On the Cover
Hot air balloons drift over the Mississippi River bridge at Natchez during the Great Mississippi River Balloon Race. (Photograph by Jim Lytle)

Back Cover
Downtown Vicksburg. (Photograph by Jim Lytle)

4 Rural Medical Scholars
Inside look encourages youth to study medicine.

6 MSU ‘byproduct’ efforts seek new fuel source, chemicals
Researchers tapping energy potential of plant material.

8 For the love of Lulu
Gift helps establish cancer unit.

10 SMART
Program raises soybean yields and producers’ expectations.

12 Alien Invasion
The South is vulnerable to the devastation caused by non-native plants.

15 Mississippi Coast welcomes South American wasp
Tiny wasp helps control costly pest.

16 FOCUS
Teaching, research and outreach in the Division of Agriculture, Forestry and Veterinary Medicine.

22 Endoscopy
New equipment helps veterinarians provide improved care for patients.

24 Center’s new home on the Coast
Coastal Research and Extension Center dedicates new building complex.

26 CSI: MSU
Wildlife law enforcement officers learn crime scene investigation.

28 Oops…they did it again
MSU dairy products team takes top national honors.

29 MSU clinical veterinarians give ‘king of beasts’ royal treatment
Friday the lion undergoes successful surgery.

30 Awards
MAFES and MSUES select outstanding workers.
Welcome to the first issue of Landmarks, the quarterly magazine of Mississippi State University’s Division of Agriculture, Forestry and Veterinary Medicine.

Just like Mississippi itself, the division is full of individuals dedicated to helping the state reach its highest potential. Each issue of Landmarks will bring you stories about what they’re doing and the people who are participating in university-sponsored activities.

Education is a key part of our work and the division’s educational activities extend far beyond the boundaries of the Starkville campus. The Mississippi State University Extension Service is active in every area of the state, with programs ranging from 4-H youth development to training sessions for small business owners.

Other units in the division, including the colleges of Veterinary Medicine, Forest Resources and Agriculture and Life Sciences also provide outreach programs for nontraditional students.

Landmarks will showcase those activities, as well as the accomplishments of MSU students in the division and alumni. Research and other undertakings by personnel in the Mississippi Agricultural and Forestry Experiment Station also will be featured.

The new magazine marks the first time we have been able to show the diversity and scope of the work that is going on in the division. We hope you enjoy it and look forward to your comments.

Vance H. Watson

Vice President’s Letter
Rural Medical Scholars ...
Inside look encourages youth to study medicine

By Bonnie Coblentz
Photo by Joe Ellis/ The Clarion-Ledger
An Extension program trying to identify future medical leaders in Mississippi is succeeding at its goal.

Rural Medical Scholars is a five-week summer program offered by the Mississippi State University Extension Service in cooperation with the state’s 15 community and junior colleges through the Mississippi Rural Health Corps. It recruits students entering their senior year of high school, offering them a brief college experience and a taste of life as a medical doctor in Mississippi. To date, 144 students have completed the program.

The first year RMS graduates could qualify for admission to medical schools was 2003. Of the 56 eligible to move on that year, seven were accepted into medical school. Many others are going into nursing, and some are heading towards physical or occupational therapy, medical research and veterinary medicine.

“In 2004, three of the 100 slots at the University Medical Center in Jackson were competitively filled by graduates of our program,” said Bonnie Carew, Rural Medical Scholars coordinator with MSU. “The fact that this small program produced three of the incoming medical class students means we truly are identifying the future medical leaders of this state.”

Sara Sullivan is a senior at MSU majoring in microbiology. The 2000 RMS graduate spent this summer and last as a counselor for the program. She plans to attend nursing school upon graduation from MSU and become a nurse practitioner.

“Previously, I wanted to go to work in a bigger community, but recently I started considering staying in Mississippi. That is directly due to the Rural Medical Scholars program,” Sullivan said. “I already knew I wanted to go into medicine because I enjoy helping people and being in a medical environment. Right now I feel like where I can be most helpful is here. I’ll at least consider it as an option.”

Lynne Cossman, a sociologist in MSU’s Social Science Research Center, said a combination of factors has led many state doctors to retire early or leave the state, and many others may do the same.

“Mississippi residents may suffer from a lack of access to quality healthcare,” Cossman said.

The state’s medical environment poses several challenges to physicians, among them high rates of Medicaid use, malpractice lawsuits, a largely rural population and a high percentage of chronically ill patients, many of whom don’t have insurance.

“Nationally, there are three doctors to every 1,000 residents, but Mississippi has two per thousand residents,” Cossman said. “The doctors who do practice in the state are not evenly distributed, producing gaps in access to physician care. More than half of the physicians serve in four urban areas, leaving 51 of the state’s 82 counties underserved.”

The Rural Medical Scholars program began in 1998 as a way to attract academically talented Mississippi youth into medical careers with the goal of keeping them in-state to meet local healthcare needs. Participating youth are accepted into MSU and take college algebra and principles of zoology for seven hours of college credit. The summer is spent in class, shadowing area physicians as they work and hearing speakers on a variety of related topics.

The state’s community colleges nominate students to be considered for the program.

Students in this year’s RMS class praised the shadowing opportunities as valuable insight into the job of a physician, the demands they face and the relationships they form with patients.

“All the doctors seem very passionate about what they do,” said Trey Lyons of Tupelo, a 2004 Scholar.

Mary Beth Eiland of Columbus echoed the thought, adding that even though each doctor has scores of patients, “each one expects the doctor to know all about them.”

Taking pre-med classes as a high school student is not easy, but the youth said the experience forced them to learn good study habits and prioritize their time. Guest speakers and information presented helped give them a clear direction for their academic careers.

“We learned how to get into medical school,” said Peter Huve of Corinth, while Sanober Zikker of Horn Lake said “the program really cemented our goals and told us what medical school is all about.”

Extension Service’s efforts in delivering this program is beginning to pay dividends for the state. For more information about the Rural Medical Scholars program, call Bonnie Carew at (662) 325-1321 or visit http://www.rms.msucas.com.
Two complementary Mississippi State research efforts are seeking to capitalize on the energy potential of plant materials called biomass.

A new university project seeks to develop wood preservative systems and fuel from the small-diameter pine trees that traditionally are thinned from larger pine stands.

An MSU team, led by Phil Steele of the Forest and Wildlife Research Center, along with campus colleagues Leonard Ingram and Darrel Nicholas of forest products, Mark Bricka of chemical engineering and Chuck Pittman of chemistry, have a $1.4 million grant from the U.S. departments of Energy and Agriculture to conduct the project as part of the federal Biomass Research and Development Initiative.

Established to encourage the development of new products from the agricultural and agroforestry sectors, the initiative is intended to “promote the nation’s biomass resources, enhance energy security, provide a cleaner environment, and help revitalize America’s rural economy,” said Energy Department Secretary Spencer Abraham in announcing the initiative.

Lead project investigator Philip H. Steele, an MSU forest products professor, said the project is designed to “establish a novel, technologically advanced approach to developing an environmentally benign wood preservative system from bio-oil with fuel as a byproduct.”

BioOil is a condensed gasification product developed by rapid pyrolysis of biomass, usually wood. This condensed BioOil product looks similar to crude oil and can be used for production of chemicals and fuels.

New government restrictions on the use of chromated copper arsenate have created growing demands for a cost-effective, environmentally safe, organic wood preservative suitable for residential applications.

