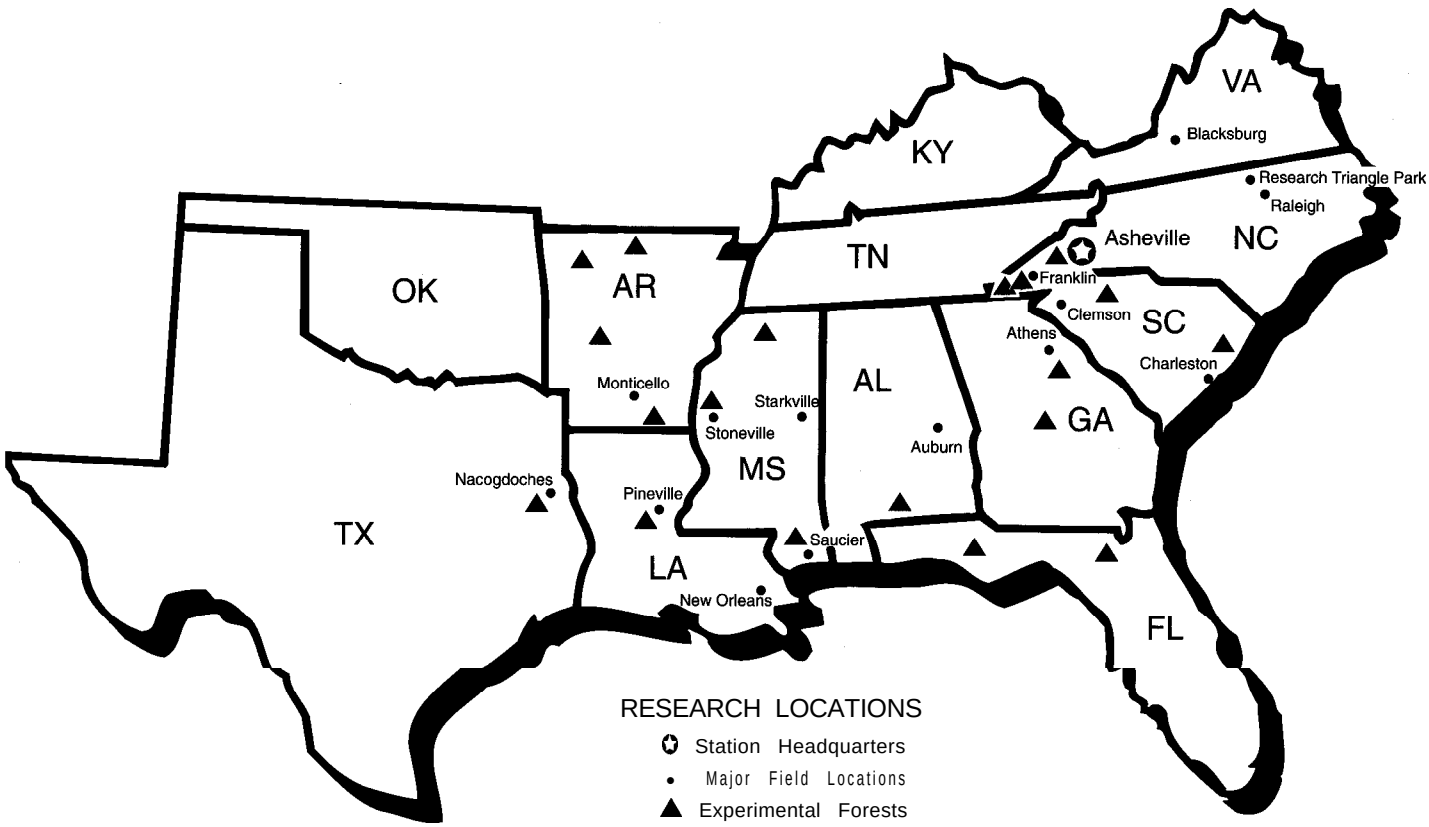
Annual Report for 1999

Southern Research Station

United States
Department of
Agriculture

Forest Service



Our mission is to create the science and technology needed to sustain and enhance southern forest ecosystems and the benefits they provide.

