2006 proves to be year of achievements for A-State

BY ALDEMARO ROMERO
SPECIAL TO THE SUN

JONESBORO — 2006 was a spectacular year for Arkansas State University in terms of research achievements. It has provided ASU with both good regional reputation and financial resources.

With researchers working in areas ranging from environmental history to molecular biosciences and in all corners of the world, including Antarctica, ASU is becoming a regional research powerhouse.

The list of all those achievements would be too long to fit in an article like this, so here's just a few examples of ingenuity, innovation and applications that ASU faculty and students have accomplished in 2006:

Agriculture and food

Dr. Jennifer Bouldin and her collaborators have been studying natural and man-made ditches, greenhouse tubs and the plants found in these ditches and have been able to show the advantages of leaving plants in our ditches. Dr. Tanja McKay and her collaborators have been conducting a series of experiments to establish whether or not poultry litter affects the biodiversity and abundance of ground-dwelling organisms. Dr. Maureen Dolan and her collaborators are using DNA techniques to ensure labeling accuracy of herbal or dietary supplements.

Health sciences

Dr. Malathi Srivatsan has been looking at the mechanisms of molecules in the nervous system that provide protection to the nervous tissue while developing new insights on nerve regeneration that one day will improve the health of people with nervous system-related handicaps. Dr. Argelia Lorence and her collaborators have discovered a new route leading to vitamin C formation in a plant known for its generic name as Arabidopsis. Dr. David Gilmore and Dr. Lisa Shefelton have been keeping careful track of staphylococcus infections among ASU students and student athletes and concluded that the staph strains are becoming more difficult to treat with antibiotics.

Energy

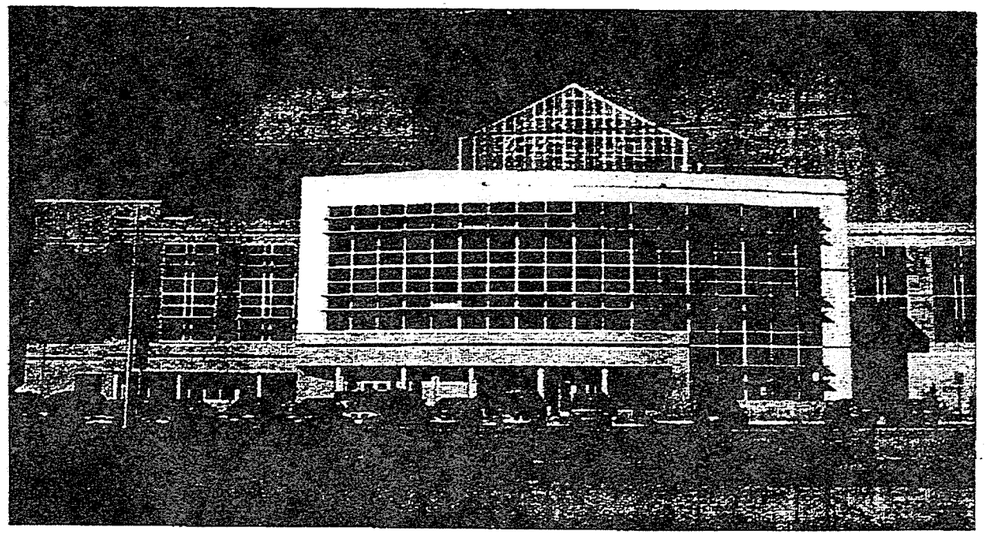
Dr. Elizabeth Hood has developed technology that can be used to break down cellulose into glucose so it can be fermented into ethanol which is cost competitive with gasoline, while Dr. Chris Edrington has developed a more reliable and efficient electrical apparatus called a switched reluctance machine that because of its efficiency is poised to become a tool for many "green power" applications.

Environmental sciences

Dr. Robyn Hannigan has been studying fish ear bones (otoliths) that record the chemistry of the water to identify the essential habitats of brown trout and walleye in central Arkansas. Dr. Carolyn Dowling has been studying the quality of groundwater in Arkansas and elsewhere in order to make sure that this resource so important for our economy and way of life remains clean and plentiful, not like in other areas of the world that she has studied where arsenic contamination has jeopardized the health of millions of people.

Environmental studies

Dr. Gregory Hansen has been conducting folklife studies in the Mississippi Delta areas aimed at helping understand the connections between cultural creativity and natural environments by looking at how people of Hindu heritage adapt to life in the South. Dr. Julie Morrow has been excavating mastodons and a paleollama providing insight on the megafauna that lived in Arkansas and adjacent states more than 10,000 years ago. Dr. Erik Gilbert has been looking at how political and social policies have affected the ecology of mangroves in East Africa, and the author of this article has been documenting the environmental history of whaling in the Caribbean.



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Arkansas Biosciences Institute is one of the new research facilities at Arkansas State University.

Psychology

Dr. Amy Pearce, Dr. Irina Khramtsova and collaborators in Russia have conducted cross-cultural studies addressing the characteristics and traits men and women look for in romantic partners.

Wildlife research

Dr. Jim Bednarz and some of his graduate students found a swallow-tailed kite nest for the first time in 112 years in Arkansas. Graduate student Mauricio Solis has identified nest sites, feeding grounds and local movements of Timber Rattlesnakes in Northeast Arkansas in order to establish conservation efforts and legal protection for this ecologically important species. Another graduate student, Stephan Brandeburra, discovered that the Indiana bat, a federally endangered migratory species, forms maternity colonies in large trees.

Some of the wildlife research at ASU has brought international media attention: Dr. Stanley Trauth's work on the reproduction of western slimy salamanders in an abandoned gold mine in the Ouachita National Forest was filmed by a BBC team led by Sir David Attenborough, the world's foremost nature documentarian.

All this research activity has attracted funding from the National Science Foundation, the National Institute of Health, the Environmental Protection Agency, the Department of Defense, the Department of Homeland Security, the Department of Education, the U.S. Fish and Wildlife Service and the Arkansas State Game and Fish Commission, among others.

ASU has also improved its science-related teaching facilities by enhancing its science teaching labs and introducing new teaching tools such as the use of "clickers" that allow much more interaction between instructors and students.

That will further enhance research opportunities for ASU faculty and students, as will new initiatives such as interdisciplinary roundtables aimed at developing collaboration among researchers with different backgrounds as well as agreements with foreign institutions such as Galen University of Belize.

Thus, ASU as an institution is now a powerhouse for research at the state level, and with the new plans such as the Biodiversity Center, it is aiming at becoming a research powerhouse in the mid-South.

For more information contact the A-State Department of Biological Sciences at biology@astate.edu.

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