“A BioOil wood preservative would not only fill this critical need but has the potential to boost the forest products industry, which currently has annual sales of preservative-treated wood in excess of $4 billion,” Steele said.
“The production of wood preservatives or BioOil likely would consume about 5 million tons of wood per year with thinnings from Southern pine stands,” he predicted. “This has the potential to provide a critical market to landowners with small-diameter trees.”

MSU research scientists also have concluded that both the BioOil preservative and fuel would diversify the range of products produced from plentiful timber resources, as well as meeting other national needs—including reducing dependency on foreign fuels and improving the nation’s environmental health.

The $1.4 million grant complements a grant previously received by MSU’s Department of Agricultural and Biological Engineering. This $1 million U.S. Department of Agriculture grant is a joint effort by MSU and Oklahoma State University known as the Biomass-Based Energy Research project. The Agricultural and Biological Engineering department funded development of the BioOil reactor from this grant. The reactor is based on the design of a collaborating industrial partner, Renewable Oil International, LLC of Florence, Ala.

To consolidate research and development efforts, Mississippi State also has joined the newly created Southern Alliance for the Utilization of Biomass Resources, headquartered at the University of Alabama. Liam Leightley, MSU forest products department head, chairs the collaborative effort.

“Southern rural economies have suffered from the closure and slowed production rates of pulp mills and the decrease in value of farm crops,” Leightley said. “In the Southeast, we have renewable and expandable sources of energy and chemical feedstocks in the 214 million acres of forestland and the 128 million acres of farmland.”

Bringing together academic institutions from Texas to Virginia, the alliance also includes government organizations, private industries, landowners, and others who will cooperate to capitalize on farm and forest biomass resources.

“By working with nationally recognized researchers at Southeastern universities, the alliance will be able to quickly and efficiently capitalize on biomass conversion projects,” Leightley said.

As a first order of business, the alliance will work closely with state and federal officials on policy development related to the biomass industry. Future plans include educational seminars on the benefits of bio-based energy and chemicals, and assistance in the implementation of new technology and research products.

“Mississippi State is quickly assuming a leadership role in an area that has tremendous economic potential for the South,” Leightley said.

For more on BioOil, telephone Steele at (662) 325-8083; for the Southern Alliance for the Utilization of Biomass Resources, contact Leightley at (662) 325-4444.

Wood stakes are preserved with BioOil in a treating chamber. After treatment, the wood will be tested to determine how well BioOil protects against decay and insect damage.
Lulu’s parentage was dubious—part Labrador, part collie...maybe. What was certain was the bond she shared with Delta farmer Malcolm Mabry, Jr.

Fifteen years ago, Mabry, along with neighbor David Cook, found Lulu near the edge of a wheat field on Mabry’s farm near Dublin in Coahoma County. The abandoned pup was cold, frightened and too weak to run away. Lucky for her she didn’t.

Mabry, a former state lawmaker, took the dog home, bathed her and provided a meal of warm milk and bread. That was the beginning of a 15-year relationship.

Mabry and Cook shared the responsibility of raising Lulu. During the day, she would ride in Mabry’s truck back to the farm. Resting in the shade of a tree, she would watch Mabry as he worked the fields with his tractor.

Lulu’s life changed in July 2002, when, at age 13, a fast-growing cancerous tumor appeared in her right leg.

Mabry and Cook took Lulu to Mississippi State University’s College of Veterinary Medicine to undergo surgery. Although successful, the surgery could not remove all of the cancerous cells.

As a result, it was necessary for Lulu to go to Auburn University for a month of radiation therapy—a form of treatment unavailable at Mississippi State.

Mabry and Cook spent every weekend that month visiting their beloved pet at the Alabama school. During those visits they spent hours riding around the countryside—Lulu’s favorite pastime.

“Taking animals to Auburn for radiation treatments is a long way to travel, and people hate to leave their pets and not see them for a month,” Mabry said.

Following the treatment, Lulu continued to receive follow-up chemotherapy at Mississippi State.

The surgery, radiation treatment and chemotherapy bought Lulu time, but that time ran out in September 2004. Her experience, however, led to lasting friendships between Mabry and many of the doctors and staff at the College of Veterinary Medicine.

“Until you actually deal with a sick pet, you don’t really come to appreciate how competent and compassionate the people at the College of Veterinary Medicine are,” he said.

Lulu’s experience also convinced Mabry of the need for a modern veterinary radiation unit closer to home. As a result, he has made a generous donation that will provide part of the $1.5 million needed for a state-of-the-art radiation oncology unit at Mississippi State. The gift will allow for research and treatment of tumors and cancerous cells that, as in Lulu’s case, cannot be surgically removed because of their location within the animal.

“My dream is to have a radiation oncology unit here,” Mabry said, “so that anyone in this area—and that would include not just Mississippi, but parts of Arkansas, Tennessee...
and Alabama—can bring their pets to fight cancer without having to travel long distances."

A similar radiation program at Auburn University, where Lulu was treated, allows for the treatment of animals ranging in size from kittens to adult horses. Side effects to the radiation therapy have been minimal, since the treatments are limited to the area immediately surrounding the tumor.

“Cancer is so widespread, it’s almost a plague in the world today, and our pets have it just like humans,” said Mabry. “Often chemotherapy and surgery can’t complete the job, but radiation therapy is another powerful weapon in the fight against cancer in our pets.”

Dr. Lee Tyner, hospital director at the College of Veterinary Medicine agrees.

“Cancer is so widespread, it’s almost a plague in the world today, and our pets have it just like humans,” said Mabry. “Often chemotherapy and surgery can’t complete the job, but radiation therapy is another powerful weapon in the fight against cancer in our pets.”

Mabry served in the Mississippi Legislature for 24 years, first in the House of Representatives and then in the Senate. He was in office in 1974 when legislation was passed establishing the College of Veterinary Medicine at Mississippi State.

“Mr. Mabry’s generosity and commitment to helping the College of Veterinary Medicine establish a top-rate oncology unit is a true testament to his compassion for companion animals and their owners,” said Keith Gaskin, director of development for the college. “He was a strong supporter of the college during his long tenure as a Mississippi legislator, and he continues to work hard for us today.”

Mabry also has high hopes that, through research on the effects of radiation therapy, “some of what we learn through treating cancer in animals might one day be translated into human use.”

That would be a quite a legacy for a pup once abandoned in a Delta wheat field.
Soybean yields that once would have seemed phenomenal now are a little disappointing for a Tupelo producer.

Keith Wiseman knows how to manage his crop the SMART way—with the Soybean Management by Application of Research and Technology program. SMART is provided through the Mississippi State University Extension Service and funded by the Mississippi Soybean Promotion Board. Wiseman said he has seen dramatically increased yields on his 300 acres of soybeans since adopting SMART management techniques.

“I’ve seen a 100 percent improvement in yields. I was making 20 bushels per acre, and now it’s 40 bushels per acre,” Wiseman said. “I used to think 25 bushels per acre was good, but now if I only make 35 bushels per acre, I’m disappointed.”

Wiseman said he learned about the SMART program from his Extension agent and decided it might be beneficial for him.

“I was smart enough to know I wasn’t smart enough to manage these soybeans myself,” Wiseman said. “Yields of 8 to 25 bushels per acre just weren’t enough, and I decided I needed some help.”