Southern Research Station

USDA Forest Service
Southern Research Station
200 Weaver Boulevard
P.O. Box 2680
Asheville, NC 28802

February 2000

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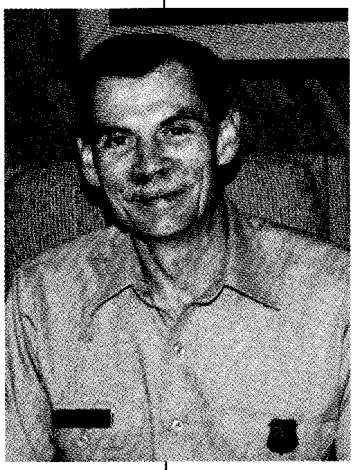

I am pleased to provide you with the Southern Research Station's (SRS) annual report for fiscal year 1999 (FY99), which covers the period from October 1, 1998 to September 30, 1999. It includes an overview of our research, development, and technology transfer; examples of accomplishments; and a list of our publications for the year. While this report highlights accomplishments from FY99, many are based on the long-term research that underpins our continuing, valuable contribution to the body of knowledge we provide for the sustainability of forested lands and natural resources.

The SRS has a long history of excellence in forest research, and has added to and enriched that legacy this year. We received significant recognition in a high number of the Forest Service Chief's Honor Awards as well as those from our cooperators and customers. Our products were outstanding in quantity and quality-ranging from publications like the general technical report on sycamore pests, to our annual forest inventory, to commercially published books on outdoor recreation and social aspects of forestry.

In cooperation with the Southern Region of the USDA Forest Service and other agencies, we have already begun to work on the charge from the Chief of the Forest Service to conduct an assessment of all southern forest resources. We look forward to the release of the Ozark-Ouachita Highlands Assessment in early 2000.

Year 2000 brings challenges, primarily in serving our customers' needs within shrinking Federal budgets. We have gone a long way toward increasing our capacity to do work by converting to a new computer system and implementing upgrades for timekeeping, travel, financial record keeping, and purchasing. The SRS Web site attracted a half million hits from over 70,000 individual visitors, and has been recognized as a government Internet leader and innovator.

We are committed to meeting the needs of the American people in applying research findings and new technological developments to sustainable land and resource management. As always, we encourage you to contact us with any questions you may have about the work we do.

Web site: http://www.srs.fs.fed.us

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PETER J. ROUSSOPOULOS
Director

FY 99 Accomplishment Summary

Research Work Units	*25*
Publications	*528*
Web sites (research work units).	*16*
Web sites (other SRS)	*4*
Publication requests filled	
Hard copy	*33,500*
Online-electronically downloaded	*151,000*
Site tours	*283*
Presentations	*617*
To scientific societies (invited).	*192*
To lay organizations (invited)	*181*
To other science groups	*244*
International activities	*65*
Conservation Education Intern Program contacts	*8,000*
Total employees..	*470*
Scientists..	*132*
Budget (Research funds only)	*$39,691,000*
Awards to States, universities, and other Federal agencies (all funds)	*$8,478,648*
External funding received from non-Federal Sources and other Federal agencies	*$2,724,439*
Collaborating organizations	***118***

Caring for the Land and Serving People

The Basics:
Your Tax Dollars at Work

The Basics: Your Tax Dollars at Work

Snapshot of the Southern Research Station

Our ***mission is to create the science and technology needed to sustain and enhance southern forest ecosystems and the benefits they provide.***

The Southern Research Station (SRS) is part of the Nation's largest forestry research organization—USDA Forest Service Research and Development. Since early in the 20th century, SRS scientists have excelled in studies on temperate and tropical forests, forest resources, and forest products. These studies provide a wealth of long-term data sets and conclusions on the dynamics of tree plantations and natural stands, watershed management, and wildlife habitats.

