robert Reigh, Richard Keim, Bret Collier, Kevin Ringelman, Ashley Long and Kristin DeMarco, and we wish them great future success. Most are adjunct faculty members in the school, so our professional relationships with them continue. While the loss of productive faculty members saddens us, we have accepted this as an opportunity to reshape the school's research, teaching and extension direction.

The school's faculty and students continue to be distinguished by receiving awards for their research, teaching and outreach activities. Faculty continue to maintain productive research programs, with over \$5 million in grants and contracts (about \$300,000/research full-time equivalent), over 50 national and international presentations and 90 referred publications in the past year. Graduate students are routinely awarded research grants and noted for outstanding presentations at regional and national meetings.

I thank everyone who has generously supported our scholarship funds to assist deserving students. If you wish to contribute, please contact me by email or phone. We are always happy to connect with prospective and current students, alumni and other supporters. Let me know if you want to become more involved in the school.

We continue to ask each of you to give back to your school. Your contributions, regardless of size, allow us to enhance our programs. With alumni funding, we can send students to professional meetings, purchase vans to get students to the field, buy equipment to train students on the latest hardware and software, and many other educational enhancements. Your gifts make a difference!

As always, if you haven't done so recently, please take a moment to update your RNR alumni profile at https://lsu.qualtrics.com/jfe/form/SV_cv7wpSdSBg8OFsE?Q_JFE=qdg.

We are optimistic about the future.

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Effluent-Fueled Trees: How Baldcypress Responds to Nutrient-Rich Water

Forested wetlands in the Lower Mississippi Alluvial Valley are typically nutrient-poor ecosystems, especially where levee systems reduce the input of river sediment and nutrients. As a result, nutrient limitation leads to slower vegetation growth and ecosystem decline. However, when these wetlands are used as biological nutrient filtration systems for treated municipal effluent — also known as assimilation wetlands — baldcypress trees tend to have increased growth. In other systems, fast plant growth is associated with increased water use through transpiration and increased sensitivity to droughts. Does this phenomenon occur with baldcypress trees in effluent growing in discharge in swamps?

To answer this question, Devin Schexnayder studied baldcypress trees that received effluent at the Hammond assimilation wetland in Livingston Parish and compared them to trees at the nearby Joyce Wildlife Management Area in Ponchatoula, Louisiana. Throughout the summer of 2023, he measured the trees' transpiration rates. To accomplish this, he used sap flow probes that were inserted into the trees' trunks and powered by floating rigs containing solar panels, car batteries and data loggers. He found that effluent discharge increased water use in trees under mild atmospheric conditions. However, when the air became hotter and drier, the water use of effluent-fed trees was more sensitive than in the trees that did not receive effluent. These results suggest that the positive effects of effluent discharge in forested wetlands may wane as air temperatures increase this century. His results were published in the journal Wetlands. Schexnayder graduated from LSU RNR in May of 2024 and is now an urban forester for the Texas Trees Foundation in Dallas, Texas. ■



Devin Schexnayder installs a sap flow sensor on a baldcypress tree at his study site.

School of Renewable Natural Resources - Research Matters - 2025

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MISC-104 600 REV 8/25

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

Support the Aquatic Ecology Club: Building Skills, Community and Conservation

The Aquatic Ecology Club strives to provide students with technical skills necessary for natural resources careers, increase collaboration among RNR students and those in adjacent fields, and foster an environment open to all that are interested in aquatic ecology. This newly founded club, however, relies on donations and fundraising to support club functions. Past

fundraising efforts included auction hosting at the 2024 Louisiana American Fisheries Society conference, which generated funds necessary for providing a knot-tying course and other activities during the fall 2024 semester. In the future, there are plans to organize events that provide students with access to and knowledge of aquatic natural resources, including camping trips and

fish identification courses. To assist with providing these opportunities, it is requested that readers spread awareness of the club and consider donating to support the club's mission. Both graduate and undergraduate students are encouraged to join and help build a community of individuals who are all invested in aquatic ecology. ■

LSU Student Chapter of the Society of Wetland Scientists

Founded in 2008, the student chapter of the Society of Wetland Scientists at LSU was the first student chapter in the Society of Wetland Scientists. Our mission is to promote understanding, conservation, protection, restoration, science-based management and sustainability of wetlands. At LSU, the chapter brings together an interdisciplinary group of

students interested in science, management and policy issues surrounding Louisiana's unique wetland ecosystems. The club focuses on volunteer and educational events, and in addition to hosting guest speakers working with wetlands, also tries to go out and get muddy. In 2024, the chapter participated in oyster reef restoration with the Coalition

to Restore Coastal Louisiana. The group also volunteered with Glass Half Full to bag sand made from recycled glass to be put on the coast and conducted a canoe trip to Bayou Cane in Lacombe with Friends of the Louisiana Wildlife Refuges to learn about work done by the U.S. Fish and Wildlife Service. ■



At left, The Society of Wetland Scientists bags sand made from recycled glass for Glass Half Full, an innovative New Orleans-based recycling center. These bags will help with the battle against coastal erosion. Right, Chapter members canoe on Bayou Cane in Lacombe with educational comments by the Friends of the Louisiana Wildlife Refuges.

Society of American Foresters Student Chapter

The Student Chapter of the Society of American Foresters at LSU, also known as the Timber Tigers, had another active year. In March 2024, the Timber Tigers traveled to Gainesville, Florida, to compete in the Southern Forestry Conclave and won several awards, including pole climbing. In March 2025, they traveled to Huntsville, Alabama, to compete in Conclave hosted by Alabama A&M University.

The annual Christmas tree sale location moved from the back of the RNR building to the Parker Coliseum stock pens because of the renovation at the RNR building. It worked out well – easy access, good lighting and shelter from rain.

The AgCenter's Botanic Gardens at Burden on Essen Lane celebrates Arbor Day every third Saturday in January, and the Timber Tigers participated by demonstrating knife and axe throwing and giving the public a chance to try their hand. Earlier, in November, the Timber Tigers served in a similar way at the Fullerton Sawmill Days near Pitkin, Louisiana.

All in all, the Timber Tigers had fun meeting a lot of people, from colleagues at other universities to members of the public who are interested in knowing more about forestry and natural resource management. ■



*The Society of American Foresters grows and harvests Christmas trees at the Lee Memorial Forest in Washington Parish. These are Carolina Sapphires, a variety of Arizona Cypress (*Cupressus arizonica* var. *glabra*) that has a pleasant aroma, is highly resistant to diseases and grows rapidly, maturing in approximately four years.*

Xi Sigma Pi News

Xi Sigma Pi is a national forestry honor society. All RNR students with an interest in forestry who meet the minimum GPA requirements (3.0 for undergraduates or 3.5 for graduate students) are eligible for membership. The officers of Chapter Nu of Xi Sigma Pi are Daniel DeButts, forester; Jacob Manuel, ranger; Maruf Hossain, secretary-fiscal agent; and Dr. Quang Cao serving as faculty adviser.

Anna Sanchez received the 2024 Xi Sigma Pi Outstanding Sophomore Award, which is presented to an RNR junior specializing in wildlife habitat or forest management.

The annual Apple Pie Seminar series featured two distinguished speakers in 2024. On March 20, Dr. Andre Rovai from LSU Oceanography and Coastal Sciences delivered

a talk on "Global Patterns in Mangrove Forest Structure and Blue Carbon Stocks." A second seminar was held on Nov. 19 featuring Dr. John Tracy of the School of RNR, who discussed "Challenges to Managing Bottomland and Floodplain Forests of South Louisiana and the Florida Panhandle." ■



iCEV Recognizes Program for Conservation Certification

iCEVOnline.com presented the School of Renewable Natural Resources with a plaque celebrating 15 students who were certified in 2024 through the courses RNR 2062 and RNR 4062, Ducks Unlimited Ecology Conservation and Management. Since 2021, 61 students have received the certification via this class, which is accredited by the Louisiana Workforce Commission. In the spring of 2025, the class is being offered for dual enrollment through the LSU Cain Center, with 16 students enrolled from East Feliciana High School and North Iberville High School. Pictured are Dr. Luke Laborde, instructor, left, and Dr. Allen Rutherford, director. ■

Botany Club Explores Abita Creek Swamp



Botany Club members explore a pond cypress and black gum swamp along Abita Creek near Abita Springs. The Botany Club at LSU exists to enhance students' plant identification skills and to introduce students to an expanded selection of habitats.



Yinuo Zhou exams bark traits on a branch segment.

Exploring Water Leaks in Tree Bark

When trees get dehydrated, they suffer in terms of growth and survival. Tree dehydration is particularly problematic during droughts and heat waves like the one that Louisiana experienced during the summer of 2023. An often-overlooked source of tree water loss that leads to dehydration is through the bark. Although trees are covered in bark, its leakiness to water vapor, or permeability, is not well understood. Recently, Yinuo Zhou (Ph.D.; Wolfe) and her collaborators showed that bark permeability ranges widely among Louisiana tree species and that it can be affected by disturbances such as wind and flooding. The results were recently published in Tree Physiology and can be read at <https://doi.org/10.1093/treephys/tpae156>.

