



WILDLIFE

Tracking the Tiny: GPS on Bobwhite Quail

Since the late 1950s, graduate students in wildlife biology have been interested in the habitats that animals use. Countless hours have been spent running around in the woods, telemetry antenna in hand, locating and documenting where animals spent their time. Luckily, as technology has advanced, so has our ability to track animals in the wild. Imagine compacting your vehicle's GPS into a package the size of a dime and strapping it to the back of a small bird to see where it goes, how it responds to prescribed fire, or cattle grazing, or disturbance by hunters. Graduate student Luke Scroggs and Dr. Bret Collier, in collaboration with Texas Parks and Wildlife, are using PinPoint GPS units to investigate how Northern Bobwhite Quail move throughout the landscape to better address these questions.

Northern Bobwhite Quail are a charismatic species, often considered an indicator species of habitat quality. Quail were a historically wide-ranging species, using a combination of early successional habitats intermixed with old-growth longleaf forests across the southeastern United States. Loss of these habitats concomitant with changing land use practices caused widespread declines in quail across the U.S. over the last 30 years.

Working in the north-central Cross-Timbers region of Texas, Scroggs has spent the past several months evaluating the PinPoint GPS units for accuracy in a variety of canopy cover types as well as ensuring that the units are not detrimental to the birds' daily routine. Thus far, the preliminary study has been a success, with field testing indicating that the PinPoint GPS are extremely accurate (within 2-3 meters of actual location) and quail can carry the units with no negative impacts. The initial work that Scroggs and Dr. Collier have conducted has focused on mapping the daily movement



patterns of quail through various habitat types, identifying vegetation condition, movement distances, loafing habitats, and foraging patches.

The data Scroggs has collected can be used as baseline information for future quail research in the U.S. Future work will focus on evaluating the primary drivers to quail habitat selection and identify what vegetative conditions determine patterns of movements of quail, all of which is focused on assisting wildlife biologists with future habitat management activities.

Red wolf (*Canis rufus*)

Red Wolves: A Louisiana Legacy

Red wolves (*Canis rufus*) are one of the most endangered canids in the world; currently there are only about 90 individuals alive in the wild and 190 in captive breeding facilities across the United States. Red wolves were once abundant across the southeastern United States, but habitat loss and predator control programs decimated the species such that by the 1970s, the only surviving populations were in hard to reach coastal marsh and prairie in Cameron Parish. The last remnant red wolves were trapped from these regions for a captive breeding program, after which red wolves were declared extinct in the wild in 1980.

Following a few generations of captive breeding, two populations of red wolves were reintroduced, one in northeastern North Carolina (1987) and one in the Great Smoky Mountains National Park, Tennessee (1991). In 1998, the Smoky Mountain restoration efforts were discontinued due to poor wolf survival, and as a result, the northeastern North Carolina population represents the only wild red wolf population in the world.

Kristin Brzeski, a doctoral candidate, and her advisor Dr. Sabrina Taylor are working in collaboration with the U.S. Fish and Wildlife Service Red Wolf Recovery Team to better understand wild red wolf ecology and behavior. One major threat is inbreeding, because out of over 400 canids trapped in Louisiana and Texas, only 14 were considered true red wolves and these became the founders of all contemporary wild wolves. Given so few founders, inbreeding could have detrimental fitness effects and reduce red wolf reproductive success and survival.

Brzeski recently published a manuscript in *Molecular Ecology* which showed red wolf inbreeding had increased substantially since reintroductions and more inbred wolves tended to be smaller in size. Currently, inbreeding does not appear to be influencing direct fitness measures like reproductive success, but it remains a potential problem for future population growth.

Additional threats to red wolf recovery are disease-mediated population declines and hybridization with coyotes. To better understand how disease could impact red wolves, Brzeski conducted a review of red wolf disease and collected baseline pathogen data. This information will be used by the Red Wolf Recovery Team to establish a disease monitoring and prevention

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School of Renewable Natural Resources



Allen Rutherford

Since our last newsletter, the LSU School of Renewable Natural Resources has been extremely active. We continue to do the things that make us one of the top natural resource programs in the nation. We have grown our undergraduate and graduate student

populations, continued to fill vacant faculty positions, have added two instructors, and have been very productive with scholarly publications and grant funding. We have an active and award-winning group of faculty and students.

We currently have 262 undergraduate students and 60 graduate students in the school. Continued success in attracting high-quality students to the program says much about the faculty, staff, and alumni support. Thanks to all of you who continue to support your program both financially and as recruiters throughout the country.

This year we conducted a national search to fill our vacant waterfowl position, and welcomed Dr. Kevin Ringelman to the faculty in August 2014. To help with the increased teaching load, we also have added two instructors, Dr. Reagan Errera and Dr. Luke Laborde to our faculty. Dr. Errera is teaching the general education section of natural resource conservation, natural resource ecology, limnology, and works with high school teachers in our dual enrollment program. Dr. Laborde is teaching in our natural resource policy, waterfowl ecology, wildlife management, and wildlife techniques courses. These faculty additions along with Dr. Bret Collier, who joined the faculty last year, have greatly increased our program's energy level. They bring to the school amazing research and teaching proficiency in their natural resource areas of expertise.

We were all saddened when Dr. Paul Y. Burns passed away in January at the age of 94. Dr. Burns was a constant force in the school beginning when he arrived as director in 1955 until shortly before his death. Many of you knew Dr. Burns, and like me, were better for it. Thanks to those of you that have contributed to the Paul Y. Burns Scholarship fund as an eternal honor of his contributions to the school. His presence will be greatly missed!

As most of you know higher education is facing a potentially significant budget cut this year (\$300-450 million). We are hopeful that the predictions don't materialize, but are prepared if they do. In spite of the budget threats we are committed to doing the things needed to move forward with building our program into the best in the country.

Hopefully this newsletter will show off some of our recent accomplishments and projects, and will get you up-to-date with the goings on in the school. We always love hearing from you. I would urge each of you to contact me either by phone, email, or you can contact us on the School of Renewable Natural Resources Facebook page.

If you have any questions, concerns, or comments, don't hesitate to let me know. Your suggestions are always welcomed.

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RNR Welcomes Three New Faculty Members

The school is very fortunate to have added **Dr. Kevin Ringelman** to our faculty as an assistant professor in Wildlife specializing in waterfowl ecology. Kevin grew up in Colorado and North Dakota, and can trace his passion for waterfowl to his father, a long time waterfowl biologist with Ducks Unlimited. Kevin did his first-year coursework at the University of Minnesota and, then, finished his degree at Cornell University, earning a degree in 2007 in Ecology and Evolutionary Biology. He then started a doctoral program at the University of California – Davis, working with both breeding and wintering waterfowl in the state's Central Valley. Kevin finished his doctorate in 2012 and took a one-year postdoc position in Delaware studying black ducks before finally migrating south to LSU this past summer. Kevin took over the faculty position formerly held by Frank Rohwer (now president of Delta Waterfowl) in August. His research focuses on waterfowl ecology and management, especially in Louisiana. He currently is developing local projects to study Lesser Scaup diets, Fulvous Whistling-Duck nesting ecology, and the impact of the Deepwater Horizon spill on diving duck populations. He also is doing some work on the breeding grounds, assessing how the booming oil and gas development on the northern prairies is affecting the fall flight. Kevin teaches courses in wildlife management, behavioral ecology, and waterfowl biology, and is a faculty advisor for the Ducks Unlimited Tiger Chapter at LSU. He has happily adopted local core principles of good food and LSU sports, and he looks forward to an exciting career in Louisiana!



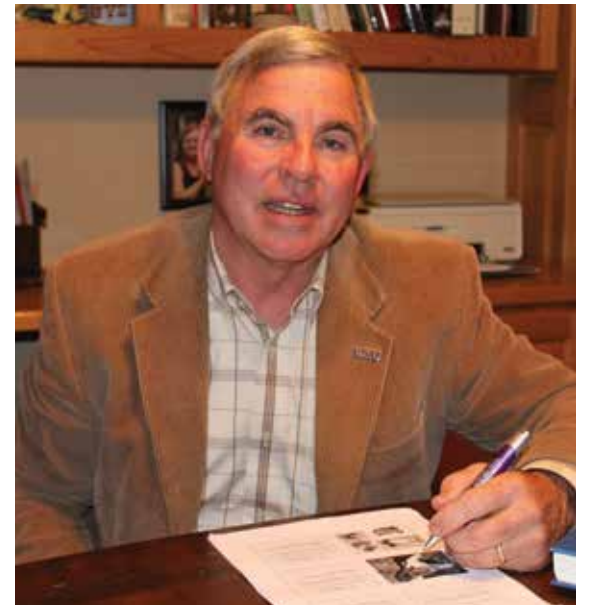
We also are fortunate to have **Dr. Reagan Errera** join our faculty. Dr. Errera joins us from Texas A&M University, where she obtained her doctoral degree in Oceanography. Her studies focus on *Karenia brevis*, the major harmful algal species in the Gulf of Mexico. Prior to obtaining her doctoral degree, she received a bachelor's degree from Trinity University and a master's degree in Wildlife and Fisheries Sciences from Texas A&M University. After completion of her master's degree, she received the John A. Knauss Policy Fellowship, which allowed her to work for NOAA's Office of Oceanic and Atmospheric Research. Her research interests include the impact of global climate change and photoperiod on phytoplankton assemblages, particularly functional changes in physiological parameters such as size, toxin production and proteomics. She is currently teaching natural

resource conservation, ecology of renewable natural resources and will be teaching limnology in the Fall 2015. She also is developing an online



version of natural resource conservation that will help expand the breadth of educational opportunities in the College of Agriculture. Eventually she hopes to develop a graduate course in phytoplankton ecology, which would have great appeal to students in many departments across campus. In addition to her academic pursuits, Dr. Errera and her husband Bret are experts in all things "Princess" thanks to their 3-year-old daughter Kennedy.