Begun in 1992, SMART is a total management program for soybean crop production. Extension soybean production specialist Alan Blaine said the program looks at all aspects of production, including tillage practices, maturity groups, variety selection and planting dates.

“At MSU, we have all levels of expertise at our fingertips so we can try to make the best decision at each moment to help the grower,” Blaine said. “We’ve collected long-term trend data on different systems, which allows us to see management techniques that are working over a large group of farms. We’ve used this as an avenue to find problems that growers have and pass those on to the research community in the hopes that they can address them.”

Changes in planting time and more intensive crop scouting were the main management recommendations Wiseman followed to improve his yields.
“Early planting is the biggest change I made in my crop management while in the SMART program,” Wiseman said. "I had been plowing when I should have been planting. Now I do my plowing in the fall and plant on a stale seedbed in the spring.

“Another thing I learned is you can’t tell what’s going on in the field by sitting in the truck at the end of the turnrow. You have to walk through the field and see what’s going on,” Wiseman said.

While enrolled in the program, Wiseman said Extension specialists came to his farm once a week. Although he rotated off the program in 2003, he said he feels confident that he can call on local Extension specialists if he has problems in the future.

Of all the crops grown in Mississippi, Blaine believes soybeans have the greatest potential for increased yields. For that to happen, growers must be willing to improve management practices.

“Growers who don’t have the time to manage crops should consider securing the services of someone—a consultant, a dealer or their Extension agent—who knows what’s going on, has the time to dedicate to the crop and will stay committed all year long. If you’re not going to do it, you’ve got to find somebody who can,” Blaine said. “The goal of the SMART program is to make money for producers. Even if you have to pay someone to manage your crop, you will improve your bottom line by getting someone to help with these intensive management practices.”

This year the SMART program had 36 participants. Blaine said he has a three-year waiting list of producers who want to get involved in the program. Growers typically rotate out after two years on the program so others can join.
Alien Invasion

The South is vulnerable to the devastation caused by non-native plants.

By Maridith Walker Geuder

Sailing into the port of Mobile in the early 1920s, cargo ships from around the world sometimes carried a seemingly innocuous guest: a grass native to Southeast Asia that often was used as a packing material. Once on land, the plant took root and thrived in the rich Alabama alluvial soil, and it began a relentless, steady move northward.

Subsequently promoted as an ornamental by unsuspecting nursery owners, cogongrass today is considered one of Mississippi’s 10 worst invasive plant species and one of the seven “worst weeds” in the world. It infests more than 1.2 billion acres worldwide.

Unless scientists identify a way to stop cogongrass, its destructive march in the South only will get worse, promising in its wake a host of environmental and economic problems.

If folks think the now-omnipresent kudzu—a Japan native—is a nuisance, they haven’t seen anything yet, says John Byrd, MSU Extension weed specialist.

Cogongrass is right behind kudzu and privet in its reach and spread, and it presents an environmental nightmare. “We can’t control cogongrass,” Byrd says simply. “We can temporarily suppress it using chemicals, but my concern is that we don’t have economical, selective control tactics for a wide variety of invasion sites.”

Byrd and colleagues in biological sciences, wildlife and fisheries, and MSU’s GeoResources Institute are seeking ways to predict and minimize the spread of cogongrass and other invasive plant species. Their work is funded by a variety of state and federal agencies, including the Mississippi Department of Agriculture and Commerce, the state Department of Environmental Quality, the National Aeronautics and Space Administration, the U.S. Geological Survey, the Mississippi Department of Transportation, and the U.S. Department of Agriculture.

Cogongrass is right behind kudzu and privet in its reach and spread, and it presents an environmental nightmare. “We can’t control cogongrass,” Byrd says simply. “We can temporarily suppress it using chemicals, but my concern is that we don’t have economical, selective control tactics for a wide variety of invasion sites.”

Byrd and colleagues in biological sciences, wildlife and fisheries, and MSU’s GeoResources Institute are seeking ways to predict and minimize the spread of cogongrass and other invasive plant species. Their work is funded by a variety of state and federal agencies, including the Mississippi Department of Agriculture and Commerce, the state Department of Environmental Quality, the National Aeronautics and Space Administration, the U.S. Geological Survey, the Mississippi Department of Transportation, and the U.S. Department of Agriculture.

Coping with Cogongrass

In Mississippi, the invasion is cause for concern. Cogongrass crowds out native vegetation, is inhospitable as a forage plant for animals, and drives away ground-nesting species such as bobwhite quail and turkey. Until it became listed as a Mississippi noxious weed in 2003, cogongrass was sold as an ornamental under the names Japanese bloodgrass or Red Baron bloodgrass. Only too late did homeowners discover that it overwhelms surrounding vegetation.
Blooming in the spring with a distinct white, fluffy seed head, cogongrass in 1979 was found in only 19 of Mississippi’s 82 counties. By 2004, it had spread into 53 counties. Based on moisture, temperatures, and other conditions, scientists predict cogongrass has the potential to cover the entire eastern United States to Chicago, Byrd said.

“It is a hardy plant and tolerates drought,” Byrd explained. Cogongrass spreads much like Bermuda grass—by extending its dense root system, or rhizomes. It produces 80-90 plants per square foot, and the rhizomes can inadvertently be spread through topsoil moved from one place to another.

Byrd, who has tracked and studied the weed for years, said he’s discovered it can’t be controlled by mechanical means such as mowing. “For the past five seasons, we’ve mowed it back to the ground weekly, and we still have 30 plants per square foot,” he said.

Currently, he’s also looking at the impact commercial fertilizers have on the weed’s spread, and with MSU professor Jeanne Jones of wildlife and fisheries, is beginning a study to gauge the impact of “cropping.” “We’re looking at whether we can use a crop like corn to attract wildlife and shade cogongrass to impede its growth,” Byrd explained.

The institute, which includes units specializing in remote sensing, water resources, geospatial technologies, and visualization analysis, has a focus on research applications in natural resources. It is headed by weed scientist David R. Shaw, a Giles Distinguished Professor at MSU.

To address current natural resource issues, the GeoResources Institute has pulled together nearly 100 MSU faculty members from 22 academic departments.

“We have funding from a number of federal sources, including NASA and USDA,” Shaw explained. A $1 million grant from the U.S. Geological Survey is supporting research that is developing new methods for early detection and rapid response to emerging invasive species, as well as evaluating the potential for future encroachments.

For Mississippi, the issues are significant, Madsen explains. “Every habitat in the state has invasive plants,” he said. “They are changing the face and the ecology of Mississippi.”

To illustrate his point, Madsen poses a hypothetical scenario: “Imagine losing Ross Barnett Reservoir near Jackson,” he said. “Imagine the impact on water supply, industry, recreation, and potential flooding.”

One of the state’s current invasives—water hyacinth—is in that 33,000-acre body of water, and while the threat isn’t yet extreme, there is cause for concern. “We’re currently looking at some management practices that could minimize the impact,” Madsen said.

The state’s top 10 invasive weeds contain some perhaps familiar faces:
• Alligatorweed, which first appeared in the United States around 1890, now occupies large areas of wetlands in south Mississippi. It grows as a mat of interwoven plants.

• Chinese privet, first introduced as an ornamental shrub in the 1850s, crowds out native plants and is a particular threat to hardwoods. It is found throughout the South in dense stands of shrubs that can reach 10-20 feet.