Zhou found that tree species growing at the LSU AgCenter's Botanic Gardens at Burden varied five-fold in how leaky their branches were to water vapor. When she bent branches to simulate the effects high winds, bark permeability increased on average by 23%. When she subjected saplings to flood conditions, bark permeability was not affected until 69 days post flood, when it was reduced by 41%. Perhaps the flooded saplings became dormant sooner than unflooded saplings, leading to waxy deposits that reduced bark permeability. Clearly there are complex drivers of variation in bark permeability, including interacting effects of disturbances.

Currently, Zhou is exploring novel methods for measuring bark permeability and investigating the underlying bark traits that determine permeability. This series of research projects will hopefully fill the knowledge gap regarding water loss through bark and tree dehydration. The results can help us better predict the effects of extreme weather events on tree performance and lead to improved forest management. ■

Nyman, Others Explore Dieback of Roseau Cane at the Mouth of the Mississippi River

Nobody cared about the extensive stands of roseau cane at the mouth of the Mississippi River until 2016 when numerous stands appeared to be senescencing three times a year. In the spring of 2017, Dr. Andy Nyman began collaborating with entomologist Dr. Rodrigo Diaz to study the phenomena. Within a few years, the dieback had spread west into Texas and east into Mississippi, and Diaz was working with dozens of collaborators from LSU and across the country.

The most likely cause is an exotic insect new to North America, but transient salinity stress and flooding stress may also be relevant. Initial fears focused on the possibility that dieback would spread to agricultural grasses, such as sugarcane and rice, or important marsh grasses, such as *Spartina* spp. and *Schoenoplectus* spp., but greenhouse experiments suggested such possibilities were low. Unlike *Phragmites* in much of North America, most of the *Phragmites* in Louisiana is not the invasive European variety that dominates North American research on the species. The European variety of *Phragmites* did not reach Louisiana until the 1990s or 2000s. *Phragmites* at the mouth of the river may be some of the most diverse globally because it contains four varieties: Gulf, Delta, European and Greeny.



Examples of hydraulically inefficient, top, and efficient outlets from the Mississippi River. The left shows robust vegetation on the banks of bifurcating channels and the associated shallow water wetlands that obstruct flow, which reduces the costs of navigation dredging by forcing more water down the navigation channel. The image on the bottom is from Neptune Pass, which is too young to have developed bifurcating channels and associated shallow-water wetlands. Its hydraulically efficient channel tasks much flow in the navigation channel and thus increases dredging costs.

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On higher elevations such as natural levees, *Phragmites* is being replaced by less robust species, such as elephant ear, which lose all aboveground biomass during winter and thus makes the channels leakier to lateral flow. At lower elevations, *Phragmites* is being replaced by open water, which makes channels shorter and thus also more hydraulically efficient.

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Nyman initially worked with graduate students Aimee Beaudette (M.S., 2020) and Madeline Gill. Beaudette's thesis using Landsat images indicated that dieback probably began in 2009. Before then, the area of *Phragmites* and the area of all vegetation varied similarly from year to year, but after 2009 the area of *Phragmites* and the area of all vegetation varied differently. Gill's field research compared vegetative response to disturbance via mowing and found that *Phragmites* at higher elevations was more likely to be replaced by other species such as elephant ear (*Colocasia esculenta*) but *Phragmites* at lower elevations was more likely to be replaced by open water.

Nyman and collaborators at Tulane University explored consequences of *Phragmites* dieback on water and sediment discharge in

the navigation channel. Dredging there exceeds \$100 million annually; thus, even small declines in water velocity increase dredging costs. Numerical modeling indicated that a single channel most limited sedimentation, but the second-best configuration was one in which any secondary outlets were long and bifurcating. Thus, *Phragmites* dieback probably is increasing the costs of dredging by making all other outlets more hydraulically efficient.

Nyman now is collaborating with LSU and Tulane researchers to collect field data that will allow numerical modeling of the mouth of the Mississippi River to more realistically account for effects of vegetation so that managers can better evaluate the effects of restoration options on navigation dredging and shallow water wetlands that provide for fish and wildlife. ■



The mouth of the Mississippi River is internationally important because it contains a deep draft navigation channel, shown by the yellow line, that allows ocean-going vessels to reach ports as far inland as Baton Rouge Louisiana. The mouth of the river also is important internationally because it contains coastal wetlands including the Delta National Wildlife Refuge (48,000 acres) and the Pass A Loutre Wildlife Management Area (115,000 acres). These wetlands provide habitat for numerous species of migratory birds and recreationally and commercially important fish, shrimp and crabs.

RNR Researchers Uncover How Climate Change Reaches Deep into Amazon Rainforest

Based on their long-term bird capture data, students and colleagues of RNR wildlife professor Dr. Phil Stouffer documented declining abundance and morphological changes in resident Amazonian rainforest birds in the absence of landscape change.



A white-plumed antbird.

Dr. Jared Wolfe, who earned his Ph.D in 2014 from RNR and is now on the faculty at Michigan Technological University, led a new analysis of the data, which stretches back to 1980. The analysis revealed a mechanism that links climate change to changes in these bird species. The team found that harsh dry seasons reduced survival for 24 of 29 species with enough data to analyze.

For the white-plumed antbird, one of the most common species, apparent survival dropped from more than 60% in the mildest dry seasons to less than 25% in the harshest years. Unfortunately, the current climate trajectory will mean fewer good years and more bad years. These troubling results likely extend throughout neotropical rainforests. Bird declines have also been reported in Panama and Ecuador.

Their work was published in Science and is available at <https://www.science.org/doi/10.1126/sciadv.adq8086>. ■

Stable Isotope Techniques Help Identify Breeding Season Origins and Regional Productivity of Harvested Waterfowl

Banding waterfowl prior to the fall harvest has been a mainstay of waterfowl monitoring, management and research since the 1960s. The data provided through management agency efforts during summer banding on the breeding grounds and citizen science recovery and reporting during winter harvest are critical to inform populations dynamics, migratory connectivity and harvest management. But what about those harvested ducks without a leg band? Can anything be learned from them? Indeed, it can. When feathers are formed, a stable isotopic signature derived from the surrounding environment is sealed in the feather. These isotopic signatures vary predictably across broad regions thus allowing researchers to use these natural intrinsic markers to identify a duck's regional summer origin through different values of the stable hydrogen isotope, otherwise known as deuterium. Although the precision of specific locations of origin is coarser than that derived from banding, the strength of the isotopic approach is that prior capture and leg banding is not necessary. In contrast, assessing migratory connectivity using banding data requires capturing an individual twice, once during summer on the breeding grounds and a second time on the winter grounds.

Shannon Stemaly (M.S.; Fowler), funded by the Louisiana Department of Wildlife and Fisheries and the Arkansas Game and Fish Commission, is assessing the summer origins of multiple duck species harvested in different regions of Arkansas and Louisiana

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with stable isotope techniques. She is then comparing the isotopic data from harvested birds to those derived from traditional band recovery data to determine the effectiveness of isotopic sampling. To do this, Stemaly and collaborators conducted an extensive sampling effort across Arkansas and Louisiana during the winters of 2022-2023 and 2023-2024. Throughout each hunting season, Stemaly collected feathers from hunter-harvested individuals across six duck species: mallard, gadwall, lesser scaup, blue-winged teal, green-winged teal and northern pintail.

Preliminary results for pintail challenge long-term banding data. In the last twenty years, 609 banded pintail have been recovered and reported in the state of Louisiana. Based on these data, Louisiana band recoveries of pintail are predominately from individuals captured and banded in the eastern Dakotas or southern Alberta and Saskatchewan (Figure 1). However, Stemaly’s feather analysis indicates that over 54% of nonbanded adults and 64% of nonbanded juvenile pintails harvested in Louisiana had summer origins north of these dominate banding locations (Figure 2).