Dr. Lucien P. Laborde, Jr., has joined the faculty as an instructor after completing his dissertation on Human Dimensions Aspects of Waterfowl Hunter Recruitment and Retention. He is a native of Avoyelles Parish, where he grew up working, hunting and fishing on the



family farm. He graduated from Moreauville High School in 1972 before moving on to LSU for his bachelor's degree in Agronomy in 1976, Master's of Business Administration degree in 1976 and doctoral degree in 2014. He married Sonja Riner in 1979, and together they have four children, Andrea, James, Casey and Tori. Luke was employed in various positions with Willis Group, PLC, for 30 years, and has been a volunteer for Ducks Unlimited Inc. and other conservation causes for over 25 years. He currently serves as adviser to the Tiger Chapter of Ducks Unlimited, is president of the LSU College of Agriculture Alumni Association and is a member of the board of directors of The Burden Foundation. Luke intends to continue his research efforts on waterfowl hunting, having worked with both the Louisiana Department of Wildlife and Fisheries and the Mississippi Flyway Council. He is currently teaching Introduction to Natural Resources Policy, and co-teaches ecology, and management of southeastern wildlife and waterfowl ecology and management.

School of Renewable Natural Resources Research Matters - Spring 2015

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Louisiana Natural Resources Symposium Scheduled for fall 2015

The 2015 Louisiana Natural Resources Symposium is scheduled for Aug. 21, 2015 at the LSU AgCenter Camp Grant Walker facility near Pollock, La. The theme of this year's symposium is Maximizing Value of Tree Farms. The symposium will feature papers from leading academic experts and local industry personnel covering important economic issues regarding how forest landowners can take advantage of the emerging bio-based fuel industry. The primary topic to be addressed is how a landowner can obtain maximum value for an existing or future tree farm. The target audience includes forest landowners, land managers, foresters, and those interested in this important emerging issue. The organizing committee is Todd Shupe, Niels de Hoop, Robbie Hutchins, Mike Blazier, Rich Vlosky, and Tom Dean. A diverse group of speakers from industry and academia will be featured. Short rotation/production forestry topics to be addressed include economics, weed control, insects and diseases of short rotation stands, tree spacing, genetically improved seedlings, benefits of a consulting forester, alternative tree species, biomass/procurement needs from industry, and state financial assistance. This program qualifies for six hours of Continuing Logger Education from the Louisiana Logging Council and for six hours of Category 1 continuing forestry education from the Society of American Foresters. For further information contact Todd Shupe or Niels de Hoop at (225)578-4131. Vendor booths are also available. Registration cost is \$50 before Aug. 1 and \$100 afterwards.

Sulfite free treatments for shrimp

Melanosis, also known as "black spot," is a naturally occurring process in which the shells of shrimp begin to darken within a few hours or days after being harvested from the water. While this reaction is not harmful to

humans, it creates an unappealing shrimp to throw in a Louisiana shrimp boil. Currently, shrimpers in Louisiana use a bisulfite dip to prevent and delay melanosis. However, with the prevalence of sulfite allergies, there is a growing demand for sulfite free shrimp.

Dr. Julie Anderson Lively, a statewide fisheries specialist and assistant professor with the School of Renewable Natural Resources and Louisiana Sea Grant, and research associate Jenessa Kay have been looking at the efficacy of two sulfite-free products for our fishermen to use. EverFresh and Prawnfresh are two sulfite-free products that were both developed for melanosis control in a variety of crustacean species. Lively and Kay are working on best management recommendations of product use for Louisiana shrimpers. The outcome of the work is being shared directly with commercial fishermen through the Louisiana Fisheries Forward, a new joint project between Louisiana Sea Grant and the Louisiana Department of Wildlife and Fisheries to improve the economic success of the Louisiana commercial fishing industry through education and outreach.

To determine how well the sulfite-free products work in comparison to the bisulfite dip, local day shrimpers (meaning they fish and return to dock in a single day) have donated part of their catch for testing. The experiment involves dipping approximately five pounds of the freshly caught shrimp into one of four different treatment solutions. After soaking, the shrimp are stored on ice in the lab and checked daily for melanosis development over a fourteen day period.

In 2014, three trials of this testing were completed and the preliminary results show that both sulfite-free treatments (EverFresh and Prawnfresh) seem to be more successful in delaying the onset of melanosis than the bisulfite dip. These findings will be shared with fishermen across the coast during workshops and summits held by Louisiana Sea Grant this spring. Providing fishermen with practical solutions can create a high quality product that is black spot free and ready to go into our favorite Louisiana shrimp cuisine.

Senior Director of Development for Agriculture

Dinah Schuster has been named senior director of development for agriculture at LSU. In this newly created LSU Foundation position, she will develop a comprehensive fundraising plan for the LSU AgCenter and College of Agriculture.

Schuster, who is the former director of presidential initiatives at Montana State University, said her priorities include identifying synergies between the AgCenter and the College as well as areas of need among faculty.

"There are a lot of talented people doing extraordinary work at LSU," Schuster said. "Along with state appropriations, private charitable support will provide us with the necessary resources to achieve even greater things."

At her previous university, Schuster launched and directed the Student Ambassador Program, a multiple-year professional internship for juniors and seniors interested in developing their leadership skills through the foundation's donor and alumni relations outreach activities.

Schuster wants to involve LSU students in her efforts because they are the beneficiaries of donors' generosity. They also remind potential supporters of their college experience, she said, which is key in fundraising for higher education.

"Either their experience was life-changing and they want today's student to have the same, or their time on campus could have been better and they want to give back to ensure a good experience," she said.

Schuster earned her bachelor's degree in English and master's degree in international studies from Oklahoma State University. She said LSU already feels special because of its warm, welcoming atmosphere, which is focused on the future.

Through enhanced philanthropic efforts, Schuster hopes to give more people a chance to be part of a coordinated plan to advance LSU and its agriculture programs. That is important, she said, because agriculture affects everyone. Providing students, faculty and staff with appropriate resources is essential to our future.

"I absolutely believe that we are transforming lives and making life better for people," she said. "There is no better investment than in our land-grant university because we create opportunities."



Dinah Schuster has been named senior director of development for agriculture at LSU. We look forward to working with her on new development projects. Photo by Olivia McClure.

Red Wolves *continued from page 1*



Kristin Brzeski examining a red wolf for ectoparasites.

plan. Hybridization with coyotes, which was a problem in the remnant Louisiana population, is once again a problem in the current wild red wolf population. To better understand why red wolves mate with coyotes, Brzeski is assessing how inbreeding and genetic variation influence mate-choice and hybridization— information which can be incorporated into management efforts to prevent hybridization.

Although wild red wolves no longer roam Louisiana's prairies, the research being done at LSU will help to ensure this Louisiana legacy persists into the future.

Ecology and Hydrology in Forested Wetlands: Which controls which?

Scott Allen, Gilbert Foundation Ph.D. graduate student, is investigating the interaction between trees and water level in forested wetlands. Forested wetlands and their vegetation are unquestionably affected by water level variations. The stresses of both flooding and droughts are important for controlling the wetland ecosystem structure. However, we think less often about how the ecosystem controls the water level. Evapotranspiration, the sum of evaporation from the soil and water surface and transpiration of the vegetation, can be the dominant water flux from swamps, particularly in impounded or stagnant areas. Thus a feedback loop emerges: hydrology affects ecology, and ecology affects hydrology.

In isolated wetlands where water level stays at a roughly constant height, inflow must equal outflow. If a drought occurs and precipitation is reduced, water levels drop and trees become stressed and transpire less water, reducing outflow. This is a negative feedback cycle that

theoretically returns to the same equilibrium state after the drought ends. In contrast, deep flooding can create a positive feedback loop where flood-stressed trees reduce transpiration, reducing outflow and increasing the equilibrium water level. While these are idealized scenarios, they are examples of how wetland plants and water can interact and illustrate the complexity that makes it difficult to understand how wetlands respond to hydrologic change.

The basic knowledge to support these hypothesized scenarios is underdeveloped.