• Chinese tallow tree, imported to South Carolina in the 1700s from its native Eastern Asia. It reproduces so easily and spreads so quickly that it has become a major problem in wetlands from Texas to Florida. Several states are considering banning the tree.

• Cogongrass, which arrived accidentally in the early 1900s.

• Japanese honeysuckle, first introduced to Long Island, N.Y., in 1862, is now common to the South, where it crowds out native vegetation and can stunt or kill native trees.

• Johnsongrass, native to the Mediterranean, was imported in the early 1800s as a forage plant. It is a significant weed problem in row crops, can limit visibility on highways, and under certain growing conditions can cause cyanide poisoning in animals.

• Kudzu, a native of Asia, was first showcased as an ornamental plant at the Philadelphia Centennial Exposition in 1876. Growing more than a foot a day during the summer, the vine has caused more than $100 million in damages.

• Purple loosestrife, introduced from Eurasia in the 1800s as an ornamental, now covers nearly 4 million wetland acres nationally. It is just reaching Mississippi.

• Tropical sodaapple, introduced in 1988 in Florida, from its native South America. Within seven years of arriving, it invaded more than 1 million acres and is a serious threat for vegetable growers, livestock producers and land managers.

• Water hyacinth, native to the Amazon Basin, was imported in the 1880s as an ornamental. While it has beautiful flowers, it now is considered the world’s worst aquatic weed, displacing native plants, fish and wildlife and blocking water intakes at hydroelectric power-generating dams.

**Seeking Solutions**

One issue in solving the economic and ecological burdens of out-of-control invasives is that currently there is no comprehensive national approach to address the problem.

“There are a variety of state, agency and federal laws—including the Federal Noxious Weed Act—but not a coordinated approach,” Shaw noted. “A number of different agencies at the state and federal level are putting a lot of resources into invasive species.”

At Mississippi State, the GeoResources Institute is increasing its research efforts to help solve the problem. “Remote sensing provides the technologies both to detect where invasive varieties are occurring and to develop decision support systems—to decide where to put resources to look for invasives,” Shaw said.

Using space-based platforms and infrared technologies, remote sensing offers the opportunity to analyze an area as small as a few square miles or one as large as a hundred square miles, the research team says.

“We can extract features to get a digital map and detect a patch of invasives the size of a room, perhaps before it can be seen by the human eye,” Madsen said.

Armed with early detection of what currently exists and where potential invasion zones might occur, Mississippi State hopes to be part of a holistic approach to addressing the challenges posed by invasive species.

“Dealing with the resources the GeoResources Institute has put together, we want to expand our understanding of where we might have problems, predict the extent of them and suggest the
best management approach,” Shaw said.

“Remote sensing is giving us techniques that can be incorporated by state and federal agencies and laying the groundwork for interagency cooperation,” he said.

**What You Can Do**

Even as Mississippi State research is applied to an ever-expanding problem, research scientists say individuals can take action to help stop the invasion.

Their top advice: don’t plant the top 10 weeds. As attractive as they may be, their long-term impact is devastating. You can help by incorporating only nursery-raised native plants into your landscape plans. For landowners, scientists suggest removing the noxious vegetation, perhaps in consultation with an Extension specialist.

With non-native species causing up to $137 billion in damage annually, resisting an alien invasion is in everyone’s best interest.

![Image of wasp](image_url)

**Mississippi Coast Welcomes South American Wasp**

*By Bob Ratliff*

Most people don’t go looking for wasps, unless it is with a spray can of insecticide, but David Held wants to encourage, not annihilate a particular type of wasp.

Held is an entomologist at Mississippi State University’s Coastal Research and Extension Center in Biloxi. In early October he found a tiny wasp on the Great Southern Golf Course in Gulfport that could be good news for golf courses and homeowners on the Coast.

“The *Larra bicolor* is an aggressive hunter of *Scapteriscus* mole crickets, a major pest in turfgrass,” Held said. “Homeowners and golf course managers in the Southeast spend millions of dollars a year to protect their lawns and fairways from the damage it causes.”

The *Scapteriscus* mole cricket, a native of South America, arrived in the southeastern U.S. about 1900, probably as a stowaway in ships’ ballast. With no natural predators in the Southeast it spread rapidly, causing significant root damage as it burrowed beneath pastures, turfgrass and row crops.

“There are native mole crickets in the Southeast, but their numbers are kept in check by the native wasp *Larra analis,*” Held said. “The native wasp, however, does not usually attack the imported variety.”

There were efforts to import *Larra bicolor* wasps from South America to Florida in the 1940s, but they were unsuccessful and abandoned when the pesticide chlordane was discovered to be an effective and economical method of control. Interest in a biological control method was revived when chlordane was banned by the U.S. Environmental Protection Agency in 1978.

“A University of Florida researcher received permission to import *Larra bicolor* moths from Bolivia in 1988, and a population was established at Gainesville in 1993,” Held said. “They spread to the surrounding areas of Florida but have never been found along the Mississippi Gulf Coast until now.”

The first specimen Held found was sent to the University of Florida, where scientists confirmed that is was a *Larra bicolor.*

The wasp is tiny—less than an inch long—and is black with a red abdomen. It attacks *Scapteriscus* mole crickets, temporarily paralyzing its victims and laying eggs on them. The crickets recover and go on their way, only to be attacked and killed by developing wasp larvae in about two to four weeks. *Larra bicolor* wasps seldom attack native mole crickets since they are not successful hosts for their larvae.

Brooks Mosley, superintendent at the Great Southern Golf Course, welcomes the possibility of a natural control for mole crickets.

“A natural control for mole crickets would be very beneficial for us because we get heavy infestations in our sandy soil,” he said. “We spend about $30,000 a year on chemical control of the crickets, so it will be good to have another option.”

Since finding the first specimen at the Great Southern Golf Course, Held has found *Larra bicolor* wasps at other courses in Biloxi and Ocean Springs.

“So far, the wasp has only been found at courses adjacent to the Mississippi Sound,” he said. “It may be that these sites, being buffered by the coastal waters, provide a suitable microclimate where the wasp can successfully overwinter.”

Held is working with Mosley and superintendents at other area golf course to establish plants, such as the wildflower *Spermacoce verticillata,* or shrubby false buttonweed, to help attract *Larra bicolor* wasps.

“The nectar of *Spermacoce verticillata* is a favorite food source of the wasps, but it is not native to Mississippi,” Held said. “We also are working to identify native plants that can be used to attract and support these natural enemies of mole crickets.”
Mississippi State University, originally named Mississippi Agricultural and Mechanical College, was founded in 1878 to serve as the state’s land-grant institution. As it succeeded in its mission, the school became known as “The People’s College.”

There is still a close identity with the people it serves at Mississippi State, especially in the Division of Agriculture, Forestry and Veterinary Medicine. The units in the division focus on activities that benefit people, whether they live down a country lane or in an urban high-rise.

There are six units in the division: the Mississippi State University Extension Service, the Mississippi Agricultural and Forestry Experiment Station, the College of Veterinary Medicine, the College of Agriculture and Life Sciences, the College of Forest Resources and the Forest and Wildlife Research Center.

Each plays a unique and important role in continuing the tradition of Mississippi State’s service to the people of the state, region, nation, and increasingly, the world.

The Mississippi State University Extension Service

Often described as Mississippi State University’s “classroom in the field,” Extension has offices and educators located in all of the state’s 82 counties.