So, what does this mean? While the data are preliminary, they suggest that isotopes may have identified biases in the banding data. The majority of banded pintail harvested in Louisiana are caught and marked in the southern extent of their breeding range, but deuterium analysis suggests that the majority of the Louisiana sample originates from more northern geographies. Only about 40% of harvested pintail supported deuterium values consistent with more southern breeding geographies where banding effort is more intensive. Thus, the isotopic analysis supports the idea that Louisiana provides winter habitat for pintails that originate across the latitudinal breeding distribution of the species. These results specifically highlight the importance of boreal, taiga, and arctic plains wetland habitat as a source of pintail productivity, at least based on the one year of data analyzed. The Prairie Pothole Region has historically been considered a stronghold for breeding pintail, but drought regimes

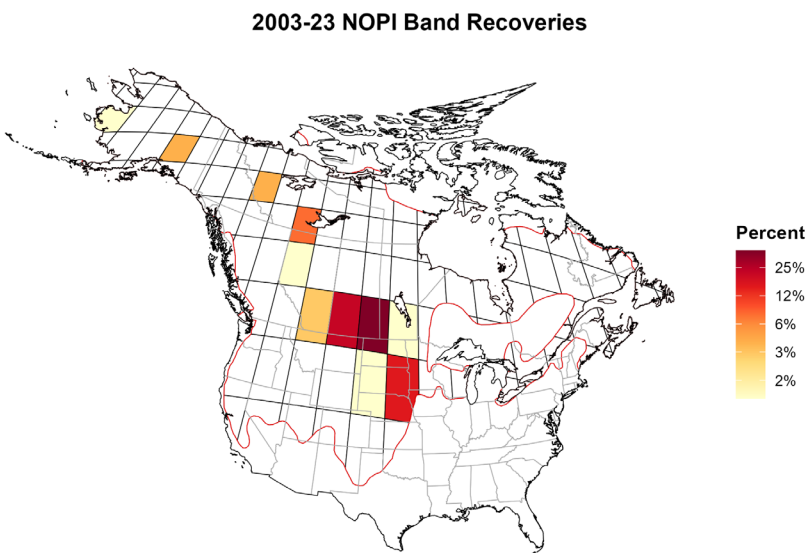


Figure 1. Proportional banding origins of northern pintail harvested in Louisiana from 2003-2023 summarized across five-degree longitudinal and latitudinal lines.

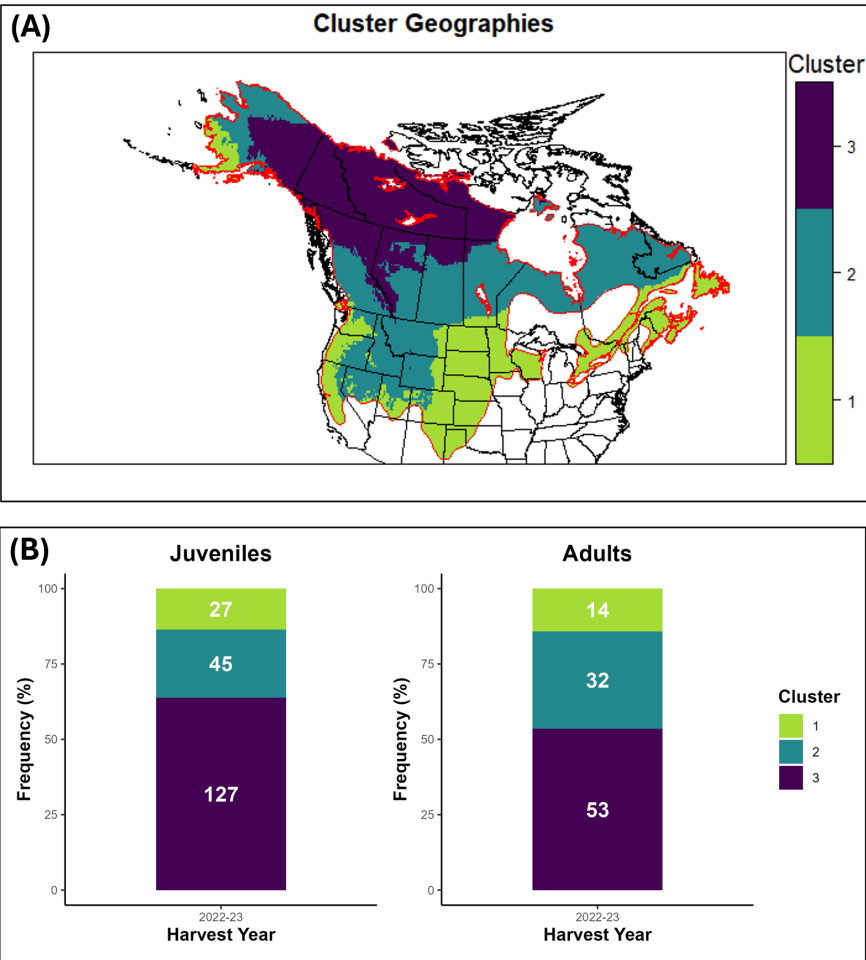


Figure 2. A) Distinct regions of origin for northern pintail harvested in Louisiana during the 2022-2023 hunting season ($n = 298$) based on spatial statistical assignment using feather deuterium. B) Proportions of northern pintail assigned to each cluster by age. Bars in panels A and B represent the proportion of each age assigned to each region, while numbers within bars are the number of individuals assigned to each region.

and continued habitat loss may be limiting productivity relative to other areas of the breeding range. Additional years of data will be necessary to determine whether this is a long-term pattern or simply a response to current poor conditions in the prairie potholes.

In addition to these results, isotopes may also provide a means to challenge the long-held assumption that birds banded on a given wetland are of local origin and not a migrant from another location. Dr. Drew Fowler and Stemaly next plan to sample deuterium from individuals at the time of capture and banding to quantify the proportion of birds of local origins versus migrants at time of banding and how this proportion varies across the preseason banding window from late July to mid-September. By evaluating these foundational assumptions, scientists can modify current approaches to strengthen banding efforts and improve data quality for waterfowl management. Stay tuned for these results. ■



Franchesca Ruiz samples mussels in the Bogue Chitto River.

summer of 2024 with Dr. Garrett Hopper to write *Freshwater Mussels of Louisiana: A Field Guide*. This field guide was created with the purpose of providing a resource for people to learn more about freshwater mussels and why their conservation is so important. The guide contains visuals, general descriptions and a species account for all 65 of Louisiana’s native mussel species. The guide will undergo peer review and be published as a pocket guide by the AgCenter. A diagram of mussel shell morphology and outlines is included in the guide. ■

RNR Undergraduate Creates Field Guide for Freshwater Mussels of Louisiana

Franchesca Ruiz, a junior in the School of Renewable Natural Resources, worked as an ASPIRE intern during the



Jennifer Haase at a Louisiana pearlshell mussel bed near the Kisatchie National Forest.

RNR Undergraduate Researcher Assists With Efforts To Study Freshwater Mussel Ecology

Jennifer Haase, a senior in the School of Renewable Natural Resources working with Dr. Garrett Hopper, received a College of Agriculture Undergraduate Research Award to develop new analytical skills to examine existing datasets and test hypotheses about fish and mussel distributions in Oklahoma rivers. This work will fulfill

requirements for her honor’s thesis and will be submitted for peer review. She is leading a project on the federally threatened Louisiana

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pearlshell (*Margaritifera hembeli*). This research effort in Kisatchie National Forest is focused on improving our understanding of the habitat characteristics that are important to the persistence of this native Louisiana mussel. This work is funded by the Audubon Center for Research of Endangered Species.■

Monitoring Efforts on the Longest Continuous Living Shoreline in Louisiana

Biloxi Marsh in St. Bernard Parish in southeast Louisiana helps protect coastal communities from hurricanes, saltwater intrusion, flooding and other coastal hazards. Louisiana’s Coastal Protection and Restoration Authority recognizes the importance of retaining as much land as possible in this region to protect the remaining saltmarsh. These ideas led to the creation of the longest continuous living shoreline complex in Louisiana at 17.7 km. Living shorelines combine human-made structures with natural processes that ideally result in a perpetually accreting breakwater with all of the benefits that comparable naturally occurring habitats provide.



Graduate students Emily Hura, left, and Emily Robicheaux pull gillnets from the Biloxi Marsh living shoreline structure.

In 2024, RNR professors Drs. Megan La Peyre, with the U.S. Geological Survey Coop Unit, and Jeffrey Plumlee were awarded a contract to monitor the effectiveness of the Biloxi Marsh living shoreline. These areas are being studied for their ability to recruit and grow oysters which naturally build reefs. This can keep up with rising sea levels and sinking structures as they naturally subside, and they are suitable as nursery and feeding habitats for a diversity of fishes and invertebrates. This study involves research activities by recent RNR graduate Owen Henderson (B.S., 2023) and two graduate students, Zach Kassuba and Emily Robicheaux.

One of Kassuba’s thesis chapters is focused on using novel high-resolution sonar to measure the density and population dynamics of oysters on the structures, data that are often challenging to measure visually due to the low clarity of the water.

Robicheaux’s component focuses on the diversity and abundance of fishes and invertebrates that use the living shoreline as habitat. She is sampling organisms with a variety of fishery-independent gears to capture, measure and weigh fish and invertebrates of all shapes and sizes, from small grass shrimp to bull sharks.

This work is critical to understanding how these types of nature-based solutions can effectively combat shoreline erosion and sea-level rise in Louisiana which, by some estimates, is losing almost a football-field sized area of marsh every 30 minutes.■



Graduate student Zach Kassuba, from left, takes oyster count data with the high-resolution sonar while technician Owen Henderson and graduate student Emily Robicheaux hold the sonar and the quadrat.

Unraveling the Mysteries of Tripletail Movement

Tripletail, *Lobotes surinamensis*, have long been called a “bonus fish,” a lagniappe catch after a long day on the water. Anglers often catch them after spotting them basking at the surface lying in wait for unsuspecting prey.