Working at laboratories, experimental forests, and university campuses throughout the South, SRS scientists produce research results that are useful to producers and consumers of forest products and services. These include commodity and industry associations, conservation groups, landowners, educators, professional societies, legislative bodies, and managers of local, State, and Federal agencies. Our scientific workforce is divided into research work units that are headquartered at 16 locations throughout the South; we are responsible for forest land research, technology transfer, and inventory and monitoring for 13 Southern States. Our research findings reach far beyond benefits to the citizens of the South; they have valuable applications throughout the nation and internationally as well.

Our strategic plan, *The Strategic Framework for the Southern Research Station,* continues to shape our work and budget planning, and supports the Forest Service Natural Resource Agenda. The Natural Resource Agenda focuses on four key areas that need to be addressed on a national basis: watershed health and restoration, recreation, forest roads, and sustainable forest ecosystem management.

This annual report includes updates about the SRS strategic framework, accomplishments during FY99, an overview of our research work units (RWU) and experimental forests, and new activities in research and development.

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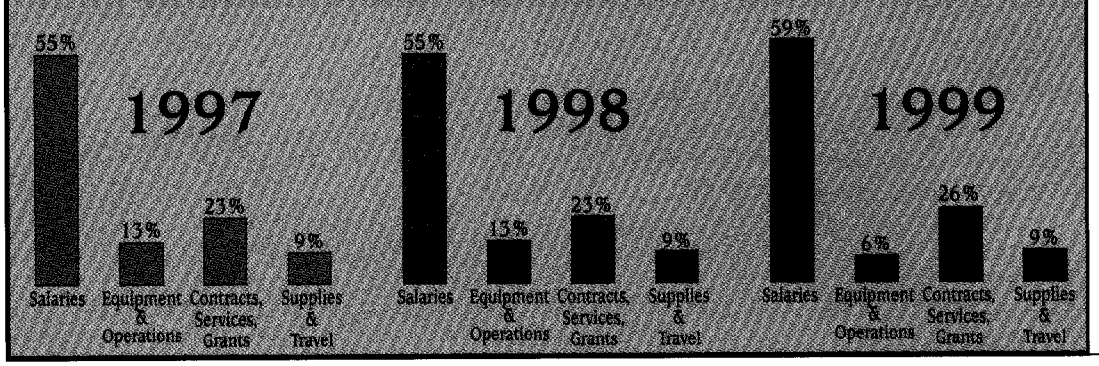
Allocations to Resource Categories

FUNDAMENTAL PLANT SCIENCE	$3,861,000
SILVICULTURAL APPLICATIONS	4,168,000
QUANTITATIVE ANALYSIS	1,216,000
FOREST AND RANGELAND MANAGEMENT	1,722,000
FOREST OPERATIONS ENGINEERING	958,000
INSECTS/DISEASES/EXOTIC WEEDS	5,072,000
FIRE SCIENCE	1,007,000
TERRESTRIAL WILDLIFE	1,756,000
AQUATIC HABITAT	857,000
WATERSHED	1,894,000
ATMOSPHERIC SCIENCES	1,441,000
ECONOMICS	1,578,000
WILDERNESS	50,000
SOCIAL/CULTURAL	887,000
FOREST PROD, UTIL AND PROCESSING	1,803,000
FOREST INVENTORY AND ANALYSIS	8,182,000
FOREST HEALTH MONITORING	2,890,000
MONITORING METHODS/APPLICATIONS	349,000
TOTAL	$39,691,000

Three-Year Budget Comparison



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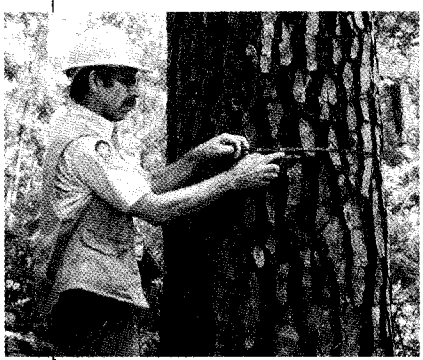
Allocations to Research Work Units