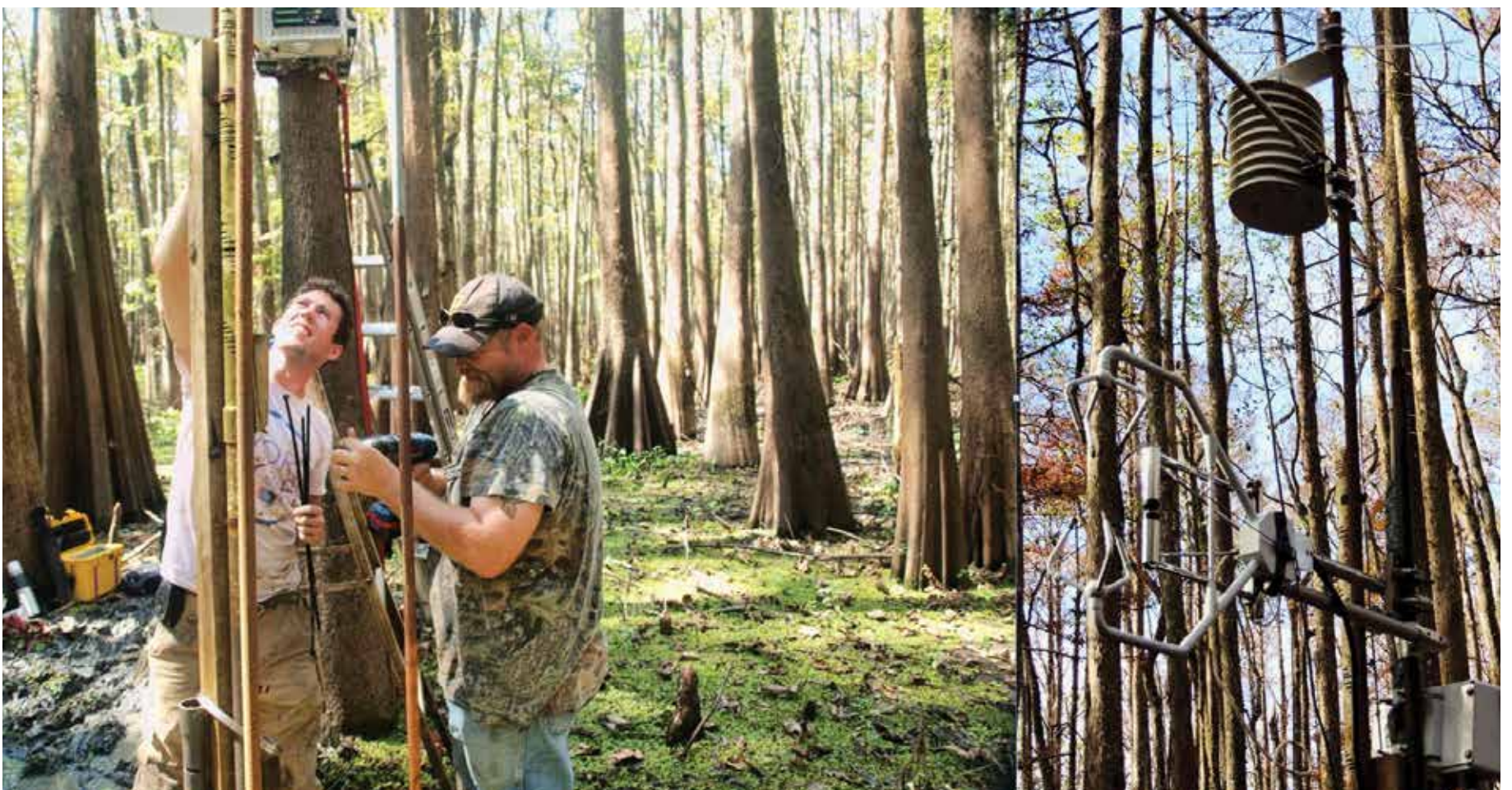
Scott Allen, doctoral candidate under Dr. Richard Keim, is exploring these topics by applying a wide variety of approaches to address components of the problem and gain a process-level understanding. In forest trees, heated probes are being used to trace water flow through stems to determine timing and amount of water use. Atmospheric conditions are being measured at high frequency using sensors mounted in the swamp to quantify water and energy budgets and

to estimate evapotranspiration. The thresholds at which trees are inhibited by flooding are being explored by developing a growth simulation model with field data collected from a variety of field sites in Louisiana, Arkansas, and South Carolina.

A basic understanding of the interaction between hydrology and floodplain forests is necessary for effectively managing the two resources together. Modeling water budgets and flow requires knowledge of biological and physical controls over evapotranspiration. Wetlands have unique physical and biological conditions that require unique models. Ultimately, we hope this work will guide management decisions on managing water for forest function and health. The idea of managing streams to maintain “environmental flows” for aquatic ecosystems is becoming common, and similar strategies of managing water levels are needed for forested wetlands.



Wired Forest: Thermal Dissipation probes use heat to measure the rate of water flow in trees (White River, Arkansas).



Setup: Scott Allen and Brandon Edwards install a datalogger in the Atchafalaya Basin in October, 2012. All instruments must be high enough to be above the typically > 2 m water table variation.

Using Pine Needles for Off-grid Electricity Production in India

Anand Mishra, Gilbert Foundation Ph.D. graduate research assistant, is currently researching the use of pine needles as a feed stock for gasification to produce electricity in rural areas of India.

Electricity is one of the important driving factors for the economic development of India. Rapidly growing demand for electricity to sustain development has put tremendous pressure on the country's energy infrastructure. Approximately 70 percent of the Indian population still lives in rural areas with limited access to electricity or without electricity, the problem of inadequate energy infrastructure assumes greater importance. Rural electrification is vital for improving socio-economic condition of villages. Close to 45 percent of the rural population relies on other sources than electricity for their lighting needs. A similar situation prevails regarding cooking-fuel and livestock-fodder needs. A majority of the rural population depends on adjoining forests for their fuelwood and livestock fodder which leads to forest degradation.

In most of the Himalayan region of North-India, reliable access to electricity remains an issue due to poor quality of transmission lines and interrupted electricity supply. The concept of generating electricity at one location and then distributing it over a large area is not suitable due to problems in laying and maintaining long lengths of transmission lines through forests and mountains. Moreover, village household density in hilly regions is scattered and there is no commercial or industrial load. Distributed electricity generation and consumption at local levels is more reliable, requires less capital and can be set up in remotest villages.

One way to set up small off-grid electricity generation units in Himalayan region is to generate electricity from pine needle collected from local pine forests. The pine forest in north India stretches for 1864 miles across the lower elevations of the Himalaya range. The large volume of pine needles covering the forest floor presents environmental hazards. During the summers, the needles increase the risk of forest fires and also prevent vegetation growth due to soil acidification as they decay. However, the pine needles have great potential as a highly combustible alternative fuel due to their high resin content. Even though pine needles ignite very easily, they are difficult to manipulate during the burn and release large amounts of volatiles during combustion. In addition, pine needle in loose form cannot be ran through a gasifier-based combustion system that converts biomass into combustible gases such as carbon monoxide, hydrogen, and methane.

The densification of needles is achieved by chopping them into pieces and forming them into dense cubes before being fed into a gasifier. The needle cubes are then burnt with limited oxygen supply to generate producer gas (a mixture of carbon monoxide, hydrogen and methane) which, after cleaning and cooling, is fed into a generator to produce electricity. The pine needles that remain unburnt are converted into charcoal — a by-product which can be used in place of wood and kerosene as cooking fuel. A 120 kW pine needle based gasifier system can support around 110 rural households for their electricity and cooking fuel needs.

Some studies in south India have indicated that 20 of 120 kW systems using renewable resources rather than fossil fuels can save 60,000 tons of CO₂ annually. Other advantages of using pine needles are in the reduction of forest

fires, (removing of the needles from the forest floors), and the use and substitution of charcoal for wood. Although charcoal is a dirtier fuel, less charcoal is needed for household cooking requirements — 6.6 lb. of charcoal versus 22 lb. of wood per household.

As such, the opportunities for using pine needles for off-grid electrification in India are being researched by Mishra. Implications of study results are widespread; the study could be replicated in other developing countries.



Equipment used to compress pine needles for densification.



Pine needle gasifier under construction.



Figure 2. Stockpile of pine needles collected prior to the monsoon season for an entire year of generating electricity.

LFPDC Faculty Take Leadership Role in the Forest Products Society

All four faculty members in the Louisiana Forest Products Development Center (LFPDC), LSU AgCenter, have taken on leadership positions in the Forest Products Society (FPS). In August, at the Society's annual international convention in Quebec, Dr. Niels de Hoop, associate professor, was installed as president and Dr. Richard Vlosky, LFPDC Director and Crosby Land & Resources endowed professor of Forest Sector Business Development, was installed as vice-president. Dr. Todd Shupe, professor and director of the LFPDC's Wood Durability Laboratory will remain regional board member for the South-Central Region for the next year. Dr. Qinglin Wu, Roy O. Martin Sr., professor in BioComposites/Nanomaterials and director of the Composites Engineering Laboratory, will become the faculty advisor for the newly created FPS Louisiana State University student chapter based in the School of Renewable Natural Resources. In addition, at the Quebec convention, LFPDC faculty member Dr. Mark Gibson, director, School of Forestry, Louisiana Tech University, received the prestigious Fred W. Gottschalk Memorial Award, named for the first president of the Society, which recognizes exceptional service to the Forest Products Society by an individual member. The Forest Products Society is an international not-for-profit technical association founded in 1947 to provide an information network for all segments of the forest products industry.

Where are the submersed aquatic plants?

When most people think of submersed aquatic plants, they imagine clear water, and flowing seagrasses. However, along the northern Gulf of Mexico coastal marshes, we know that an abundance of submersed aquatic vegetation beds exists. For hunters and fishermen, these aquatic plants are important, as they provide critical foraging habitat for large concentrations of wintering waterfowl and serve as essential nursery habitat for numerous commercially and recreationally valuable fisheries.

Despite the extensive research documenting the valuable role and importance of submersed aquatic vegetation, the distribution and occurrence of submersed aquatic vegetation species is generally not widely documented along the northern shore of the Gulf of Mexico, particularly in interior shallow water marsh areas. Furthermore, there are no clear data on the relative abundance or extent of submersed aquatic vegetation across different coastal zones (for example salt, brackish, intermediate, fresh marsh) which may support different wildlife and fisheries species, or communities.

With financial and logistical support from numerous agencies and groups including the USGS Climate Science Center, Ducks Unlimited, Gulf Coast Joint Venture, the U.S. Fish and Wildlife Service, Gulf Coast Prairie Landscape Conservation Cooperative, and the Gulf Coast Prairie and Ozarks Landscape Conservation Cooperative, the School of Renewable Natural Resources has been working to develop an understanding of the extent and variation of submersed aquatic vegetation resources in coastal marshes from Mobile, Ala. to Nueces River, Texas. Ultimately, the data will be incorporated into models to analyze potential shifts in submersed aquatic vegetation habitat availability resulting from landscape, wetland restoration and climate change scenarios, and to examine foraging capacity and food availability for waterfowl.