Tripletail are short-lived, fast-growing marine fish, living only about five years but growing up to 18 kg (40 pounds). It is generally accepted that tripletail spawn offshore, which is also where most juveniles grow to maturity. However, our understanding of adult movements is incomplete. Tripletail make seasonal movements inshore into the estuaries and river mouths, but it is not known how frequently this happens.



Technician Owen Henderson, left, and graduate student Emily Robicheaux preparing to affix a tripletail with a pop-off satellite archival tag and release it.

Dr. Jeffrey Plumlee and his lab are looking to answer those mysteries surrounding tripletail movement patterns. With funding from the Louisiana Board of Regents and the RNR, Plumlee hopes to determine how frequently tripletail come inshore over their short lives and where they go after they leave inshore waters.

Some evidence of tripletail movement is recorded in otoliths, or ear stones, located in the fish’s inner ear. Otoliths are made of calcium carbonate and other trace elements that grow continuously and incorporate the chemistry of the water around them. This chemical fingerprint in the otolith can give clues to the characteristics of a fish’s environment throughout its life, like the temperature and salinity of the water. Tripletail movements from high salinity offshore waters to low salinity inshore waters are recorded in their otoliths, allowing Plumlee and his lab to determine how frequently that behavior happens by analyzing sections of otoliths with mass spectrometry. For this component of the project, the Louisiana Department of Wildlife and Fisheries has donated tripletail otoliths collected over the past decade for this analysis.

Plumlee’s lab is also using more conventional satellite tags to determine tripletail movements after the fish leave the estuary. Plumlee’s lab is catching tripletail before the end of their seasonal inshore residency and attaching a pop-off archival satellite tag on each fish that will provide a location at a predetermined future date. A tag from one fish caught in September popped off 98 days later just offshore in Mexico, 874 km away from where it was tagged.

For fish we know little about, collecting life history data is critical to answering questions about fishery sustainability. If only a fraction of Gulf tripletail makes the annual migration to estuaries, harvest by Louisiana fishers would likely be a sustainable option with minimal impact to stock productivity.■



A tripletail with a pop-off satellite archival tag attached ready to be put back in the water.



RNR Takes a Leadership Role in the Global Horizon Scan for Terrestrial and Aquatic Invertebrates



The golden mussel (*Limnoperna fortunei*; photo by P.R.F. Fernandes De Oliveira, C. Carvalho Rodrigues, M. I. Grano-Maldonado, and T. Lopes Rocha) is shown at the top. At the bottom left is the demon shrimp (*Dikerogammarus haemobaphes*; photo by A. J. Cann), and at the bottom right is the brush-clawed shore crab (*Hemigrapsus takanoi*; photo by Hans Hillewaert). All three species were identified as high-priority targets for prevention efforts.

The devastating impacts and staggering mitigation and control costs of invasive species are well documented. Recent estimates place the annual economic impacts of aquatic invasive species in the United States at \$166 billion and globally at \$345 billion, with invasive aquatic invertebrates accounting for 70% of the global total. In addition to these economic impacts, invasive species also cause pervasive changes in ecosystem structure and function. Preventing invasions is widely recognized as the most cost-effective management action, and a federal early detection and rapid response (EDRR) strategy has been developed through a series of executive orders that includes horizon scanning as part of the initial EDRR planning phases.

A collaborative core team of Dr. Mike Kaller, of RNR; Dr. Rodrigo Diaz, of the Department of Entomology; Dr. Wes Daniel, of the U.S. Geological Survey; RNR graduate students Joe Brown (B.S., 2022; M.S., 2024) and A. Henry Gasperecz (B.S., 2022); RNR research associate Kaydence Dubroc; and USGS scientists Cayla Morningstar and Audrey Jordon are working on a U.S. Fish and Wildlife Service-funded global horizon scan of potentially invasive aquatic and terrestrial invertebrates. The horizon scan involves several stages: 1) building a list of potential invasive species based on published literature; 2) climate-matching to determine suitability of environmental conditions in the United States for each species; 3) a review and risk assessment scoring process by taxonomic experts; and 4) consensus building among taxonomic experts to produce a final watch list of potential invasive species with the highest risk of invasion and impact. Brown served as principal core team meeting coordinator and conducted climate matching as part of his thesis research and worked with Gasperecz, Jordan and recent graduate Emillee Monahan (B.S., 2025) in the list building process. Consensus building began with a kickoff meeting at the Ione Skye Burden Conference Center in November 2023. The 28 attendees also included RNR faculty member Dr. Garrett Hopper; current and former RNR students Dr. Patricia Wooden (M.S. 2019), Jake Duhe and Bailey Pentz (B.S. 2022) and Emily Steen; and Drs. Chris Carlton and Brittany Owen, from entomology.

List building resulted in 7,617 potential invasive invertebrate species, including 5,781 insects, 889 arachnids and 383 mollusk species. The magnitude of the climate matching scores reduced the list to 587 taxa (550 species and 37 genera) for consensus building, which resulted in a watch list of “high” and “moderate” risk organisms. Once reviewed, this list will be distributed to the U.S. Fish and Wildlife Service, U.S. Department of Agriculture and other agencies concerned with the spread of invasive species. ■

Assessment of Invasive Roseau Cane as Critical Fish Habitat

Phragmites australis — or as most Louisianans know it, roseau cane — has a complex relationship with coastal Louisiana. In the Mississippi River Delta, roseau cane has existed for over 100 years and creates an essential barrier combating land loss in one of the fastest eroding portions of the state. However, there is a second variety of roseau cane that is invading coastal Louisiana marshes in other parts of the state.

In the southwest Terrebonne basin, roseau cane is quickly becoming the dominant pioneer species after marsh creation and restoration projects, both of which are very much needed in light of rapid land loss from erosion and sea-level rise. The spread of roseau cane may be good news for slowing land loss, as it is especially good at trapping sediment and reducing erosion. However, increasing abundance of roseau cane may block access for juvenile fishes and invertebrates that use the marsh edge as nursery habitat.

In 2024, Drs. Jeffrey Plumlee, Andy Nyman, Garrett Hopper, Megan La Peyre (USGS Coop Unit) and Theresa Davenport (post-doctoral research associate) were awarded funding to answer questions about increasing abundances of roseau cane in southwest Terrebonne. These questions included whether 1) habitat restoration increases the abundance of roseau cane, 2) abundance of roseau cane correlates with decreases in abundance of economically important juvenile fishes and invertebrates in southwest Terrebonne, and 3) densities of juvenile fishes and invertebrates at the marsh edge decline where roseau cane is abundant. In addition to answering these questions, the project is also supporting the graduate work of RNR graduate students, Emily Hura and Emily Robicheaux.

Hura’s thesis will use fishery-independent data collected by the Louisiana Department of Wildlife and Fisheries and the Coastal Wetlands Planning, Protection and Restoration Act’s Coastwide Reference Monitoring System to determine whether marsh edge use by juvenile female spotted seatrout, an economically important sportfish, is influenced by roseau cane density.

Robicheaux’s thesis questions involve estimating the densities of juvenile fishes along the shoreline with throw traps and trawls at sites that span the gradient of high to low roseau cane abundance.

Considering the importance of maintaining and restoring salt marsh habitat to fisheries production in Louisiana, it is critically important to understand questions about how vegetation composition influences the quality of shoreline marsh habitats. ■



Graduate student Emily Hura, left, and postdoctoral fellow Dr. Yaolin Guo survey vegetation in a salt marsh.



Graduate student Emily Hura, left, and Emily Robicheaux trawl adjacent to the shoreline collecting juvenile fishes and invertebrates in southwest Terrebonne.

RNR Faculty Work To Protect Louisiana's Imperiled Mussels

Freshwater mussels once dominated the benthic biomass of southern rivers but are now among the most endangered animal groups on Earth, with most North American species considered imperiled due to habitat loss and alteration, and anthropogenic stressors that degrade and fragment lotic habitats. Numerous studies have documented decreases in diversity and abundance among freshwater mussel assemblages in southern U.S. rivers due to several anthropogenic factors. Freshwater mussels have a complex life history that includes an obligate parasitic larval stage that must attach to fish to develop. Because freshwater mussels rely on a host fish for larval development and long-distance dispersal, degradation of fish habitat and loss of habitat connectivity can adversely affect freshwater mussel populations. Therefore, there is a critical need to better understand freshwater mussel distribution and abundance in contemporary fragmented habitats.

Louisiana's freshwater mussels are no exception. In the past, in addition to the impacts of habitat loss and alteration, Louisiana's freshwater mussels experienced extensive harvest for the textile industry. Thus, it is no surprise that Louisiana is home to species of conservation concern, including the federally threatened species, the Louisiana pearlshell (*Margaritifera hembli*) and the Louisiana pigtoe (*Pleurobema riddellii*), the latter of which is being assessed for potential federal listing.