4101	Southern Appalachian Forests Asheville, North Carolina	$ 1,115,000
4103	Center for Forested Wetlands Charleston, South Carolina	1,125,000
4104	Southern Pine Ecosystems Athens, Georgia	1,613,000
4105	Vegetation Management and Longleaf Pine Auburn, Alabama	1,087,000
4106	Upland Forest Ecosystems Hot Springs, Arkansas	1,684,000
4111	Ecological Management of Southern Pines Pineville, Louisiana	1,446,000
4153	Southern Institute of Forest Genetics Saucier, Mississippi	1,771,000
4154	Biological Foundations of Sustainability Research Triangle Park, North Carolina	2,202,000
4155	Bottomland Hardwoods and Wetlands Stoneville, Mississippi	2,858,000
4201	Threatened and Endangered (TES) Species Clemson, South Carolina	786,000
4202	Coldwater Streams and Trout Habitat Blacksburg, Virginia	487,000
4251	Wildlife Habitat and Timber Resources Nacogdoches, Texas	790,000
4351	Watershed Responses to Disturbance Franklin, North Carolina	1,128,000
4501	Southern Pine Beetle Pineville, Louisiana	927,000
4502	Wood Products Insect Research Starkville, Mississippi	1,007,000
4505	Insects and Disease Athens, Georgia	1,719,000
4701	Southern Forest Resource Utilization Pineville, Louisiana	1,110,000
4702	Tree Quality, Processing, and Recycling Blacksburg, Virginia	402,000
4703	Biological/Engineering Technologies Auburn, Alabama	1,106,000
4801	Forest Inventory and Analysis Asheville, North Carolina, and Starkville, Mississippi	8,182,000
4802	Legal, Tax, and Economic Influences New Orleans, Louisiana	939,000
4803	Forest Health Monitoring Research Triangle Park, North Carolina	3,190,000
4851	Economics of Forest Resources Research Triangle Park, North Carolina	939,000
4852	Southern Global Change Program Raleigh, North Carolina	1,441,000
4901	Trends in Recreation and Wilderness Athens, Georgia	637,000
	Total	$ 39,691,000

The Basics: Your Tax Dollars at Work

Collaboration: The Key to Leveraging Appropriated Funds

Collaborative research and development with universities, private corporations, and other Federal and State agencies is a cornerstone of the SRS program. These activities involve the funding of extramural studies under cooperative agreements, grants, and interagency agreements. Working with partners is an effective way to leverage our funding to conduct research efforts **that** benefit a wide range of research results users.



Courtesy *Texas Forest Service*

A total of $8,478,648 supported research studies under these agreements in FY99 with the following:

Domestic non-Federal agreements

Alabama A&M University
Alabama Forestry Commission
Appalachian State University
Arkansas Nature Conservancy
Arkansas Natural Heritage Commission
University of Arkansas
Auburn University
Botanical Garden Foundation
University of California at Berkeley
Clemson University
Colorado State University
Duke University
Eastern Sierra Institute for Collaborative Education
Florida A&M University
University of Florida
Forest Resources Systems Institute
Furman University
Georgia Forestry Commission
UGA Research Foundation, Inc.
University of Idaho
Kentucky Division of Forestry
University of Kentucky
Louisiana Agricultural Experiment Station
Louisiana Tech University
University of Maryland
Michigan Technological University
University of Minnesota
Mississippi State University
University of Mississippi
University of Missouri
National Council of the Paper Industry for Air & Stream Improvement (NCASI)
University of Nevada
University of New Hampshire
North Carolina Department of Environment, Health, and Natural Resources
North Carolina Agricultural Research Service
North Carolina State University
University of North Carolina at Asheville
Oklahoma State University
University of Oklahoma
Pacific Lutheran University
Purdue University
Rutgers University
South Carolina Forestry Commission
Stephen F. Austin State University
Tennessee Department of Agriculture
University of Tennessee
Texas Agricultural Experiment Station
Texas A&M Research Foundation
Texas Forest Service
Tulane University
Tuskegee University
Virginia Commonwealth
Virginia Polytechnic Institute & State University
University of Washington
West Virginia University Research Corporation
Western Carolina University
University of Wisconsin

International

BioComposites Centre
University of British Columbia
Chinese Academy of Forestry
El Colegio De La Frontera Sur
Kyoto University
Kyushu University
Simon Fraser University