Eva Hillmann and Kristin DeMarco, two doctoral students working with Drs. Megan La Peyre and Andy Nyman, are sampling close to 400 interior coastal marsh sites across the Gulf coast, repeatedly over three years in order to map the locations, biomass and species composition of submersed aquatic vegetation resources, and to relate these patterns to local water quality and landscape variables.

The submersed aquatic vegetation biomass and species composition data will allow Hillman to analyze spatial and temporal patterns of submersed aquatic vegetation habitat availability across the coast. These data will be tied to water quality data and enable predictive modeling to determine how availability of submersed aquatic vegetation resources may shift under different coastal management and climate change scenarios. Analyses of nutrients within the sediments and plant tissues will allow us to determine the role of submersed aquatic vegetation communities in carbon sequestration.

DeMarco will quantify waterfowl food densities within different coastal zones, thus assisting waterfowl managers in determining foraging capacity for waterfowl. The effects of altered water quality on submersed aquatic vegetation resources will be examined directly to determine how altered water quality affects waterfowl populations through altered submersed aquatic vegetation availability and habitat carrying capacity.

This project was initiated in 2012 through cooperative efforts of waterfowl managers, coastal habitat managers, and climate change researchers. This project is only possible due to the many coastal landowners, local, state and federal resource managers who have helped support, provide directions, and boat, and repair support across the coast! Researchers are in their third year of field sampling.



Ph.D. student Kristin Demarco collects a bundle of Submersed aquatic vegetation from a sampling plot in Louisiana's coastal marsh.

Technical Conference on Laser Spectroscopy

Environmental stable isotopic chemistry takes advantage the fact that elements have varying weights in nature and is used in a variety of natural resource fields to trace physical and biological processes.

Examples in biology include using the isotope for nitrogen (^{15}N) to disentangle food webs and using the isotope for carbon (^{13}C) to estimate water use efficiency in plants. In hydrology, stable isotopes of oxygen and hydrogen (^{18}O and ^2H) can be used to determine sources of water (e.g., groundwater, river water) and their pathways through soils waterways.

In the past, the expense associated with analysis limited the use of stable isotopes in many scientific studies. However, an emerging alternative, laser spectroscopy, is both more cost efficient and easier to use than the historic analytical instrument, the mass spectrometer. Laser spectrometers are portable, thus allowing field deployment with online analysis of large numbers of samples outside the laboratory. The low cost, ease of use, and portability have resulted in rapid expansion of this technique. However, the novelty of laser

spectroscopy means there is little collective experience, so its strengths and limitations are not as well understood as those of mass spectrometry.

In February 2014, Richard Keim chaired the science committee on a symposium to exchange technical information on robust application of laser spectroscopy in hydrology and biogeochemistry. The symposium, convened by the Consortium of Universities for the Advancement of Hydrologic Science, Inc. and the U.S. Geological Survey, explored technical issues and highlighted research that makes use of this new technology. The entire symposium, which drew more than 200 registrants, was conducted online and included live webinars and small poster rooms with interaction between presenters and attendees. The content is being published by USGS and is archived at <http://cuahsi.org/laserspecs.aspx>.

Several scientific themes emerged during the workshop. First, rapid sample analysis and low marginal costs per test have enabled investigations at finer temporal and spatial scales than was previously feasible using mass

spectrometry, and new patterns are emerging to give scientists a richer understanding of the processes that drive hydrologic cycles. For example, laser spectrometers are being used to analyze samples in real time from streamflow and rainfall.

Second, an important limitation for laser spectrometry is analysis of contaminated samples or samples of mixed solid, liquid, and vapor; several presentations included novel techniques to sample in challenging situations. For example, several researchers are developing ways to analyze samples traditionally difficult to work with, such as unsaturated soil, by analyzing vapor equilibrated inside sealed bags.

Finally, there is an emerging need for resources for new laboratories to effectively use laser spectrometers because many new applications are by labs that previously had little experience in isotopic analysis. Overall, the promise of laser spectroscopy is real, and future developments in this rapidly evolving field are likely to be fruitful for investigating processes in hydrology and biogeochemistry.



Philip Stouffer's Fulbright Year in Tanzania

East Africa figured prominently in my childhood travel dreams. Born Free, Daktari, and Mutual of Omaha's Wild Kingdom introduced me to lions, elephants, giraffes, and the seemingly endless African bush. Africa remained out of reach for a long time, but I am finally living that dream by spending a year in Tanzania. Through a Fulbright Scholar award and a sabbatical from LSU, I am working at the College of African Wildlife Management (CAWM) in Mweka, on the south slope of Mount Kilimanjaro.

Mweka is a beautiful setting. Campus is surrounded by small family farms and one large coffee plantation. At about 1400 meters, we are spared the equatorial heat. We can see Kilimanjaro from the kitchen window of our little house on campus, although the mountain generally makes an appearance only at dawn and dusk. The town of Moshi, our social hub and where my two sons are going to an international school, lies about 10 km down the mountain. My wife's take-the-kids-to-school routine usually involves a bone-jarring shortcut on a dirt road through the coffee plantation, passing women carrying mountains of bananas on their heads, men lugging everything imaginable on bicycles, and whole families on 150cc motorcycles.

My job is much like what I do at LSU-teaching, research, and capacity building. CAWM (usually called just 'Mweka') has high

enrollment and few faculty, meaning that I am needed in the classroom. So far I have taught four courses to a combined total of some 300 students. Although the college officially operates in English, most students speak English as a second or third language (behind a tribal language and Swahili). Conversation has its awkward moments, and my limited Swahili does not help.

Despite the large classes, Mweka manages to get students into the field. How about a field trip to the Serengeti? I might be able to join students for just that. Last semester I spent 10 days with wildlife management students at Saadani National Park. We did a lot of the same kinds of projects LSU students might do - plant transects, invertebrate sampling, pitfall traps, and mist-netting birds. Recreation there included my first swim in the Indian Ocean and a close encounter with the elephant that snuck up on me while I was birding alone. This semester their safari is to Serengeti, and I hope to go along.



Phil Stouffer is enjoying his sabbatical and Fulbright Scholar year in Tanzania. Here he is pictured holding an African Pygmy Kingfisher.

It has been a challenge to try to interact with students in a smaller setting, but through safaris, birding outings and mist-netting I have been able to get to know some of their stories. I have gained some new perspectives from these interactions, such as from a Maasai student who uses a stick to protect his family's cows from lions. That is applied ecology!

We try to get out and about as much as we can as a family. So far we have visited a good chunk of northern Tanzania. For example, last weekend we camped at Mkomazi National Park, on the Kenya border east of Kilimanjaro. Our target animals were fringe-eared oryx and gerenuk. We found a single gerenuk (along with lots of hartebeest, elands, zebras, giraffes, a few very skittish lesser kudu, and the ubiquitous vervets and baboons), which gets us close to 50 species of mammals at least the size of a hedgehog. This was the 7th national park we have visited as a family.

Nobody is getting bored. The biodiversity here is truly staggering in diversity and abundance; in the national parks it really is Mutual of Omaha's Wild Kingdom. We have seen a cheetah feeding cubs, a leopard dismembering a gazelle, and so many lions that we have lost track. My 8-year-old son has become the family expert on antelope identification, which is not a trivial challenge. We have seen over 300 species of birds, including some that have been in my imagination for decades, such as Secretary Bird, Ground Hornbill, Kori Bustard and a dozen or so species of sunbirds. At about the midpoint of our stay, we are planning outings to Olduvai Gorge (sacred ground to my anthropologist wife) and to the top of Kilimanjaro.

This has been a fantastic opportunity for me and for my family. As always, spending an extended period out of the country helps put our normal US/Louisiana/LSU routine in perspective. We have made new friends from Tanzania and all over the world, although we interact with few Americans. I completely ignored LSU football for an entire season! We also live just fine without a lot of the stuff that clutters our American lives. Intermittent electricity and low bandwidth are a constant struggle, but I am always prepared to teach with just a blackboard and chalk, and I have learned to manage my mail by sitting outside with a dongle. These are problems we can live with. As an ecologist, I am seeing many textbook examples firsthand that I will be able to work into my teaching at LSU. But one thing is certain- for someone who loves natural history, there is nothing like actually being in East Africa.



Phil teaches a group of Tanzanian students how to mist net, identify and age birds. To see other photos in Africa, check out his Flickr page at: <https://www.flickr.com/photos/stouffersu/>



Phil gets really up close and personal with a leopard dismembering a gazelle.



Richard P. Vlosky, Ph.D., director, Louisiana Forest Products Development Center, LSU AgCenter and Crosby Land & Resources endowed professor of Forest Sector Business Development, was recently appointed as an outside expert to the United Nations Economic Commission for Europe/Food and Agriculture Organization of the United Nations (UNECE/FAO) Team of Specialists in Wood Bioenergy of the Committee on Forests and Forest Industry, Geneva, Switzerland.