Given their life history, road crossings intersecting waterways can be particularly challenging for freshwater mussels and their fish hosts to disperse through. Poorly designed culverts, bridges and other structures often fragment stream habitats and contribute to freshwater fish and mussel population declines and high rates of imperilment. Road-stream crossings block passage by all or some freshwater animals at up to 97% of locations within some watersheds. However, locating impassable



Freshwater mussels collected during a survey in the Bogue Chitto River in 2024.

road-stream crossings can be challenging because not all crossings are constructed similarly, even within a single watershed. There is a need to account for crossing barriers across broad spatial scales to assist with connectivity conservation planning. Once the distribution of road-stream crossings that block organism movements is known, biologists can identify and prioritize the crossings most in need of remediation.

Drs. Garrett Hopper, Mike Kaller and Bill Kelso were awarded a State Wildlife Grant to assess habitat connectivity in the Bayou Pierre watershed, update historical occurrence records and obtain data on status, distribution and abundance of mussels listed by Louisiana as species of concern. To meet these objectives, they will conduct mussel and habitat surveys and assess 300 road-stream crossings identified in the National Aquatic Barrier Inventory and Prioritization Tool in the Bayou Pierre watershed. This project will support the graduate research of Julia Morin and provide field experience for several undergraduates.■

Extension Demonstrates Broad and Diverse Outreach

Louisiana enjoys a group of skilled and dedicated extension specialists who serve the state in the areas of forestry, urban forestry, forest products, fisheries and wildlife, although there are a few key positions to be replaced. Collectively, the specialists — Drs. Rich Vlosky, Cornelis de Hoop, Hallie Dozier, Greg Lutz, Julie Lively and Jeffrey Plumlee — offer technical education, needs-based research and timely learning opportunities to Louisianans from many professional sectors ranging from coastal fisheries to urban and community forestry. Some of the programs help clients maintain or gain professional credentials, and others focus on the delivery of critical information relevant to producers in their respective fields. Altogether the extension staff assists the producers and service providers so they, in turn, can assist the people of Louisiana in a safe, responsible and professional manner. Additionally, RNR's extension staff members deliver programs and services directly to end consumers across Louisiana, including master gardener and 4-H groups, as well as through various community events and publications.

Dr. Jeffrey Plumlee conducts reef fish outreach and education in the northern Gulf. He carefully assesses stakeholders' preferences, perspectives on management and visions for the future as they sometimes are poorly represented in the process of making fishery management decisions. Largely, when decisions are made for federally managed fisheries, the input of stakeholders (e.g. fishermen) are solicited but result in very little participation. For recreational anglers, fishing is largely a pastime and participation in management can be viewed as an unwelcome burden, especially for anglers that fish for federally managed species offshore beyond state-managed waters.

Drs. Julie Lively and Jeff Plumlee, with others, are involved in a project aimed at improving the communication between resource managers and resource users to facilitate participation and improve the perception and management of marine fisheries. The Reef Fish Extension project led by Sea Grant specialist Dr. Marcus Drymon from Mississippi Alabama Sea Grant, aims to build on the flow of information from stakeholders to management and the scientific community for federally managed reef fish in the northern Gulf. To date, the project spread across all the Gulf states and South Atlantic has resulted in 75 extension publications; development of multiple extension programs including Fishermen Invested In Science, Healthy Ecosystems and Sustainability (FISHES); and partnered with other successful extension programs including Return 'em Right (<https://returnemright.org/>). The program is entering its final year and there are plans to continue to engage anglers and author additional guidance on best management practices for reef fish fishermen across the southeast United States. For more information about Dr. Plumlee's fisheries extension programs, email jplumlee@agcenter.lsu.edu.



Dr. Julie Lively shows off a red snapper.

Although extension is not a regular duty for Dr. Christopher Reid, he regularly heads outreach efforts in the state. For example, he led a coastal plant identification course for the staff of the Louisiana Department of

Continued on Page 10



EXTENSION

Continued from Page 9

Energy and Natural Resources Office of Coastal Management in October. The event was a great success, where participants learned identification of plants along the shores of Lake Pontchartrain. Reid also regularly conducts plant identification training twice a year for students in the Greater New Orleans Master Naturalists program.

Dr. Hallie Dozier's main outreach program is the Louisiana Arborist Continuing Education Program. In 2024, she offered continuing education opportunities through both virtual and in-person platforms. Both options remain very popular among state arborist licensees. Dozier's 2024 program concentrated primarily on physiological response of trees and strategies to mediate the stress trees experienced during the 2023 summer heat and drought, with a lean toward management that will retain as many trees in the landscape as possible. The program also introduced a topic not normally explicitly covered in this program — ethics in arboriculture. This topic has generated excellent discussion among state-licensed arborists.

In addition to training tree care professionals, 2024 was the second year where Dozier secured national/international experts to train Agriculture and Natural Resources agents on matters related to residential tree care, including tree risk assessment and advanced planting and pruning techniques. These trainings are supported financially by the LSU AgCenter and the Louisiana Community Forests program through Baton Rouge Green. Finally, as in years past, Dozier again offered a five-day exam review short course for clients seeking to earn state licensure or international certification. ■

Lutz and Shirley Document Excessive Heat Impacts to Crawfish

In the spring of 2024, RNR alumni Mark Shirley and Dr. Greg Lutz worked to develop a report to the U.S. Department of Agriculture outlining the biological consequences of drought and excessive heat on crawfish populations throughout Louisiana. The report also included documentation on the extreme weather conditions the region experienced during most of 2023. These efforts ultimately allowed for the inclusion of Louisiana's \$300 million farmed crawfish industry in federal disaster programs.

The number of private ponds in Louisiana continues to grow, as does the demand for pond management information. At the Extension Summit held in Alexandria in November, approximately 150 extension professionals from around the state received training in pond management.

On the multistate front, RNR continues to impact aquaculture stakeholders beyond Louisiana's borders. Webpages developed by Lutz for the USDA Agricultural Marketing Resource Center had 117,302 visits in 2024, with topics ranging from alligator production to recirculating aquaculture systems. ■



Exam candidates from across Louisiana participated in a multi-day exam review course in December at LSU Lee Memorial Forest.



Instructor Dr. Chris Reid, right, teaches coastal plant identification to staff of Louisiana Department of Energy and Natural Resources Office of Coastal Management as part of a workshop held in October in the marsh along Lake Pontchartrain.



FACULTY NEWS



Dr. Mike Kaller

Faculty To Resume Study Abroad Trips to Central America

Drs. Mike Kaller, of RNR, and Kristin Stair, of Agricultural and Extension Education and Evaluation, will resume offering a one-week field course in Nicaragua during spring break 2025. Previously, the faculty led courses in Nicaragua in 2018 and Costa Rica in 2019, but the courses were halted due to the COVID-19 pandemic and challenges in putting the programs back into place. Eleven undergraduates and two graduate students will share three days of natural resource experiences, two days of production agriculture experiences and a day of cultural immersion and service. Highlights of the trips include exposure to the unique fisheries of Lake Nicaragua, birding and wildlife observation in cloud forests and study of isolated fishes in volcanic calderas. Students also will learn about agricultural practices for coffee, cacao and plantains that are more integrated with wildlife and wetland conservation. ■

New Additions to the CWPPRA Academic Advisory Group

The Coastal Wetland Planning Protection and Restoration Act Task Force was created by federal law in 1990. Funding now exceeds \$85 million annually in federal money and almost \$2 million in state money. The CWPPRA Task Force is comprised of one member each from the U.S. Fish and Wildlife Service of the U.S. Department of the Interior, the Natural Resources Conservation Service of the U.S. Department of Agriculture, the National Marine Fisheries Service of the U.S. Department of Commerce, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers and the state of Louisiana.

While the task force includes considerable expertise regarding Louisiana's coastal wetlands problems, the group also recognized the need to incorporate the invaluable expertise of the state's academic community. Academic advisers to the task force are referred to as the Academic Advisory Workgroup. A full task force organizational chart is available at <https://lacoast.gov/new/About/OrgChart.aspx>.

Dr. Andy Nyman was one of the founding members of the CWPPRA Academic Advisory Workgroup, which began in 1993. In 2024, Nyman became chair of the group and invited three new members including RNR's Dr. Jeffery Plumlee, as well as Dr. Alex Kolker, of the Louisiana Universities Marine Consortium, and Dr. Carol Wilson, from the LSU geology department. Dr. Gary Shaffer, from Southeastern Louisiana University, who also is an original member of CWPPRA's Academic Advisory Workgroup, rounds out the current group.

Members of the group collaborate with CWPPRA each year as ideas for restoration projects are solicited from the public and then ranked through an in-office evaluation in the spring. After this, field sites are visited in June, followed by numerical scoring of current and predicted future environmental variables with and without restoration in August. Finally, the resulting rankings are submitted to the chain of committees for final vote by the CWPPRA Task Force.