The MSU Extension Service is a leading provider of non-credit educational opportunities for adults. Originally established in 1914 to help rural residents improve their farming operations and quality of home life, today Extension offers programs for everyone: agricultural and horticultural producers, food processing and food service workers, business owners, forest landowners and managers, wood products industries, elected officials, community leaders, families, parents, children and youth.

Extension programs help working Mississippians excel in their occupations. These programs include training in safe food handling, proper pesticide application, farm and forest management, assistance for entrepreneurs in business start-up, and educational support for existing business enterprises.

Many people have their first encounter with the Extension service through 4-H. The 4-H program helps young people develop the life skills, work ethic and work readiness skills essential to a successful future for themselves and for Mississippi. Young people ages 8 through 18 are not the only ones who benefit from leadership and character-building opportunities found in 4-H. Adult volunteers and 4-H’ers pour themselves into their communities to improve individuals, families and their world.

New industry is bringing increased economic opportunities to Mississippi, but the state remains primarily rural and Extension continues to provide programs that address environmental and agricultural issues, as well as the social and health issues unique to rural communities.

Technology is rapidly changing the way Mississippians live, work and play. Advances in technology also are allowing Extension personnel to reach out in innovative ways to meet the needs of their communities quickly and efficiently. Digital imaging, distance learning, video conferencing, satellite technology, and the Internet have opened new educational doors in both rural and urban areas of the state.

Whether with programs addressing youth development, economic growth or individual life-long learning, MSU’s Extension Service is working to help all Mississippians make their communities the best places for their families to live, work and play.
“MAFES scientists work on real problems facing Mississippi and often have the pleasure of seeing the fruits of their labors put to work in the state.”

VANCE WATSON
Director, Mississippi Agricultural and Forestry Experiment Station

Providing research support for agricultural and other enterprises has been the mission of the Mississippi Agricultural and Forestry Experiment Station since it was established in 1888. Today, at 18 sites throughout the state, MAFES scientists carry out their mission of using science-based research to benefit agribusiness in Mississippi and to address associated social and environmental issues.

Experiment Station scientists work on the Mississippi State University campus in Starkville and at Mississippi’s four research and extension centers: the Hiram Palmertree North Mississippi Research and Extension Center in Verona, the Delta Research and Extension Center in Stoneville, the Central Mississippi Research and Extension Center in Raymond, and the Coastal Research and Extension Center in Biloxi. In addition, there are branch stations, research units and other MAFES facilities in Holly Springs, Pontotoc, Prairie, Crystal Springs, Newton, Beaumont, White Sand, McNeill, Pascagoula, Gulfport and Brooksville.

Research also is conducted on the farms of cooperating producers to ensure that results can be effectively applied to the needs of farmers in all areas of the state.

MAFES scientists use the latest technology in their research to make sure technological advances can be applied to the needs of Mississippi enterprises. The basic goals of their work, however, remain based on the philosophy of meeting society’s food and fiber needs through sound science that provides good stewardship of natural resources. Those goals are to:

• Develop an agricultural production system that is highly competitive in the global economy.
• Ensure a safe and secure food and fiber system.
• Protect and enhance environmental quality and conserve natural and renewable resources.
• Increase the value added from processing Mississippi’s agricultural products and enhance food safety, quality and market efficiency.
• Enhance the socioeconomic development of rural communities, the farm family and the economy of Mississippi.
• Enhance animal and crop production systems.
• Enhance the efficiency of the aquaculture and seafood industry in Mississippi.
“The college’s strength lies in its faculty, staff and students’ desire to exceed the expectations of those they have the opportunity to serve.”

GREGG BORING
Interim Dean, College of Veterinary Medicine

The College of Veterinary Medicine was established by the Mississippi Legislature in 1974. The first class was admitted in 1977 and graduated in 1981. The college has graduated more than 900 veterinarians, and more than half of the veterinarians in Mississippi are alumni of MSU-CVM.

Fully accredited by the American Veterinary Medical Association, the college is committed to improving both the economic and intellectual resources of Mississippi. It is Mississippi’s primary health source for livestock and companion animals. The college also provides statewide surveillance for diseases of economic importance to the agricultural community or of potential public health significance, such as avian influenza and West Nile virus.

The four-year professional curriculum provides courses leading to the Doctor of Veterinary Medicine degree. Graduate programs offered in the college lead to masters and doctoral degrees in selected areas of specialization, including infectious diseases, toxicology, pathology, aquatic medicine, avian medicine, and production animal medicine. The college also cooperates with Hinds and Northwest Community colleges in the delivery of a two-year veterinary technology curriculum.

The college’s professional curriculum is designed with the flexibility to address the challenges faced in preparing health professionals in an era filled with medical advancements and a proliferation of information.

The Animal Health Center is the college’s teaching hospital. The center’s goal is to be the preferred regional referral resource for medical and surgical animal health needs. The faculty and staff is meeting increasing requests from veterinary practitioners and animal owners while maintaining excellence in clinical education.

The Mississippi Veterinary Research and Diagnostic Laboratory system is a comprehensive network of laboratories located in Jackson and Stoneville and on the Starkville campus. The system serves as a valued resource for the region while gaining national recognition in poultry and aquatic disease research and diagnostics. In 2003, the laboratory handled more than 78,000 requests for diagnostic assistance. Construction is under way in Jackson on a new $18.5 million leading-edge, full-service diagnostic laboratory. Completion is expected in 2005.

The College of Veterinary Medicine’s research efforts are primarily focused on food safety, infectious diseases and population medicine. MSU-CVM researchers are working to develop vaccines and other disease management tools and strategies to reduce production losses related to animal health.
“Graduates of the College of Agriculture and Life Sciences have a long tradition of assuming leadership roles, not just in agriculture, but in virtually every profession.”

VANCE WATSON
Dean, College of Agriculture and Life Sciences

There are almost 1,500 students enrolled in the various programs offered by MSU’s College of Agriculture. Those students—including more than 1,200 undergraduates—make up about 10 percent of the university’s total student body.

CALs students are a diverse group. They come from rural, urban and suburban environments and have career goals that range from protecting the environment to the practice of medicine. CALs graduates go on to successful careers in biotechnology, agricultural engineering, business, government, veterinary medicine, food technology and almost every aspect of production agriculture.

Undergraduates have the opportunity to develop leadership and interpersonal skills through participation in more than 30 student organizations in the college. Many of these have affiliations with national professional organizations, including the American Institute of Floral Design, American Society of Landscape Architects and National Agri-Marketing Association.

Students enrolled in the college’s 16 Bachelor of Science degree programs and graduate programs come from every state in the nation and a host of foreign countries.

The college’s undergraduate degree programs include:

- Agricultural Engineering Technology and Business
- Biological Engineering
- Agribusiness
- Agricultural Economics
- Agricultural Information Science
- Agricultural Science
- Animal and Dairy Sciences
- Biochemistry and Molecular Biology
- Agricultural Pest Management
- Food Science and Technology
- Human Sciences
- Landscape Architecture
- Landscape Contracting and Management
- Agronomy
- Horticulture
- Poultry Science
Founded in 1954, the College of Forest Resources is the only college of its kind in the Mississippi and one of the nine degree-granting colleges and schools at MSU.

The college was founded to provide education, research and service opportunities on forests and associated renewable natural resources for the state, region and nation. In achieving those goals, the college has earned an international reputation as a center for science and education programs in forest resources management and use.