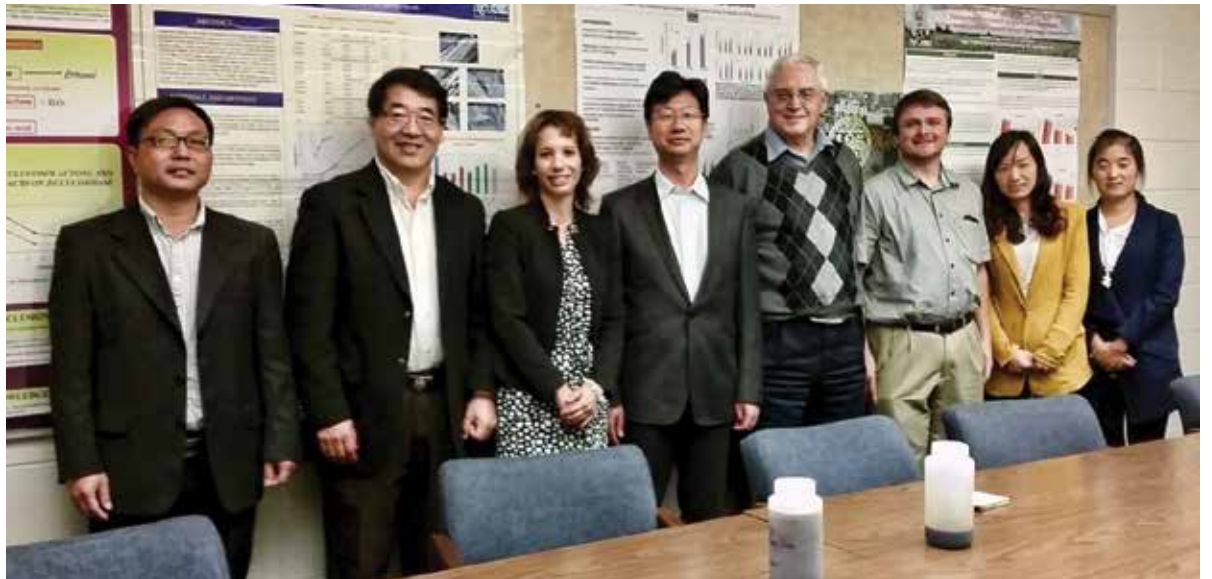


Dr. Sammy King was invited to the International Union for Conservation of Nature's Crane Working Group meeting in Walsrode, Germany in November 2014. The group, consisting of about 20 scientists from over a dozen countries, developed a draft International Crane Conservation Plan. The plan will be used to help guide crane conservation efforts globally.

Dr. Wu and LSU AgCenter Establish Ties with Henan Academy of Sciences

A group of five scientists from Henan Academy of Science (HAS) in Zhengzhou China, led by Dr. Tingzhou Lei, Vice President of HAS, visited LSU AgCenter School of Renewable Natural Resources, Audubon Sugar Research Institute (ASRI) and Agricultural and Biological Engineering in December 2014. A memorandum

of understanding (MOU) in the field of bioenergy and biomaterial research is being worked out between LSU AgCenter and HAS. Dr. Wu and Dr. Aita plan a return visit to China to present two talks at an international conference on bioenergy/biomaterials in Beijing and to finalize the MOU with the HAS in Zhengzhou this spring.



Pictured from left to right are Dr. Shunqing Li (HAS), Dr. Qinglin Wu (RNR), Dr. Giovanna Aita (ASRI), Dr. Tingzhou Lei (HAS), Dr. Don Day (ASRI), Dr. Harold Birkett (ASRI), Dr. Suxia Ren (HAS), and Dr. Haiyan Xu (HAS). Picture taken by Dr. Zhiwei Wang (HAS).

Wetlands of the Mekong Basin

The 11th Regional Training Course on Wetland Ecology and Management in the Mekong Basin was held in June of 2014 in northeast Thailand. Hosted by Mahasarakham University, this intensive three week training course combined classroom lectures and field work with



Anthony Rietl and Duong Van Ni (Can Tho University, Vietnam) take a break from field work at Kud Daeng Lake, on a research station of Mahasarakham University, Thailand.

the goal of educating future wetland managers and conservationists in the southeast Asian region. This is the fourth year that Dr. Richard Keim has participated in this program where he teaches wetland hydrology. This year, Dr. Keim was joined by graduate student Anthony Rietl, a wetland ecology student currently working towards his doctoral degree in Renewable Natural Resources.

The class was based at the Walai Rukkhavej Botanical Research Station in the Na Dun district of northeastern Thailand. At the research station, participants spent four days learning and preparing for field work through lectures on wetland ecosystems, management of biodiversity, hydrology, vegetation, soils, and local wetland management.

Field work for the course consisted of traveling to wetlands across northeastern Thailand and putting lecture material to use in an applied setting. Participants were involved in numerous activities, from installing surface elevation monitoring stations in collaboration with U.S. Geological Survey scientists, to wetland bird and plant identification, to analyzing hydric soil profiles. Additionally, participants examined the socioeconomic impact of wetlands on surrounding communities by interviewing people who depend upon wetland resources.

The wetlands of northeastern Thailand and the Mekong Basin as a whole are under threat from river management, dense population pressures, intensive agriculture, and pollutants. However, this program, which has graduated more than 200 students over the past 10 years, has become an essential tool in the conservation of wetlands in southeast Asia.

US-China Wetlands Workshop

A four day US-China international wetland workshop was held on the LSU campus in November 2014. Two RNR faculty, Drs. Jun Xu and Andy Nyman, were actively involved in organizing the meeting, at which more than 40 oral presentations were given by researchers from several universities and institutions in the United States and China. Dr. Allen Rutherford gave a keynote speech introducing teaching, research, and outreach programs at the School of Renewable Natural Resources. Three graduate students, Kaci Fisher, Songjie He, and Zhen Xu, presented their studies on water quality in lake and riverine wetlands. During the meeting, Dr. Xu and Dr. Jonathan Hubchen, assistant director of the LSU AgCenter International Programs, took the Chinese colleagues on a tour to the Barataria Preserve in southeast Louisiana to learn about coastal wetlands and their importance under changing environment.



Dr. Jun Xu (backrow, 3rd from left) and Dr. Jonathan Hubchen (kneeling far right) brought several Chinese attendees of the US-China International Wetland Workshop on a field trip to the Barataria Preserve.



Five RNR Courses Certified as Communication Intensive by LSU's Communication Across the Curriculum

The School of Renewable Natural Resources now offers five courses that have been certified as communication intensive by LSU's Communication Across the Curriculum. Survey after survey emphasize the importance employers of any sector place on communication skills. Certification of these courses signifies that the course instruction uses recognized methods for improving students' skills in written, spoken, and visual communication, as well as through technological applications.

The courses offered include sophomore, junior and senior courses, each varying in the communication skills emphasized.

Silviculture is a junior-level course that is required for the areas of concentration in forest management, forest enterprise and wildlife habitat conservation and manage-

ment. The communication skills emphasized in this course are technological and involve applying concept mapping to show the interconnections among silvicultural components.

Silviculture Lab is a senior-level course that can be taken concurrently with silviculture. The communication skill emphasized in this course is visual communication in the form of digital stories.

Human Dimensions of Natural Resources is a junior, senior, and graduate-level course designed to introduce the cognitive processes guiding engagement in natural resources, as well as methodologies to gather natural resource information from and provide information to both the active and unengaged publics. Students develop and conduct a survey using industry standard survey software and produce a webpage summarizing their results and conclusions.

Integrating Natural Resource Management, Policy, and Human Dimensions: The capstone experience occurs in a student's final spring or fall semester and integrates experiences and knowledge from across the curriculum to critically evaluate a major natural resource issue and develop a land management plan for a property. The course emphasizes written and oral communication skills in both projects.

Ecology of Renewable Natural Resources is a sophomore-level course designed to introduce the concepts involving interactions between individual organisms, populations and communities in the overarching context of their environment. Students are able to hone their formal and informal speaking and writing skills through production of an ecological podcast.

"Flipping" the classroom – the RNR experiences

In "flipped" classrooms, instructors use strategies that allow them to spend class time interacting with students rather than lecturing. This may involve students watching videos online at home and solving problems during class time. The concept recently became popular with the emergence of Khan Academy, which offers a library of more than 3,000 videos that cover topics ranging from math, science, to humanities.

In 2013, Dr. Quang Cao started experimenting with making videos available to students in his course in Renewable Natural Resource Measurements and geographic information system (GIS). These are short videos, which are kept under three minutes to hold students' interest. The students see onscreen texts and equations written and diagrams drawn, while listening to comments from the instructor. The videos are similar to those from Khan Academy, except that a white background is used instead of black. The advantage of the videos is that they can be watched repeatedly anytime, anywhere.

Dr. Thomas Dean flipped his silviculture course in 2014. In a flipped class, the students must learn the basic material outside of the

classroom. In most cases, this means that the student watches recorded lectures and answers questions about the lecture in preparation for class. Dr. Dean has opted for a different approach in delivering the basic content for the course by creating a series of concept maps that show the interconnections among the various silvicultural principles and practices and how these relate to wildlife habitat management. The map contains links to literature, figures, and videos to help illustrate the concepts. Each concept map also contains a number of three to five minute podcasts describing various parts of the maps - short enough to listen to while walking to class, waiting for the microwave to heat up dinner, etc. Students are tested on the material each week for a grade. Asked about his motivation for such a radical departure from a traditional classroom setting, he said, "Class time is the only opportunity students have to be with their instructor. I want them to consider their time with me and their classmates as a valuable opportunity to talk critically about silvicultural topics. It also allows me time to ask challenging questions. Flipping the classroom is a great way to meet these objectives."