Although the primary purpose of the Academic Advisory Workgroup is to provide research and outreach expertise regarding coastal wetlands to the CWPPRA Task Force, it also aids CWPPRA by increasing the capacity of the academic advisers to help CWPPRA communicate with the academic community and the public. ■



Dr. Jeff Plumlee Participates in Gulf Council Workshops To Improve Recreational Fishing Data Collection

The Gulf of Mexico Fishery Management Council, comprised of representatives from every Gulf state along with stakeholders representing fishery interests across the region, is the governing body for federally managed fishes and invertebrates in the Gulf. In 2024, the council formed a working group focused on engaging recreational angler interest to generate novel solutions for problems related to estimating recreational fishing effort and fishery discards (e.g. release of nontarget or allowable catch). Dr. Jeffrey Plumlee, of RNR, was invited to participate in three workshops as a representative for Louisiana to provide insight and perspective on data collection in Louisiana and the preferences of anglers. To learn more, visit the council's Recreational Initiative website at <https://gulfcouncil.org/recreational-initiative>. ■

Dr. Jeff Plumlee Joins RNR Faculty, Extension and Louisiana Sea Grant

In fall 2023, the School of Renewable Natural Resources hired Dr. Jeff Plumlee as fisheries faculty. He also serves as the fisheries extension specialist for the Louisiana Cooperative Extension Service and Louisiana Sea Grant. Plumlee completed his undergraduate (Bachelor of Science, marine fisheries) and graduate studies (Master of Science, wildlife and fisheries sciences) at Texas A&M University in Galveston, Texas, studying feeding and community ecology on reef fishes and coastal sharks. He then completed his graduate studies (doctorate, ecology) at the University of North Carolina at Chapel Hill. Plumlee's dissertation focused on the role that habitat plays in the production of estuarine fish and invertebrates.



Dr. Plumlee with a scamp grouper caught offshore of Louisiana.

Before Plumlee arrived at RNR, he completed a one-year postdoctoral fellowship at the University of South Alabama and Dauphin Island Sea Lab correlating fishery recruitment and changing environmental conditions. Plumlee's lab focuses on topics such as fish life history, recruitment and migratory phenology, as well as essential fish habitat — all in the context of resource management. His extension programing aims to engage and educate fishery stakeholders in Louisiana and across the northern Gulf. ■

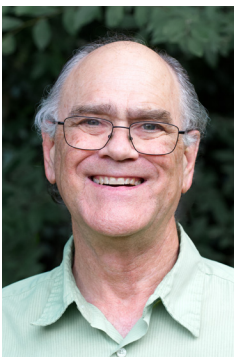
LIBBi Wins 2024-25 Tipton Team Research Award

Drs. Qinglin Wu and Richard Vlosky, as part of the Louisiana Institute for Bioproducts and Bioprocessing team, were selected by the AgCenter/College of Agriculture awards committee, the directors and executive associate dean, and Vice President for Agriculture Matt Lee as the 2024-2025 Tipton Team Research Award winners. LIBBi is a Louisiana Board of Regents-approved research, education and outreach initiative housed administratively within the LSU Agricultural Center. In addition to Drs. Wu and Vlosky, team members include Drs. Gillian Eggleston, Giovanna Aita, Dorin Boldor, Cristina Sabliov, Todd Monroe, Niranjana Baisakh and Achyut Adhikari. AgCenter LIBBi scientists work closely with the LSU Departments of Chemistry, Mechanical Engineering, Civil Engineering, Chemical Engineering, LSU Shared Instrument Facilities, LSU CAMD, Southern University and Louisiana Tech University.

Through innovative discovery, strategic industry partnership and stakeholder services, the LIBBi team is a nationally recognized leader in developing novel biofuels and bioproducts from Louisiana agricultural crops and natural resources. The team has helped link our state's strong, diverse base of production agriculture with emerging markets for high-value products made from renewable sources. Currently, the team focuses on liquid transportation fuels and high-value products such as plantbased bioactive compounds, biopolymers, specialty chemicals, cellulose nanomaterials and biocomposites. These efforts help our state's agricultural enterprises to profit from a variety of potential product streams.

The LIBBi team has also begun to address other biomass- and bioproduct-related needs in Louisiana. Of critical importance is the need for science-based information to support emerging industries within the state. The LIBBi team provides education and training opportunities for employees of emerging industries and for students of all ages interested in careers in biofuels and bioprocessing. LIBBi also offers analytical services to stakeholders. LIBBi initiatives facilitate information exchange and communication among a spectrum of stakeholders including policy makers, industry, researchers and Louisiana residents. ■

Dr. Thomas Dean Appointed Editor-in-Chief for Forest Ecology and Management



Dr. Thomas Dean

Dr. Thomas Dean, a professor of silviculture and forest ecology in RNR, has been appointed to be one of seven editors-in-chief for Forest Ecology and Management. Based on the journal impact factor from 2019-2024 (3.9), the journal ranks second among forestry journals that focus on the biological aspects of trees and forests, and it ranks first among forestry journals that also consider the practical implications of biological relationships within forests. The journal evaluates over 3,000 submissions per year and accepts approximately 30% of them. ■

RNR Welcomes Jackie Satter to the Faculty

RNR welcomes Jackie Satter to the faculty as an instructor. Satter obtained her Bachelor of Science degree from RNR as a wildlife ecology major in 2015. She then worked in Dr. Kevin Ringelman's laboratory at LSU on a project funded by the California Department of Fish and Wildlife and the U.S. Geological Survey before obtaining her Master of Science in Avian Science and her doctorate (in progress) in ecology from the University of California, Davis. At Davis, she studied "How Community Dynamics of Overwintering Dabbling Ducks are Influenced by Trends in Diet and Body Condition" under the guidance of Dr. John Eadie. Satter will be teaching classes in natural resource conservation, principles of wildlife management, natural resource ecology and wildlife management techniques starting in the fall. ■



Jackie Satter



FACULTY NEWS



Dr. Qinglin Wu

Wu Receives Research Honor

Dr Qinglin Wu, a professor in forest products, was named one of the most influential researchers in the world by Clarivate Analytics’ 2024 list of Highly Cited Researchers. The annual Highly Cited Researchers list identifies scientists who are among the top 1% of researchers in their field based on citations in the Web of Science database in the past decade. As of 2024, 2,507 researchers in the

United States have been honored. Wu works in a dynamic field dealing with sustainable micro/nano material technologies and the conversion of low-quality wood and other biomass into high-performance materials including composites, batteries, drilling fluids, hydrogel and concrete additives. He and his collaborators have over 400 publications that have been cited over 27,000 times. ■



GRADUATE NEWS

2024-2025 RNR SCHOLARSHIPS - Undergraduate Student Scholarships

A. Bigler Crow	Stephen Kimble
A. Bigler Crow	Owen Nassif
Ag Development for Forestry	Madison Wray
Ann Reiley Jones Scholarship	Jennifer Haase
Ann Reiley Jones Scholarship	Gabriel Monahan
Billy W. Weaver Scholarship	Jacob Manuel
Edmund B. Burns Scholarship	Allena McKinnis
Edmund B. Burns Scholarship	Seoul Majors-Conyers
Edmund B. Burns Scholarship	Jacob Manuel
Edmund B. Burns Scholarship	Madison Smith
Edmund B. Burns Scholarship	Ravynn Garcia
Edmund B. Burns Scholarship	Macy Butler
F.O. Bateman Memorial Scholarship	Anna Sanchez
F.O. Bateman Memorial Scholarship	Anne Gilliland
Jerry W. Netterville Jr. Scholarship	Nicholas Johnson
Jerry W. Netterville Jr. Scholarship	Emillee Monahan
Jerry W. Netterville Jr. Scholarship	Noelle Love
Jerry W. Netterville Jr. Scholarship	Kyle Sarpy
Jerry W. Netterville Jr. Scholarship	Laila Balogun
Laborde Leadership Scholarship	Emily Steen
Lehmann - FWF Alumni Scholarship	Brighton Smith
Lehmann - FWF Alumni Scholarship	Brooke Bonvillian
Lehmann - FWF Alumni Scholarship	Cade Richard
Lehmann - FWF Alumni Scholarship	Chase Ritter
Lehmann - FWF Alumni Scholarship	Finley May
Lehmann - FWF Alumni Scholarship	Finley McGill

Lehmann - FWF Alumni Scholarship	Jocelyn Borchert
Lehmann - FWF Alumni Scholarship	Julissa Alvarado
Lehmann - FWF Alumni Scholarship	Morgan Lafont
Lehmann - FWF Alumni Scholarship	Nathan Waguespack
Lehmann - FWF Alumni Scholarship	Nicholas Sanders
Lehmann - FWF Alumni Scholarship	Rebecca Wesley
Lehmann - FWF Alumni Scholarship	Samantha Westendorf
Lehmann - FWF Alumni Scholarship	Sophia Weaver
Lehmann - FWF Alumni Scholarship	Strummer Edwards
Louisiana Land Exploration Scholarship	Matthew deGraauw
Marc Dupuy Jr. Wildlife Conservation Scholarship	Gabriel Monahan
Paul Y. Burns Scholarship	Emily Steen
Paul Y. Burns Scholarship	Bailee Bennett
Pauline Bateman Stanley Scholarship	Anna Sanchez
Pauline Bateman Stanley Scholarship	Benjamin Schleter
Richard P. Sivicek Undergraduate Scholarship	Jonathan Simak
Richard P. Sivicek Undergraduate Scholarship	Crockett Comeaux
Thomas Plein Scholarship	Elanor Cate
Thomas Plein Scholarship	Benjamin Schleter
Thomas Plein Scholarship	Alexis Covington
Thomas Plein Scholarship	Bailee Bennett
Thomas Plein Scholarship	Daniel DeButts
Thomas Plein Scholarship	Paige Jones