The college promotes the professional and intellectual development of its students. It also expands through research the fundamental knowledge upon which the natural resource disciplines are based, and helps with the development and use of the forest, wildlife and water resources of the state and nation through appropriate applied research, service and technology transfer activities. Since its inception, some 3,109 students have graduated from the college with bachelors, masters and doctoral degrees.

"Mississippi’s forests, rivers, streams and natural areas are a rich heritage and tradition, which we pass on to future generations. Scientists in the Forest and Wildlife Research Center conduct research focused on sustaining and improving this heritage and the quality of life enjoyed by all Mississippians. Likewise, in the College of Forest Resources, we train our students to be good stewards of the land and resources.”

B O B L. K A R R
Interim Dean and Interim Director
The Forest and Wildlife Research Center at MSU was established by the Mississippi Legislature with the passage of the Renewable Natural Resources Research Act of 1994. The center conducts research and provides technical assistance programs relevant to the efficient management and use of the forest, wildlife and fisheries of the state and region, as well as the protection and enhancement of the natural environment associated with these resources. The FWRC scientists conduct this research in laboratories and forests administered by the university and cooperating agencies and industries throughout the country.

The FWRC produces and communicates information and technology relevant to the efficient management, conservation and utilization of Mississippi’s forest, wildlife and fisheries resources. It is committed to conserving and enhancing the natural environment associated with these renewable resources. In fulfilling this mission, the FWRC conducts fundamental and applied research that will improve the economic progress of Mississippi by encouraging growth and development of forest-based industries.

The FWRC has responsibilities for developing through research:

1. natural resource management systems that ensure optimal production of goods and services while protecting, sustaining and enhancing forest, wildlife and aquatic environments;
2. harvesting and manufacturing technologies that promote efficient utilization of the state’s timber resources;
3. biological and economic databases that address specific problems and opportunities related to the state’s forest, wildlife and fisheries resources, including environmental issues related to these resources;
4. policy analyses that provide options for renewable resource management and use in Mississippi;
5. basic studies that will enhance the knowledge necessary to conduct the above research.

Institute of Furniture Manufacturing and Management

The Institute of Furniture Manufacturing and Management is an inter-unit, collaborative effort within Mississippi State University—including the College of Forest Resources; Forest and Wildlife Research Unit; College of Business and Industry; College of Engineering; College of Architecture, Art, and Design; and the MSU Extension Service. The primary mission of the institute is to enhance the long-term competitiveness and prosperity of the furniture industry in Mississippi and the U.S. by expanding the fundamental and applied knowledge of furniture products and management, by transferring new knowledge to the industry and by enhancing workforce capabilities.

Berryman Institute

The Berryman Institute is a national organization based in the Department of Forestry, Range, and Wildlife Sciences at Utah State University (Berryman - West) and the Department of Wildlife and Fisheries at Mississippi State University (Berryman - East).

The institute is named after Jack H. Berryman, a 30-year U.S. Fish and Wildlife Service veteran, to honor his distinguished career in wildlife management. It is dedicated to improving human-wildlife relationships and resolving human-wildlife conflicts through teaching, research and extension, with the goal of helping create a world where neither humans nor wildlife have an adverse impact upon the other.

The institute’s 1999 affiliation with Mississippi State has increased its number of research projects, particularly those on human-wildlife interactions east of the Mississippi River.
When Regan’s owners brought the 4-month-old golden retriever in, the attending veterinarians knew they had to work quickly to save the puppy’s life.

“The puppy was playing outside at her home and suddenly began having severe difficulty breathing. The referring veterinarian sent her here, and when we took X-rays, we saw something round in her windpipe,” said Dr. Andrew Mackin, service chief of the Small Animal Internal Medicine Service at Mississippi State University’s College of Veterinary Medicine.

Mackin said it was necessary to anesthetize Regan even though doing so is risky in an animal with an airway obstruction.

“We put the bronchoscope down her airway and found, right down where the airway splits in two, this big, round lump of what looked like wood. We were very lucky that we got the snare around the object on the first try and popped it out,” Mackin said. “When we pulled it out, we saw that it was an acorn.”

Once the acorn was removed, Regan was back to 100 percent.

“Without this scope, there was just no way we could have solved Regan’s problem without major chest surgery, which would have been pretty risky and very difficult,” Mackin said.

Life-saving emergency rescues are not necessarily typical with endoscopy equipment, but the minimally invasive scopes often enable doctors to diagnose and treat animals without major surgery. MSU’s veterinary college recently purchased a number of new flexible and rigid endoscopes for clinical use, completing the array of scopes necessary for performing both routine and specialized endoscopic procedures.

Scopes often are used to place feeding tubes in cats with hepatic lipidosis, or fatty liver. This severe liver disease used to be almost always fatal because cats would stop eating and eventually starve to death.

“Now, in about five to 10 minutes, we can use the scope to put a feeding tube in the cat’s stomach. The tube is very well-tolerated, and the cat can be at home and very happy and active, with the owners feeding via the tube twice a day until the cat’s appetite comes back and the fatty liver resolves,” Mackin said. “We’ve saved plenty of cats’ lives this way.”

These scopes are used to examine the nasal passages, trachea and major airways, esophagus, stomach and much of the small intestine, all of the large intestine and colon, and the urethra and urinary bladder on most dogs and cats. Looking at the inner surface of these various hollow organs and tubes allows Mackin to diagnose foreign bodies, infections, tumors and various inflammatory conditions.

“Looking at the stomach and small intestine with the gastroscope alone, I can diagnose swallowed objects, inflammatory bowel disease, gastric ulcers, stomach tumors and even, on occasion, stomach worms,” Mackin said. “As far as treatment goes, I can remove foreign bodies from the nose, airways, stomach and colon—things like stones, sticks, coins and rubber toys.”
Another recent case involved a dog that had a sharp bone temporarily stuck in its food pipe, deep in the chest cavity, that created a hole between the food pipe and the lungs. The bone eventually moved on, but a small hole remained.

"Every time the dog ate or drank, food and water would leak from the food pipe into the lungs, and the dog would cough," Mackin explained. "Using a scope in the airways, we found the small hole and passed a wire probe through it, from the airway into the food pipe."

Mackin left that probe in place, enabling the surgeon to go in and find the hole. CVM small animal surgeon Dr. Ron McLaughlin then was able to easily locate the hole due to the wire probe left by Mackin, and repair the defect.

McLaughlin said scope technology has revolutionized veterinary medicine because it allows surgeons to see areas that otherwise are difficult to assess. The arthroscope, for example, is used to diagnose and treat joint injuries and disorders.

"The enhanced visualization of joint structures and surfaces leads to greater precision while identifying and treating problems within the joint," McLaughlin said. "In our hospital we use arthroscopy on a daily basis for the diagnosis and treatment of a variety of disorders within the knee, shoulder and elbow of our canine patients. After visualization of these structures, we are able to treat tears within the ligaments or defects within the cartilage surfaces appropriately before stabilizing the joint."

McLaughlin said arthroscopy, combined with computer tomography (CT), has allowed veterinary surgeons the ability to recognize and treat developmental disorders like osteoarthritis before they become debilitating.

The veterinary college also recently began to provide treatment of some small animal abdominal and chest conditions using endoscopic surgical techniques. Laparoscopic surgery for the abdomen and thoracoscopic surgery for the chest are primarily available at only a handful of veterinary surgical referral centers throughout the country.