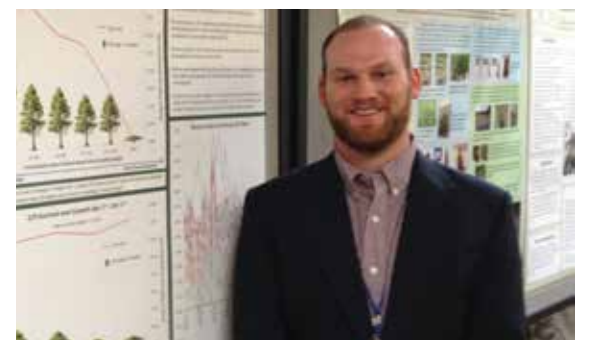


Dr. Luke Laborde introduces Lieutenant Governor Jay Dardenne to RNR 2039/2071, Introduction to Natural Resources Policy.

Lt Governor Dardenne Visits RNR students

Lieutenant Governor Jay Dardenne visited with more than 50 students and faculty from RNR 2039 & 2071, Introduction to Natural Resources Policy. The class recently completed a segment on state government, reviewing the executive, legislative and judicial branches. Dardenne discussed the state budget process and forecast shortfall, and the role of the Department of Culture, Recreation, and Tourism in oversight of the Louisiana Seafood Marketing and Promotion Board and tourism. Lt. Gov. Dardenne emphasized the importance of Louisiana's unique outdoor heritage, advertised under the banner, "Pick your passion!" Louisiana residents and tourists spend over \$2.2 billion annually participating in hunting, fishing, and other outdoor recreation in the state.

RNR Student Receives Outstanding Poster Award.



Masters student Marcus Rutherford received the Outstanding Poster Award at the recent 18th Biennial Southern Silviculture Research Conference in Knoxville, Tenn. Marcus' poster, "Analyzing performance of planted baldcypress (*Taxodium distichum*) in southeast Louisiana swamps", was one of 28 graduate students posters presented.



RNR Students Compete at Forestry Conclave

The most popular event at the Southern Forestry Conclave is the crosscut saw competition. LSU forestry and natural resource management students Hayden Carter and Ashley Tunstall saw through a 10" x 10" yellow poplar cant in 24 seconds. Stabilizing the cant holder are (l to r) Devyn Albin, James Donovan, Kevin Kohl, Christian Flucke and a fellow student from La Tech. Applauding are Virginia Spencer and Christian Rossi. Additional students from La Tech are shown helping cheer the team, even though they were competitors. Also attending, but not shown, Rush Maxwell and adviser Neils de Hoop.



GRADUATE STUDENTS



Jacob Boone, a M.S. student with Dr. Bill Kelso, is studying benthic fishes in the Pearl River.



Shannon Kidombo, a Ph.D. student with Dr. Tom Dean, is investigating the coordination between stem growth and the distribution of leaf area within tree crowns.



Cameron Rutt, a Ph.D. student with Dr. Phil Stouffer, will be investigating reproductive success, space use, and social networks of mixed-species flocks across a disturbance gradient in Brazil.



Kristin DeMarco, a Ph.D. student with Dr. Megan LaPeyre, is studying the effects of coastal change on submersed aquatic vegetation from Texas to Alabama.



Whitney Kroeschel, Ph.D. student, is researching forest stand dynamics as a response to altered hydrological regimes in bottomland hardwood ecosystems with Dr. Sammy King



Kelsey Smith is assessing effective and census population size of Florida sawfish for an M.S. degree with Dr. Sabrina Taylor and Dr. Bill Kelso.



Mary Grace Lemon, a Ph.D. student with Dr. Richard Keim, is investigating how bottomland hardwood forests might be managed sustainably by examining water flows to floodplains.



Phillip Westbrooke, a M.S. student with Dr. Megan LaPeyre, is studying the mechanisms of nutrient mitigation provided by oyster reefs in coastal Louisiana.



Kristy Durham, a M.S. student with Dr. Mike Kaller, is studying the survival of farm-released alligators to better understand survival of wild alligators in coastal Louisiana.



Ivan Vargas Lopez, a M.S. student with Dr. Mike Kaller, is investigating relationships between wild crawfish harvest practices and water quality in the Atchafalaya River basin.



Scott Harlamert, a M.S. student with Dr. Andy Nyman, is evaluating nekton habitat associated with dredged material marshes in coastal Louisiana.



Samantha Lott (left) and Catherine Reuter (right), with student volunteer Emily Vince (center), are M.S. students with Dr. Mike Kaller studying the impact of anthropogenic barriers on crayfishes and fishes in central Louisiana



M.S. student Patrick Wightman is examining links between female wild turkey reproductive ecology and male wild turkey behavioral activities with Dr. Bret Collier.



STUDENT NEWS

Xi Sigma Pi

Xi Sigma Pi is a national forestry honor society. Any RNR students with an interest in forestry and a minimum 3.0 GPA are eligible for membership. In the spring of 2014, four undergraduate students were initiated into Xi Sigma Pi; and three undergraduate students were initiated in the fall of 2014.

The current officers of Chapter Nu of Xi Sigma Pi are Kasie Dugas (Forester), Sanjeev Joshi (Ranger), and Christian Rossi (Fiscal Agent). Dr. Quang Cao is the faculty advisor.

In March, Warren Peters, president of Peters Forest Resources, Inc., gave a talk about consulting opportunities and professional development for RNR graduates at the Apple Pie seminar.



New members from the fall 2014 initiation were: James Donovan, Leah Delahoussaye and Parker White.

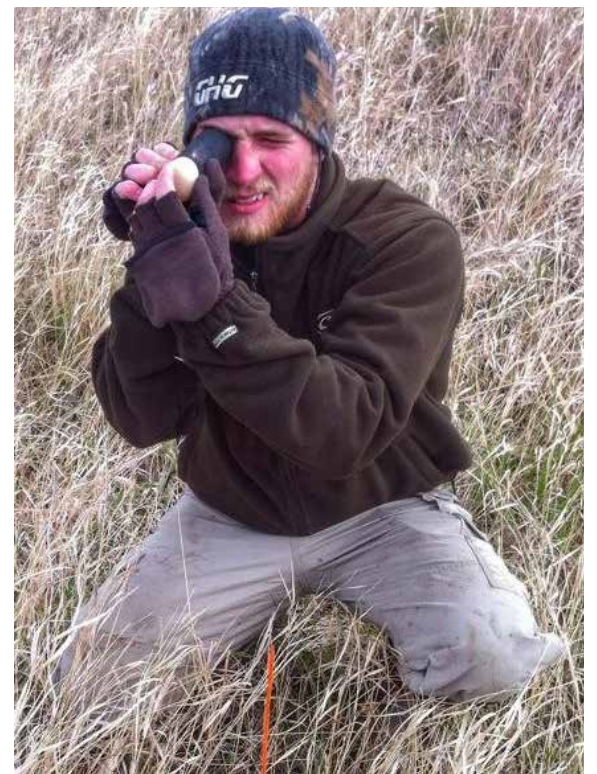
Student internships, summer jobs, and volunteer work



In January, Anna Ferchaud (senior, wildlife ecology) and other LSU students accompanied Dr. Carl Mosenbocker (SPESS) to three villages in Haiti to bring tools and develop plans to enhance sustainable agricultural practices.



Hayden Carter (junior, forest management) had an internship with Weyerhaeuser Co. LS/LA in Prentiss, Miss. last summer, and will be working on a raw materials internship with the company out of McComb, MS this summer.



Ethan Massey (senior, wetlands) worked at Delta Waterfowl last summer as a technician in Meacham, Saskatchewan, searching for duck nests, checking nests for eggs, and performing brood surveys.



Claire LaBarbera (senior, wildlife habitat and conservation management) worked last summer with Dr. Bill Platt in biology on a project determining the effectiveness of herbicide treatments on woody shrubs and vines in open canopy Louisiana forests.



Hunter Fuqua (senior, fisheries and aquaculture) helped gillnet Alligator Gar last summer for the U.S. Fish and Wildlife Service in a project designed to assess gar movements and habitat use.



Leah Delahoussaye (senior, conservation biology) worked at the Sam D. Hamilton Noxubee National Wildlife Refuge last summer where she banded nestling Red Cockaded Woodpeckers and re-sighted fledglings before they left their nests.



SAF Sells Christmas Trees

The Society of American Foresters Student Chapter at LSU held its annual Christmas tree sale on the grounds behind the School of Renewable and Natural Resources Building. The trees were grown on the Lee Memorial Forest and took from four-to-six years to grow. Approximately half of the trees were Leyland cypress and the rest were Carolina Sapphire. They were all beautiful and of high quality, thanks to the constant care and management of Joe Nehlig and Don Bluhm at Lee Forest.

Students drove to Lee Forest on Sunday evening to help shake, bundle and load the 60 trees. They were delivered and ready for sale Monday afternoon. The SAF Chapter pays \$6 per tree back to purchase replacement seedlings. These are planted on a four acre plot in Lee Forest that is dedicated to growing the Christmas trees. Profit are used by the Chapter to pay registration fees for the students attending the annual Southern Forestry School's conclave.

The Chapter plans to sell Christmas trees again next year starting the Monday after Thanksgiving.



Hayden Carter, Christian Rossi, James Donovan, Devyn Albin and Jared Riddle sort and label trees in preparation for sale. In the background are the yellow poplar cants on which students practice crosscut sawing and bow sawing in preparation for Conclave. The tree sales will help fund their trip.



SAF students toured the SilencerCo, LLC, while attending the National Convention of the SAF in Salt Lake City, Utah. Shown touring the plant are (left to right) Christian Rossi, Dr. Niels de Hoop, Hayden Carter, James Donovan and Jared Riddle.