Louisiana Forestry Foundation Scholarships

Burton D. Weaver Scholarship	Abigail McLeod
Dr. Norwin Linnartz Scholarship	Benjamin Schleter
Dr. Tom Hansbrough Scholarship	Jacob Manuel
Henrietta Hardtner Hutch Scholarship	Vianne LeBlanc
Jeff Hughes Memorial Scholarship	Owen Nassif
Jim and Doris Curtis Scholarship	Allison Vestal-Laborde
Joe D. Burns Scholarship	Joseph Caserta
Robert H. Crosby Jr. Scholarship	Daniel DeButts
Robert and Lynn Billingsley	Stephen Kimble

Graduate Student Scholarships

Barbara S. Edisen Memorial Scholar	Yinou Zhou
Barbara S. Edisen Memorial Scholar	Ayomide Oyefara
Barbara S. Edisen Memorial Scholar	Maruf Hossain
Ben and Pauline Stanley Excellence Award for Outstanding M.S. Student	Allessandra Bresnan
Charles W. Bosch-Louisiana Wildlife Federation Waterfowl Scholarship	Emily Ferraro
Clark M. Hoffpauer Scholarship for RNR Graduate Students	Chad Argabright
Dr. Bob Blackmon Graduate Scholarship	Chloe Crawford
John Barton Sr. Scholarship	Shannon Stemaly
John Peter Labouissee III/Ducks Unlimited Inc. Scholarship	Katie Miranda
Richard. P. Sivicek	Megan Humphrey

Les Voyageurs

Les Voyageurs are a carefully selected group of 18 students from the College of Agriculture who represent the college and LSU in recruitment, alumni and development activities.

Crockett Comeaux
Lauren Eckert
Remi Larson
Nora Preston
Raegan West



GRADUATE NEWS



Jake Duhé (M.S.; Hopper) is assessing how freshwater fish assemblages respond to drought in southwestern Georgia. Duhé is also involved in Louisiana's Aquatic Connectivity team, which works to improve stream habitat in the state through road-stream crossing assessments. ■



Nathaniel Eberhard (Ph.D.; Taylor) is researching conservation genomics of captive tigers in the United States, focusing on forensics of trafficking, immune gene adaptation and historical diversity. ■



Emily Hura (M.S.; Plumlee) is studying sex-specific habitat use of spotted seatrout. ■



Zach Kassuba (M.S.; Plumlee and La Peyre) is studying survey methods and site suitability for oyster-based living shorelines. ■



Madison Kuczek (M.S.; Hopper) is addressing how native freshwater mussels contribute to nutrient cycling and storage in the Bogue Chitto River, Louisiana. ■



Tyler McClintock (M.S.; Taylor) is investigating differences between adult and nestling diets in Carolina Wrens and Carolina Chickadees with fecal DNA metabarcoding. ■



Julia Morin (M.S.; Hopper and Kaller) is investigating freshwater mussel distribution in the Bayou Pierre watershed. ■



Bailey Pentz (M.S.; Kaller) is studying the trophic impacts of silver carp on ecologically, commercially and recreationally important fishes in coastal freshwater and inland riverine habitats with stable isotope, fatty acid and DNA metabarcoding analysis. ■



Emily Robicheaux (M.S.; Plumlee) is studying estuarine fish and invertebrate assemblages on different restored habitats. ■



Jeffrey Roth (Ph.D.; Taylor) is studying how mosquito spraying in urban parks affects diet, disease prevalence and fitness in prothionary warblers. ■



Charles Sabin (M.S.; La Peyre) is examining local organic carbon stocks and habitat suitability of the dominant seagrass species, *Enhalus acoroides*, of coastal Guam. ■



LSU SRNR/FWF Alumni Association Has Busy Year

Anticipates Grand Reopening of the RNR Building

The LSU School of Renewable Natural Resources/Forestry Wildlife and Fisheries Alumni Association concluded an active year despite being evicted from our “home” during renovation of the RNR building. Over 30 alumni and faculty members gathered at Efferson Hall for the 2024 annual general meeting and crawfish boil, where they received updates from Dr. Matt Lee, vice president of agriculture and dean of the college of agriculture, and Dr. Allen Rutherford, director of the LSU School of Renewable Natural Resources and executive associate dean of the LSU College of Agriculture. Both RNR and the College of Agriculture are experiencing growth in undergraduate enrollment. The alumni association was able to provide over \$5,000 in support to RNR students and programs during 2024.

The Burden Bioblitz, hosted by Burden Museum & Gardens and sponsored by RNR, was attended by over 100 RNR students, faculty and staff. Teams combed the site and participated in bat monitoring, nocturnal birding, nocturnal entomology, birding, aquatic entomology, electroshocking for fish, herping, and plant and fungi identification. Over 410 unique taxa were identified on site.

Dr. Erik Johnson, director of conservation science for Audubon Louisiana and 2011 RNR graduate, was the guest speaker for the fall presentation of Science Thursday. His topic, “Birds need a Carbon-neutral Future – Pros and Cons of Wind Energy in the Gulf of Mexico,” was timely and drew participation both in-person and via Zoom.

A tentative date for the 2025 annual general meeting and grand reopening of the RNR building is targeted for Saturday, August 23 on campus. Watch for alerts via email and on the website as the date approaches for returning to the space on campus.

RNR continues to need both your participation and financial support. A 2025 membership renewal form is included in this publication, or renewals may be made online by credit card on the RNR website. We strongly encourage combined membership for \$100 annually, which includes memberships to the SRNR/FWR Alumni Association, the LSU College of Agriculture Alumni Association and the LSU Alumni Association. Your support enables students to participate in conferences, undergraduate research and other experiential learning opportunities.

Officers of the SRNR/FWF Alumni Association are:
Olivia Barry, president
Connor Gilbert, president-elect
Luke Laborde, secretary/treasurer
Tanner Jones, at-large board member
Dugan Sabins, at-large board member
Michael Sullivan, at-large board member
Justin Thayer, at-large board member

Contact information for officers is available on the RNR website. Officers serve two-year terms, with elections scheduled for the 2025 annual general meeting. Anyone interested in running for a position should contact Dr. Luke Laborde at llaborde@agcenter.lsu.edu.



Ichthyology Class Teams With McNeese State Class at Kisatchie

Students in Dr. Garrett Hopper’s ichthyology class (RNR 4145) teamed up with McNeese State University’s ichthyology class for a weekend field trip to Kisatchie National Forest. Students collected 26 species of fishes with backpack electrofishing and seining and were

able to practice their species identification skills in the field. A total of 195 fish species have been collected from Louisiana freshwater habitats, with 31 species considered vulnerable, imperiled or critically imperiled by the state. ■



The LSU and McNeese University ichthyology classes after sampling fishes at Kisatchie Falls.

IN MEMORIAM

John Adema (B.S.F. '48)

Adema graduated from LSU with a bachelor's degree in 1948 and went to work as a surveyor for the Southern Forest Experimental Station. Subsequently, Adema worked for the Bureau of Reclamation, the U.S. Forest Service and the Army Corps of Engineers. Adema oversaw the building of bridges, dams and various water and flood control projects during his 32-year career, which included stints as a civilian military liaison in Vietnam (1969-70) and in Nuremberg, Germany (1978-85), modernizing a German military hospital. ■

H. Michael "Doc" Barnes (B.S.F. '65; M.F.P. '68)

Barnes received a football scholarship to LSU and earned his forestry and material science forest products technology degrees before attending the State University of New York School of Environmental Science and Forestry to receive his Ph.D. in wood material science. During his career, he received many professional awards including the 2016 Regions Bank-MSU DAFVM Superior Faculty Award for Service, 2015 LSU School of Renewal Natural Resources Hall of Fame, 2008 Society of Wood Science and Technology Distinguished Service Award, 2008 Forest Products Society Distinguished Service Award, 2007 Society of Wood Science and Technology Fellow, 2006 International Academy of Wood Science Fellow, 2006 Railway Tie Association Award of Merit, 2005 MSU Office of Research and Economic Development Ralph E. Powe Research Excellence Award, 2004 LSU School of Renewable Natural Resources Alumnus of the Year, 2004 American Wood Protection Association Award of Merit, 2002 Forest Products Society Gottschalk Award and 1988 Institute of Wood Science (now Institute of Mining, Minerals and Materials) Fellow. Besides the many distinguished awards he received over his career, he was most proud of the students he impacted worldwide, having received the Teacher of the Year from the Mississippi State University Forest Products Society Student Chapter. ■

Don Bethancourt (B.S.F. '63; M.S. '65)