Endoscopes are not just beneficial to small animals. CVM large animal surgeon Dr. Robert Linford said the instruments frequently are used in horses and sometimes cows.

Problems in horses that can require endoscopic diagnosis or treatment include paralysis of muscles that control the opening to the trachea, abnormal growths or tumors in the nasal cavity or sinuses, and fungal lesions. Linford said the endoscope allows veterinarians to evaluate and often treat problems in areas that are difficult to access and treat with conventional surgery. Treatment through the endoscope avoids the trauma and scarring associated with traditional surgical incisions into the sinuses or nasal cavity.

"We recently examined a horse for a bloody nose. The endoscope allowed us to see that the blood originated from a tumor on the ethmoid turbinates, deep within the horse’s head. Untreated, such tumors often grow big enough to cut off a horse’s ability to breathe," Linford said. "With the endoscope, we were able to detect the problem early and kill the tumor with a 15-minute injection procedure through the scope. The treatment was less painful for the horse, and considerably less expensive than regular surgery."

Cows can have problems when an object lodges in the esophagus, preventing the animal from releasing excess gas from one of its four stomachs. The endoscope is used to see what kind of object is causing the problem and whether it can be pulled out or treated.

Besides the obvious benefit of providing better care to patients, the scopes also are used to give veterinary students a real-life experience they otherwise might not have.

"We use the scope to demonstrate what the inside of various parts of the animal looks like, and to teach. In particular, by becoming familiar with the scope, our students, interns and residents can then decide if having a scope will be useful for their practice," Mackin said.

Most specialty practices have scopes, and general practitioners increasingly are buying them. Mackin said the more individual veterinarians start using scopes, the more minimally invasive diagnoses and treatments will become possible.
Coastal Research and Extension Center dedicates new building complex

By Bob Ratliff

From its establishment in 1988 until last year, Mississippi State University’s Coastal Research and Extension Center was housed in rented office space in Biloxi. That changed in mid-2004 with the completion of the center’s new home on 30 acres adjacent to Biloxi High School.

The 24,000-square-foot facility was dedicated during Dec. 17 ceremonies. MSU officials, representatives of the Biloxi school systems, state and local government representatives, and others were on hand for the dedication.

“We are entering a new era in our relationship with the people of South Mississippi,” said MSU President Charles Lee. “This facility enables the center’s personnel to better carry out their missions of research, continuing education and service to the public.”

The three-building complex includes a distance learning center and conference rooms, biological and chemical laboratories and offices for MSU Extension Service personnel, Mississippi Agricultural and Forestry Experiment Station scientists and support staff.

Land for the center was provided by the Biloxi Public School District, which will benefit from the proximity of the facility to schools, said Larry Drawdy, Biloxi Public School District superintendent when the partnership between the school system and the center was established.

“The MSU research and extension center came to be located on property owned by the Biloxi school system because we saw a cooperative spirit of MSU personnel to work with K-12,” he said. “The Biloxi school system will benefit from the center’s distance learning and video conferencing capabilities, as well as from landscaping assistance and staff development opportunities.”

Other speakers during the dedication ceremony included Paul Tisdale, current Biloxi Public School District superintendent; Virginia Newton, member of the Board of Trustees of State Institutions of Higher Learning; and Vance Watson, MSU vice president for agriculture, forestry and veterinary medicine.

David Veal, head of the center, noted that personnel at the Biloxi facility and other facilities coordinated by the center conduct programs focused on food, fiber, plant systems and the environment.

The center coordinates activities at eight other facilities: Coastal Aquaculture Unit, Gulfport; Crosby Arboretum, Picayune; Experimental Seafood Processing Lab, Pascagoula; South Mississippi Branch Experiment Station, Poplarville; White Sand Research Unit, Pearl River County; McNeil Unit, McNeil; and Beaumont Horticulture Unit, Perry County.

The center’s programs are carried out in partnership with Alcorn State University and the Biloxi Public School District.

“We are entering a new era in our relationship with the people of South Mississippi,”

MSU President Charles Lee
Cutting the dedication ribbon for the Coastal Research and Extension Center were, from left, Ed Blakeslee, IHL Board; Larry Drawy, past superintendent of Biloxi Public School District; Charles Lee, MSU president; Virginia Newton, IHL Board; Paul Tisdale, superintendent of Biloxi Public School District; Scott Ross, IHL Board; and Vance Watson, MSU vice president for agriculture, forestry and veterinary medicine.

Coastal Research and Extension Center business manager Diane Hughes visits with Biloxi residents Mr. and Mrs. Richard Elzey during the new facility's open house.
“Mississippi State is the only university in North America to offer a course in wildlife forensics and one of a few universities offering a degree in wildlife law enforcement.”

Rich Minnis
You may think television has the crime scene investigation landscape covered with programs set in New York, Las Vegas, Miami and anywhere the U.S. Navy operates. It has, however, missed a location where a lot of laws are broken: the nation’s hunting and recreational fishing areas.

Teaching current and future wildlife law enforcement officers how to investigate wildlife crime scenes is something professionals in Mississippi State’s College of Forest Resources have done since 1983. Among those professionals is assistant research professor Rich Minnis.

“Wildlife crime scenes are outdoors and cover an extremely large area, unlike most traditional crime scenes, which are indoors and very small,” Minnis said. “As a result, we have to be innovative and adapt the techniques used in traditional forensics for wildlife.”

Forensics is the application of scientific procedures to criminal investigations, and MSU’s experience in the field began with continuing education courses for conservation officers and other law enforcement professionals. The scope of the program increased in 2004 when Minnis and his wife, Clare Chesnavage, taught a forensic science course for undergraduate wildlife law enforcement students.

“Mississippi State is the only university in North America to offer a course in wildlife forensics and one of a few universities offering a degree in wildlife law enforcement,” Minnis said.

The husband-wife team agrees that officers investigating crimes ranging from hunting out of season to importing restricted animals face challenges not encountered by their urban counterparts.

“Many times the same officer will work a crime scene, collect evidence and present the results in court,” explained Chesnavage, who has worked for the Naval Criminal Investigative Service. “As a result, we emphasize how to properly identify and collect evidence so it can be examined in the lab and then finally presented in the courtroom.”

Another first for the program came in September 2004 when MSU hosted a wildlife crime scene investigation training session in conjunction with the U.S. Fish and Wildlife Service Forensics Laboratory.

The three-day course was open to officers with wildlife and fisheries management agencies in the Southeast and was previously only available to USFWS special agents at the Federal Law Enforcement Training Center in Georgia.

Captain John Moran with the Florida Fish and Wildlife Conservation Commission’s Division of Law Enforcement Investigation Unit was one of the participants in the course and he said such training is important because of wildlife officers’ responsibilities for both law enforcement and investigation.

“We’re trying to provide officers with as much investigation information as possible because in most states wildlife officers do not have full access to state crime labs,” he said. “I hope what Mississippi State started with this course will continue and expand to include sessions that will provide training and resources to enable participants to go back to their states and train other officers.”

### The top ten wildlife violations for 2004, according to the Mississippi Department of Wildlife, Fisheries and Parks...