Forestry Students Attend National Convention

The SAF National Convention was held in October in Salt Lake City, Utah. Four students from the LSU chapter were able to attend, thanks to funding from the School of Renewable and Natural Resources, the Louisiana SAF, Donovan & Lawler law firm and the FWF Alumni Association. Attending were Hayden Carter (president), Christian Rossi (vice president), James Donovan (treasurer) and Jared Riddle. Before actually attending the meeting, the group took a day to see some forest management-related sites. First stop was a tour of SilencerCo, LLC, in suburban West Valley City. SilencerCo has emerged in recent years to be the leading manufacturer of firearms noise suppressors. Suppressors are particularly important in feral hog control since feral hogs are emerging as a major threat to forest regeneration in many parts of the country and the world. The group conversed with the legal staff at SilencerCo as well as viewing of the manufacturing aspect of the company.

The group visited the ski resort town of

Park City, Utah and were able to tour aspen stands (in full color), spruce stands and riparian sites within the mountains. Elk and mule deer sign was abundant, but the only animals observed were an angry red squirrel and a few trout. Students also attended a SAF tour that included aspen management at Bear Lake in northern Utah, while Drs. de Hoop and Dean attended other silvicultural tours while Director Rutherford met with the forestry school deans.

The International Union of Forestry Research Organizations (IUFRO) also held their 2014 World Congress at the Salt Palace Convention Center at the same time, as did the Canadian Institute of Forestry. Delegates from any one meeting could attend any session. The students were able to meet foresters and view posters and exhibits from across the globe.

The next National Convention of the SAF will occur here in Louisiana, Nov. 3-7, 2015, at the Baton Rouge River Center. The students are looking forward to it and stand ready to assist.

Wildlife Society Preparing for Wildlife Conclave at Virginia Tech

The Wildlife Society Student Chapter at LSU is currently expending most of their efforts preparing/fundraising for Wildlife Conclave. This year's conclave will be held this spring at Virginia Tech. Twenty students are lined up to compete and we are excited to represent LSU RNR in Virginia.

Outside of conclave, we have had one meeting this semester featuring the LSU Vet School Wildlife Hospital Raptor Rehab program to give students volunteer opportunities. In the meetings to come we hope to have one or two more guest speakers, a few small lessons from upperclassman, and we're also planning a camping trip.

For more information visit www.lsutws.wix.com/lsutws or email lsutws@gmail.com

Scott Allen Awarded Pathfinder Fellowship

Doctoral student Scott Allen, was awarded a Pathfinder Fellowship from the Coalition of Universities for the Advancement of Hydrologic Science, Inc. The fellowship is awarded competitively based on proposals by students to add new field sites to strengthen their Ph.D. work on an aspect of hydrologic science.

The Coalition is a National Science Foundation-supported nonprofit organization representing more than 100 universities and international water science-related organizations. For his Pathfinder work, Scott will collaborate with scientists from the U.S. Geological Survey and Clemson University to measure the water and energy balance of forested wetlands in coastal South Carolina. The results will leverage his related work in Louisiana and Arkansas to understand how water budgets in forested wetlands are related to forest growth.



LA SAF Awards Outstanding Student

The Louisiana Society of American Foresters award for Outstanding LSU Student was presented to Hayden Carter at the 4-State SAF meeting in Texarkana, January 2015. Hayden is a junior in forestry and president of the Society of American Foresters Student Chapter. He currently works as an intern for Weyerhaeuser Company out of their southern Mississippi region and has plans of eventually owning his own business in the land and timber industry. Shown presenting the award are Dr. Rutherford (director, RNR) on right and Dr. de Hoop (faculty advisor to the SAF Chapter) left.

American Water Resources Association LSU Student Chapter

The LSU student chapter of the American Water Resources Association has been resurrected this year, and welcomes anyone with an interest in water issues. The group meets on the first Thursday of each month at 4:30 p.m. in RNR Room 225.

LSU student chapter gathers to learn and discuss water issues all over the world and sometimes meetings feature a guest speaker.

This past fall hydrogeologist Dr. Brian Carter from the environmental consulting company, Conestoga Rover, was a guest. This spring the group plans on meeting a hydrogeologist at Amite River in Denham Springs, where he'll teach about the river from the surrounding geology.

Please join us! Check out our website at www.awralsu.wordpress.com, join our Facebook group, or email us at awralsu@gmail.com to find out more information.

2014-15 RNR Scholarships

- Pauline Bateman Stanley Scholarship Sarah Zaunbrecher
- Paul Y. Burns Scholarship Jamie Amato
- Hunter Barrilleaux Memorial Scholarship Katie Caldwell
- Ellis C. Magee Forestry Scholarship Christian Rossi
- F. O. Bateman Memorial Scholarship Kayla South
- Mark Dupuy Jr. Wildlife Conservation Scholarship Carver Montgomery
- William A. Knight Forestry Scholarship Lloyd Wallace
- Billy W. Weaver Scholarship Jared Riddle
- Forestry, Wildlife, and Fisheries Alumni Association Anthony Daigle
- Forestry, Wildlife, and Fisheries Alumni Association Katie Bowes
- Forestry, Wildlife, and Fisheries Alumni Association Michael Baker
- Lehmann Scholarship Alexis Allen
- Ben and Pauline Stanley Excellence Award for Outstanding M.S. Student William Budnick
- Ben and Pauline Stanley Excellence Award for Outstanding Ph.D. Student Scott Allen
- Clark M. Hoffpauer Scholarship for RNR Graduate Students. Kristin Brzeski

College of Agriculture Scholarships

- Brodie Pugh Scholarship Madelyn McFarland
- C. W. Causey Benjamin Walters
- Century Club Scholarship Joseph Danigole
- Chancellor's Golf Scholarship Leah Delahoussaye
- Dean's Council Scholarship Brandon Stafford
- E. M. Barham Memorial Scholarship. Robert Richard
- Greater Baton Rouge State Fair. Michael Baker
- John W. Melton Scholarship Anna Claire Ferchaud
- Jules P. Bordelon Megan Donovan
- Laura Lynne Smith Scholarship Andrea Howells
- Mary Owens Day Scholarship. Jennifer Tuohy
- Murphy J. Foster Scholarship Allison Gwynn
- S. W. "Buck" Gladden, Jr. Scholarship Holden Poole
- Tiger Athletic Foundation Scholarship William Allen
- Tiger Athletic Foundation Scholarship Kristen Sciortino
- Tiger Athletic Foundation Scholarship Brandon Thibodaux

Louisiana Forestry Foundation Scholarships

- Robert H. Crosby, Jr. Scholarship Hayden Carter
- Weaver Brothers Scholarship Carter Crosby
- George M. Houston Scholarship Jared Riddle
- Thomas Hansbrough Scholarship Christian Rossi
- Norwin E. Linnartz Scholarship Marcus Rutherford
- Roy O. Martin, Sr. Scholarship Seth Wilton

Louisiana Chapter of the Society of American Foresters

Outstanding Student: Hayden Carter

Les Voyageurs

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

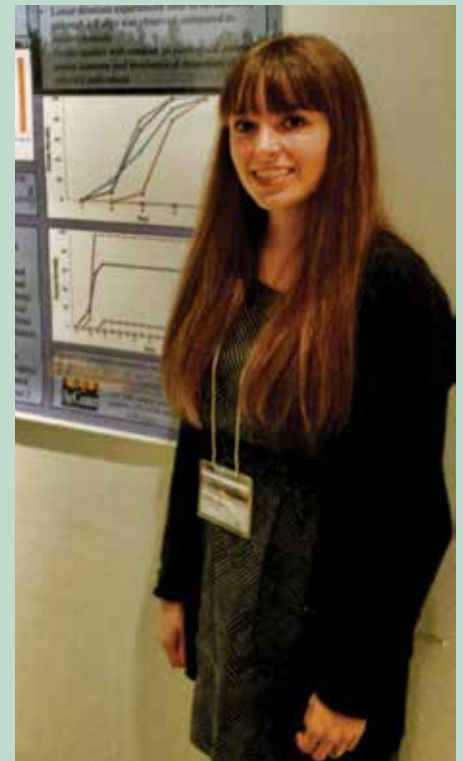
RNR's current Les Voyageurs: Anna Claire Ferchaud, Madeline Richard, Jennifer Tuohy, and Andrea Howells

Two RNR Students Travel to Japan

In Sept. 2014, Dr. Chris Green and two RNR graduate students traveled to Sapporo, Japan, to give presentations at the joint meeting of the International Association of Astacology and the Carcinological Society of Japan. Sponsored by the Sapporo Maruyama Zoo and The Crustacean Society, the meeting brought together scientists from 12 countries to discuss the biology and ecology of crayfishes from around the world. During the meeting, Dr. Green presented a paper entitled "Procambarid crayfish aquaculture in the southern USA, while his master's student Barclay Pace won the best student poster award for "Infectivity of white spot syndrome virus (WSSV) in the Louisiana red swamp crayfish (*Procambarus clarkii*). Will Budnick (major professor Dr. Michael Kaller) also presented, "Differences Among Biotic and Abiotic Factors May Inhibit Dispersal of Rare *Orconectes* Crayfishes in central Louisiana streams" from his master's thesis, which he will be defending in March before moving on to the University of Texas-Arlington to pursue a doctorate. Both students participated in a charity auction, purchasing items to help local crayfish conservation groups, and also were able to sample native crayfishes from some nearby mountain streams. Budnick particularly enjoyed the field trip, noting "I am glad to be a member of a group that, no matter the nationality or age, loves to get wet in streams, flip rocks, and get excited over an animal that the indigenous people refer to as "an angry god wearing mittens."



Will Budnick in Japan.



Barclay Pace receives her "Best Poster" award.