Bethancourt later studied wildlife biology at LSU and obtained his master's. He then began a long career with the U.S. Forest Service. He spent his life doing what he loved: being outdoors, watching birds, feeding animals and being immersed in nature. ■

Gilbert Whitney Bourgeois (B.S.F. '62; M.F.P. '64)

Bourgeois graduated from Catholic High in 1957 and LSU with an undergraduate and a master's degree in forestry. He also served as a First Lieutenant in the U.S. Army stationed at Fort Sill, Oklahoma. His professional life was spent at a paper mill in Saint Francisville, Louisiana, where he worked for 30 years. Subsequently, he started a landscaping business and provided expert lawn care for his clients. ■

Jim Capel (B.S.F. '58)

Capel received his bachelor's degree in forestry from LSU in 1958. He enjoyed a long career in the forestry industry and was a member of the Society of American Foresters and the Texas Forestry Association. Upon his retirement, he and his wife developed and opened Tankersley Gardens in Mt. Pleasant, Texas. ■

Robert Carroll (B.S.F. '52)

Carroll graduated in 1952 from the LSU School of Forestry. Carroll worked over 32 years with International Paper Co., 18 years as owner and operator of Carroll Timber Co. and seven years with the Southern Forest Heritage Museum. He had more than 67 years of membership with the Louisiana Forestry Association and the Society of American Foresters. ■

James Boyer Ebert Sr. (B.S.F. '49)

Ebert, age 96, of Lumberton, North Carolina, died on Sunday, May 23, 2021, at the Wesley Pines Retirement Community in Lumberton.

Ebert was born in Ashland, New Jersey, on July 1, 1924. He graduated from Haddonfield Memorial High School. After serving in the U.S. Army Air Force during World War II, he received a Bachelor of Science in forestry from LSU. Ebert received a master's degree in botany from Duke University. During his 47-year tenure as a professor of biological science at the University of North Carolina at Pembroke, he received an honorary Doctor of Science Degree from UNCP. Ebert served as Dean of Student Affairs and Assistant to the President from 1962 to 1966 and as a biological science professor from 1956 to 2003. Among his campus honors was Pembroke State University Indianhead Dedication in 1962. He created the College Foundation and received Pembroke State College's first federally funded grant. Ebert

was recognized by the Presidents and Deans of American Colleges and Universities in 1964 to 1965; named Outstanding Educator of America in 1974; nominated for the Distinguished Professor Award in 1985, 1988 and 1989; elected Professor Emeritus in 1990, served as Charter Chairman of the PSU/UNCP Retirement Club for 13 years; and, for several years, served as a member of the UNCP Chancellor's Club Executive Advisory Board. Ebert is the author of Laboratory Studies in Biology, which was adopted for biology education classes in the Biology Department for many years. Ebert served under five University Chancellors and sponsored the James Boyer Ebert and Eleanor Lewis Ebert Biology Scholarship at UNCP. ■

Robert "Rob" Eddy (B.S.F. '77)

Eddy graduated from LSU with a bachelor's degree in forestry and a master's in business administration from the University of Southern Mississippi. Eddy's career included procurement forestry, consulting forestry, retail management and security for USM sporting events. He also dedicated much time, talent and love to his family's Christmas tree farm at Hurricane Creek, Mississippi. ■

Rudolph Flack (B.S.F. '68)

Flack obtained bachelor's and master's degrees attending LSU, Clemson, UAB and UTEP, resulting in forestry and education degrees. Flack spent four years in the U.S. Air Force, specializing in electronics and radar. Flack's professional career encompassed multiple disciplines, including forestry, real estate, motel ownership, mortgage broker and teaching in public and private schools. ■

John Wade Hoffpauir (M.S.G.M. '69)

Hoffpauir graduated from East Jefferson High School in Metairie, the University of Southern Mississippi in Hattiesburg and LSU Baton Rouge with a master's degree in wildlife biology. He taught at Clay High School in Cove Springs, Florida, for 30 years. While teaching, he started a plant nursery business and, after retirement, devoted himself to building the Transplant Nursery in Green Cove Springs for many years. ■

Luther Floyd Holloway (M.F.I. '69)

Holloway received a bachelor's degree in wildlife management from Louisiana Tech in Ruston, Louisiana, attended Oklahoma State University, and received a master's in fisheries biology from LSU. He earned his Ph.D. in Plant Pathology from LSU in Baton Rouge in 1971. Holloway strongly advocated education and mentored and encouraged many young people in school. He was an environmental consultant running his consulting firm, Holloway Environmental Services, in Harrisonburg, Louisiana. ■

Mark Hurst (B.S.F. '86)

Hurst graduated from LSU with a Bachelor of Science in forestry. He owned Hurst Forestry Services, where he worked alongside his brother for 38 years. The brothers followed in their father and great-grandfather's footsteps in the field of forestry. ■

Christopher Ingram (SFISH '86)

Ingram received his bachelor's degree in zoology (1976) and a master's degree in wildlife biology (1986) from Southeastern Louisiana University. He had a long career in environmental science. As vice president of Gulf South Research Corporation, he led large multidisciplinary teams. Ingram was involved in over 600 environmental projects across 38 states and several U.S. territories conducted for various federal and state agencies and private industrial clients. ■

Howard Lee Jones Jr. (B.S.F. '60)

In 1960, after graduating from LSU with a degree in forestry, Jones became a third-generation employee of J.M. Jones Lumber Company. He brought new life and energy to the company. Jones traveled the world to work with timber markets in Costa Rica, Nicaragua, Vietnam and China. ■

Charles Matherne (B.S.F. '71)

Matherne was a U.S. Air Force veteran of the Vietnam War and graduated from LSU with a Bachelor of Science in forestry. He retired after 36 years serving as Chief of Reforestation for the state of Louisiana. He was an avid duck hunter, fisherman, cook and storyteller. With a kind and caring spirit, Matherne believed deeply in serving others. ■

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Jerry P. McIlwain (B.S.F. '60; M.S. '65)

McIlwain was a lifelong employee of the U.S. Forest Service. His assignment included work on National Forests in Illinois, Tennessee, Florida and Oklahoma. He continued his forestry and wildlife conservation career with assignments in the Forest Service’s National Office and regional offices for California, Hawaii, the southeastern U.S. and Puerto Rico, along with his final assignment in the Pacific Northwest Research Stations in Oregon, Washington and Alaska. He was well known for creating innovative solutions and developing strong partnerships among organizations and agencies. He mentored many biologists in their careers. ■

William “Bill” Miranda (B.S.F. '1960)

Miranda’s love of nature began as a young child, spending time with family in the countryside of Oak Grove, Louisiana, hunting and fishing. This prompted him to pursue a forestry degree from LSU and a career in forestry management in east Texas. Miranda was in the ROTC program at LSU and then served proudly in the U.S. Army at Fort Sill, Oklahoma, achieving the rank of Captain in field artillery. In his lifetime, Miranda fought forest fires in Oregon, estimated timber in the jungles of Honduras and marked timber all over Louisiana and the East Texas Piney Woods. Miranda progressed into management at Southwestern Timber Company in Jasper, Texas. ■

Robert Olsen (M.W.I. '72)

Olsen graduated from the University of Massachusetts, Boston, with a bachelor’s degree in biology and a master’s degree from LSU in Wildlife Management in 1972. After graduation, he worked for multiple companies in his field of expertise, including Foster Wheeler. Later, he worked for Home Depot in semi-retirement before turning full-time to his long-time love for Shetland sheepdogs. Olsen founded Bare Cove Shelties in 1978. A dedicated breeder, Bare Cove produced many champions. ■

Jack Scoggins (B.S.F. '65)

Scoggins was a veteran of the U.S. Marine Corps and a graduate of LSU with a degree in forestry. He was also a successful businessman, owning and operating Scoggins Supply Company in Mer Rouge for almost forty years. He was also dedicated to his community, serving on the boards of directors of Morehouse General Hospital, MEDCO and the Morehouse Chamber of Commerce. ■

Joseph Lewis “Joe” Weber Jr. (B.S.F. '75)

Weber graduated with a Bachelor of Science in forestry and wildlife management from LSU in 1975 and earned a doctorate in forestry with a minor in genetics from North Carolina State University. His professional career spanned several decades, starting as a Silviculturist with Simpson Timber Company in Shelton, Washington, from 1978 to 1998. He became the Forest Operations Manager for Boise Cascade in DeRidder, Louisiana, from 1998 to 2005. Weber was well-regarded for his deep knowledge of forestry and his commitment to sustainable land management. ■

Ray Wilkins (B.S.F. '63)

Following high school graduation, Wilkins played football for one season at Texas A&M, then LSU for his final three seasons. Wilkins was a running back for the Go Team that won the 1961 SEC Championship, were Orange Bowl Champions in 1962 and Cotton Bowl Champions in 1963. Wilkins received his bachelor’s degree in forestry in 1963 and joined the U.S. Forest Service. He fought wildfires in the western states on numerous occasions. Wilkins was co-owner of two forestry firms before his retirement. ■