1. No license - resident = 2572
2. Hunting from public road = 1043
3. Trespassing = 958
4. Baiting = 859
5. No hunter orange = 717
6. No boat registration = 680
7. Violation of personal flotation device and running lights = 655
8. Unlawful possession = 515
9. No fishing license - non resident = 455
10. Headlighting deer = 379
Long hours of practice paid off for Mississippi State University’s Dairy Products Evaluation team at the International Collegiate Dairy Products Evaluation Contest.

The MSU undergraduate team placed first among 18 U.S. and Canadian teams at the Nov. 6 event in Lakeland, Fla. The win marked more than a dozen times Mississippi State students have taken top honors in the event.

The contest included judging eight samples of six types of dairy products—milk, Cheddar cheese, yogurt, ice cream, butter and cottage cheese, said food science professor Charles White.

“Official industry judges prejudge the samples of each product type,” White said. “The students then evaluate the products, and the students whose scores most closely match those of the official judges are declared product winners and overall winners.”

The three-member MSU undergraduate team included Neil Bogart of Birmingham, Ala., Justin Larsen of Decatur, Ala., and Eric Steer of Cottage Grove, Tenn. All are seniors in the Department of Food Science, Nutrition and Health Promotion.

Bogart was the high-scoring individual in the all-products division of the competition and won “The Best Taster in the Land” honors.

“While training for the competition, I learned to identify the attributes dairy products—both good and bad,” Bogart said. “I plan to work in the dairy industry following graduation and what I’ve learned will help me deal with real-life situations that occur in the processing of dairy products.”

Larsen was the second-high-scoring individual. “It’s rare for a school to have the first- and second-place overall winners,” White said. “This year’s team worked extremely hard for the honor, coming in to practice every morning at 6:30 this semester.”

Steer finished 12th overall out of 54 contestants. He also won the Joe Larson Merit Award, an honor given to the student displaying outstanding professionalism, courtesy and leadership skills.

MSU graduate student Estela Casapia of Peru also took honors in the Graduate Student Division, finishing fifth overall and placing first in ice cream and second in butter and cottage cheese.

White and food science research associate Julie Wilson coach the team. White has coached eight championship teams since joining the MSU faculty in 1985. He and Wilson have worked together on the last four.

“The competition is extremely intense, with each contestant required to make more than 400 decisions about the quality of a variety of dairy products within a four and a half hour time span,” White said. “The experience they gain through the completion means they will not have to rely on someone else to judge the quality of a product during their careers in the food industry.”

Earlier this year, MSU students also won a regional competition at the Kraft Research Center in Chicago. Larsen finished first overall. Junior Giovanni Duran from Belize, South America, finished second, and junior Mary Edith King of Carriere took third-place honors.
It was more than a typical day at the clinic, but Mississippi State veterinarians responded to the challenge of treating an out-of-the-ordinary 300-pound patient.

They immediately went into action when a 12-year-old lioness named Friday was brought into the Animal Health Center from Cedarhill Sanctuary in Caledonia.

“She was very sick,” said Dr. Thomas Lenarduzzi, service chief and associate clinical professor of primary care, avian, exotic and wildlife at the university’s College of Veterinary Medicine. Friday is among nearly two dozen formerly abused or abandoned great cats—including cougars and tigers—the 17-year-old animal sanctuary currently has in residence. Loss of appetite, nausea and licking were symptoms that told Lenarduzzi that Friday needed quick attention.

The veterinary team began work in the early afternoon, initially injecting the animal with anesthesia that allowed them to safely remove her from the transporting trailer. Once she was calmed, they could employ a gas anesthesia that allowed them to begin diagnosis.

“We have to follow the clinical symptoms,” Lenarduzzi said, adding the team started by ruling out some immediate possibilities such as an obstruction in Friday’s mouth. A series of tests followed, including an endoscopic examination of the esophagus and stomach, radiographs, ultrasounds and blood work.

Lenarduzzi said the doctors soon discovered a serious uterine infection that had leaked to the abdomen, causing peritonitis. Within a matter of hours, Friday was undergoing an ovariohysterectomy.

“She continued to receive antibiotics and was released back to Cedarhill.

Established in 1987 by Kay McElroy, Cedarhill is a nonprofit sanctuary that rescues animals such as Friday. Once received, the animals are cared for throughout the remainder of their lives.

“We currently have 229 animals, many unadoptable,” McElroy said. Included with the great cats are a range of animals such as dogs, domestic cats, coyotes and pot-bellied pigs. The sanctuary’s focus is care of the animals, and it is not open to the public, she explained.

While Friday recuperated, McElroy was at MSU every day to visit and feed her. “I’ve had her since she was 4 months old,” she said.

Lenarduzzi said MSU’s College of Veterinary Medicine also has removed a foreign object from a cougar and performed orthopedic surgery on a tiger, both from Cedarhill. The clinical veterinarians also have worked with sea turtles, exotic birds such as parrots, and even guinea pigs from other Mississippi locations, he said.

“We don’t treat venomous snakes or primates because of the risks associated with them,” he explained, adding that cases such as Friday’s are accepted only with the strictest precautions for the safety of faculty and assistants.

MSU’s Animal Health Center, a part of the College of Veterinary Medicine, treats approximately 8,000 animals each year, most referred by veterinarians.

By Maridith Walker Geuder

MSU clinical veterinarians give ‘king of beasts’ royal treatment
Cummings named 2004 Outstanding Extension Worker

Yalobusha County Extension Director Steve Cummings has been named the 2004 Outstanding Extension Service Worker.

Cummings’ career with the Mississippi State University Extension service has spanned 25 years. He has served in Yalobusha County since his appointment as county agent in 1987.

Cummings, a native of Pontotoc County, earned a bachelor’s degree in animal science at Mississippi State.

As county Extension director, his duties range from working one-on-one with farmers and homeowners to assisting with the activities of organizations as varied as the local Homemakers Volunteers and the county 4-H program.

In nominating Cummings for the outstanding Extension worker award, representatives of the Yalobusha County Farmers group noted his strong commitment to their needs.

“Whenever we call on him with a problem or questions, he goes out of his way to get the answers as soon as possible,” Young Farmer member Kevin Kimzey said. “He has frequent informal meetings with just the farmers of our county to find out our needs.”

Wise named 2004 Outstanding MAFES Worker

A research scientist dedicated to protecting the health of farm-raised catfish has been named the 2004 Outstanding Mississippi Agricultural and Forestry Experiment Station Worker.

David Wise has been researching the causes and treatment of fish diseases at Mississippi State University’s Delta Research and Extension Center since 1993. He currently serves as a research professor at the center’s Thad Cochran National Warmwater Aquaculture Center.

Wise leads a research team that is always ready to assess and develop treatments for new diseases potentially threatening the catfish industry. One such threat was a parasite infestation that began appearing sporadically in the south Delta during spring 1999.

“By fall of that year, it was evident the disease was causing large losses of young fish in many ponds in all but the most northern parts of the Delta, and a crisis atmosphere gripped the fish-farming community,” said Craig Tucker, director of the National Warmwater Aquaculture Center. “Dr. Wise and a small team of research and extension experts from Mississippi State stepped in to quickly assess the problem, solve it and deliver the solution to producers.”

Wise, a native of Austin, Texas, earned his bachelor’s degree in aquatic biology at Southwest Texas State University and a doctorate and master’s in microbiology and aquaculture, fisheries and wildlife, respectively, at Clemson University.
His future is the State of the future. Make sure he has the facilities, professors and programs to make it a bright one. Make a gift today. Call 877-677-8283 or visit www.msufoundation.com.