Spring Homecoming a Success

The school started a new Homecoming tradition by moving the usual fall semester celebration to the spring. A very successful inaugural spring homecoming was held last April at the RNR building.

Glenn Constant was honored as the Alumnus of the Year. Glenn earned a bachelor's degree in Wildlife Management from the University of Louisiana-Lafayette in 1988. He later earned a master's degree in Fisheries (1990) at LSU under the direction of Dr. Bill Kelso; his thesis was titled: "Genetics and growth of Largemouth Bass in Thirteen Louisiana Lakes." He worked as a research associate for Dr. Kelso from 1990 to 2000 and conducted studies on growth and abundance of Mississippi River fishes, status and movements of Pallid Sturgeon in the Atchafalaya River, and flood pulse effects on water quality and biota in the basin. He later joined the Baton Rouge Fish and Wildlife Conservation Office for Region 4 FWS Fisheries Program in 2000 and rose to the position of supervisor. He has extensive experience in habitat planning and conservation, habitat management, endangered species research and

management, and habitat assessment, telemetry, propagation, and restoration. Congratulations to Constant in recognition of his contributions to the field of wildlife management.

Other celebrations at Homecoming included the induction of Dr. Paul Coreil (M.S. Wildlife Management '84; Ph.D. Extension Education '95) and Pete Heard (B.S.F. '60, M.S. Game Management '61) into the Forestry, Wildlife, and Fisheries Alumni Association Hall of Fame for 2014. Details on the lives and careers of the newest inductees are available on the RNR 2014 Hall of Fame web page. Previously inducted member profiles can be accessed as well.

Christina Legleu (M.S. wildlife '12) and her fiancé **Neil Lalonde (B.S. forestry '00)** both work for the U.S. Fish and Wildlife Service at Yukon Delta National Wildlife Refuge, a 22 million acre refuge in southwest Alaska. Legleu is a wildlife refuge specialist and works on a diversity of projects such as waterfowl banding, aerial moose surveys, native relations and additionally serves as the refuge GIS specialist. Lalonde is the current refuge manager and oversees all aspects of the refuge. They live and work in the remote town of Bethel and will be getting married this spring in Hawaii. Congratulations to them both!



Glenn Constant (left) receives the Alumnus of the Year award from Dr. Kelso.



Dr. Todd Shupe awards the 2014 Hall of Fame to Dr. Paul Coreil.



Dr. Todd Shupe awards the 2014 Hall of Fame to Dr. Pete Heard.

Margaret Williamson (B.S. NREM '08) after graduating from the School of Renewable Natural Resources, completed a master's degree of Hydrology at the University of Georgia. She spent two and a half years in South America with the Peace Corps as an environmental conservation volunteer before returning to the states to pursue an additional degree. She has since published several papers concerning environmental conservation and water quality. She now resides in Philadelphia, where she is studying Sustainable Urban Design and drinking a lot of very good coffee. She plans to continue working in conservation on the city-level and hopes to help make urban environments healthier, happier and more sustainable places to live.

We Want To Hear From You!

The alumni news is compiled and written by Dr. Todd Shupe. We are continuously working to update and manage our alumni files and database. If you have any news items or address changes that you would like to share, please e-mail Todd at tshupe@agcenter.lsu.edu



IN MEMORIAM

Dr. Paul Burns, former Director

With sadness we share with you that Dr. Paul Y Burns passed away on Monday, January 5, 2015, at the age of 90. Born July 4, 1920 in Tulsa, Oklahoma, Dr. Burns joined the faculty of the School of Renewable Natural Resources (formerly known as the School of Forestry) in February, 1955 as director - a position he held until stepping down in December 1976. Serving LSU for 31 years, he taught one undergraduate class every year he was director. In retirement, he continued spending time weekly at his LSU office until the age of 93, reviewing student and faculty papers, organizing alumni information, and providing departmental history.



Burns was an avid tennis player, playing in high school and college, for serious recreation and in the Senior Olympics. He had a keen sense of humor and enjoyed being known for his corny jokes. He was also a talented piano player, learning to play as a child and playing the pump organ in the field for his Army Air Corps 21st Weather Squadron and the 370th Fighter-Bomber Group. He entertained his wife, children, grandchildren and most recently his fellow assisted living neighbors with his ability to play the piano by ear, encouraging everyone to sing along.

He was proud of his World War II service as a meteorologist in the Army Air Corps, his Yale Forestry degree and work at LSU, his work for racial justice and peace, his tennis awards, and his family. Longtime member, leader and elder of University Presbyterian Church, Burns worked through the Baton Rouge faith community to improve race relations and gender equality. He received many recognitions and humanitarian awards for his community work and other contributions. For 12 years, as she struggled with dementia, Dr. Burns patiently and lovingly cared for his wife Kathleen. In recent years he enjoyed sharing his life experience through conversations and through writing memoirs.

A celebration of life was held on Saturday, Jan. 10, at the University Presbyterian Church. The family asked that memorial gifts be made in lieu of flowers (he was a forester, not a gardener) to the University Presbyterian Church, Baton Rouge, La. or to the LSU Foundation, Paul Y. Burns Scholarship, School of Renewable Natural Resources. Paul would be pleased for new members in the Louisiana Council on Human Relations as well (<http://www.brchr.org/>).

Dr. Burns will be particularly missed by those of us at the School of Renewable Natural Resources.

Eric Daniel Howell (B.S.F. '83)

Eric Daniel Howell (B.S.F. '83) passed away on May 6, 2014 at the age of 52. He was a native of Metairie and a resident of Baton Rouge, where he served as scout executive/CEO of the Boy Scouts of America. He was a Professional Boy Scout for more than 30 years. Howell exemplified the life of a true christian and model scout. He was a graduate of LSU in Wildlife and Forestry Management. He had the innate ability to always make others happy and welcomed. He will be sadly missed by his wife of over 27 years, April Bush Howell.

Eric Fabre

Late LSU natural resources ecology and management senior Eric Fabre's boots and hat sit on the air-boat LSU College of Agriculture dedicated to him Friday, Jan. 16, 2015, after being killed in a hit-and-run accident in June 2014. Family, friends, faculty and administration gathered to honor the memory of natural resources ecology and management senior Eric Fabre by dedicating the LSU AgCenter recently completed airboat in his honor.

What LSU President King Alexander said he expected to be a small gathering of 10 to 12 individuals grew to more than 50 of Eric's friends and loved ones, filling the Efferson Hall conference room.

"He touched a lot of lives, and his spirit goes on and on each and every day through you and through what you're accomplishing," Alexander said.

From his father, Jack Fabre, to his co-worker, RNR graduate student Kristin DeMarco, to College of Agriculture Assistant Dean Leslie Blanchard, there was no shortage of speakers to convey Eric's spirit and character. "What this world and this University lost when we lost Eric, was more than just a young man," Blanchard said. "We lost all that he represented — a fantastic student, a good friend, a caring son."

The university was Eric's second home, where he was preparing for a career in line with his love for the outdoors, Eric's father said. Jack Fabre said Eric was an example to all those around him for the value of hard work and kindness.

"He knew the true meaning of giving and service," Jack Fabre said. "Always going the extra mile to lend a hand, to reach out to those in need — a champion for the underdog through his words of encouragement and more importantly his actions."

Eric Fabre had two jobs — bartending at Pluckers Wing Bar and working on boats with the school of RNR.

DeMarco, who worked with him in Dr. Megan Lapeyre's research lab, said every morning Eric Fabre walked in the door with a hilarious impression and a story to tell about his night as a bartender. "When he wasn't working to make the money, he was working to make the grades," said Eric's girlfriend, Taylor Tycer.

Eric passed away two weeks before his 22nd birthday and was preparing to propose

to Tycer, Jack Fabre said. The two were together for five years. "Three of those years were spent here together at LSU, and let me tell you that in those particular three years, I heard it all — the job hunt, the changing of the majors, the Tiger Stadium incident, the day he discovered he could make root beer floats in The Five, the apartment move, the second job, the begging for the scooter, the spring break he stayed at home to work, the buying of the scooter and so much more," Tycer said. In June, Tycer said she received a phone call at 1 a.m. letting her know Eric Fabre was in an accident. She drove from Slidell to the scene of the wreck in Baton Rouge to find he had died on impact.

The individual who struck Eric Fabre that night has not been convicted. Tycer was present not only to speak in his honor, but to christen the airboat — a project he had been working on over the summer but was unable to complete. "They finished it, and they dedicated it to him, and they put his name on the side, so it says RV Eric Fabre," Tycer said. "He's gloating so hard right now, I just know."

DeMarco, who drove the lab's airboat, said she agreed to teach Fabre to drive the airboat in exchange for lessons on how to drive the mud boats. The morning she and other members of the lab learned of Eric Fabre's passing was the day he was scheduled to pick up the boat. "He didn't get a chance to get out on it because it was in the shop for so long, but he will get a lot of chances for as long as that boat is running," DeMarco said. "I just couldn't be happier to have a little bit of him out there with us."



Photo credit: Reagan Labat

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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.

2015 Facility Renovation Initiative: The School of Renewable Natural Resources building was constructed in 1985 and is largely unmodified since. We will kick-off a campaign to fund renovation and expansion of our facilities. We are currently planning a renovation initiative, and we are incredibly excited for this long overdue project!

Join: The Forestry, Wildlife and Fisheries Alumni Association and the College of Agriculture Alumni Association. Information on both organizations are available on our website, www.rnr.lsu.edu.

Prospective students: The LSU School of Renewable Natural Resources offers a bachelor's degree 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
- Forest enterprise



Interested in being part of the School of Renewable Natural Resources? visit our website: www.rnr.lsu.edu/academics/welcome.htm