Interagency Agreements

USDA Agricultural Research Service
USDA Natural Resources Conservation Service
USDI Geological Survey, Biological Resources Division

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Jumpstarting Collaborative Research Efforts

The Challenge Cost Share program for Research and Development leverages Federal forestry research funds with matching resources from non-Federal sources to accomplish research objectives. The criteria used by the SRS Leadership Team to evaluate and select the proposals to fund include:

- support of the Strategic Framework and Cross-Cutting Themes,
- initiation of collaborative research and development with new partners,
- initiation of new research with existing partners,
- research that contributes to a balanced program aimed at meeting the demand of our multiple partners
- potential to complete research within a 1 -year time frame.

In FY99, 10 proposals were funded:

- Long-term soil and productivity responses following harvesting and site preparation in a coniferous swamp (SRS 4103, $25,000; NCASI, $25,000)
- Modeling carbon sequestration in forest soils (SRS 4103, $7,500; NCASI, $7,500)
- Development of technologies for enhancing site quality and soil carbon (SRS 4103, $25,000; NCASI, $10,000; Weyerhaeuser, $10,000; Georgia Pacific, $5,000)
- Monitoring productivity and environmental quality in southern pine plantations: Phase V-measurement of tree growth and data compilation (SRS 4111, $10,700; Temple-Inland, $7,700; Willamette Industries, $3,000)
- Determining the mode of inheritance of microfibril angle in loblolly pine (SRS 4153, $12,000; Champion International, $3,000; International Paper, $3,000; Temple-Inland, $3,000; The Timber Company, $3,000)
- Estimating soil CO, evolution and changes in soil carbon content in soils supporting intensively managed loblolly pine: effect of harvesting and site preparation (SRS 4154, $30,000; Westvaco, $30,000)
- Ecology and reproductive biology of pond berry (*Lindera melissifolia*) [Walt] Blume) (SRS 4155, $3,000; Arkansas Natural Heritage Commission, $3,000)
- Productivity and canopy processes in southern bottomland hardwood forests (SRS 4155, $5,000; Anderson-Tully, $5,000)
- Roosting behavior of tree bats in forest landscapes of the Interior Highlands of Arkansas (SRS 4251, $13,000; Arkansas Game and Fish, $13,000)

8 Reproductive success and survival of ruffed grouse in response to alternative forest management techniques at Wine Spring Creek Ecosystem Management Project (SRS 4351 and SRS 4101, $7,500; Ruffed Grouse Society, $7,500)

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Jumpstarting Collaborative Research Efforts

Many research work units have agreements to receive external funding from other sources. The FY99 total for these dollars was $682,373 from non-Federal sources. The SRS received $2,042,066 from other Federal sources to support research and development projects designed to meet the missions of the agencies involved.

This external funding came from the following:

Non-Federal Cooperators:

AgrEvo
Alabama River Woodlands, Inc.
American Cyanamid Company
Anderson-Tully Company
Arkansas Game & Fish Commission
Bayer Corporation
Boise Cascade Corporation
Canal Forest Resources, Inc.
Champion International
Composite Panel Association
Derrill L. Hume
DowAgro Sciences, Inc.
DowElanco
Fiber Research International, Inc.
FMC Corporation
Georgia Forestry Commission
Georgia-Pacific Corporation
HPC Enterprises, Inc
International Paper
J.J. Mauget Company
Kriebich Consulting
Lab Services
Mead Coated Board Division
National Council of the Paper Industry for Air & Stream Improvement (NCASI)
National Hardwood Lumber Association
Novartis Crop Protection, Inc.
Potlatch Corporation
Rayonier, Inc.
Resource Management Service, Inc
Rhone-Poulenc Ag. Company
Stephen F. Austin State University
Taensa, Inc.
Temple-Inland Forest Products
Texas Parks & Wildlife Department.
Texas Water Development Board
The Nature Conservancy
The Nature Conservancy of Texas
The Ruffed Grouse Society
The Timber Company
Tim Traxler
Union Camp Corporation
University of Georgia
Virginia Polytechnic Institute and State University
Westvaco
Weyerhaeuser
Willamette Industries, Inc.
Zenica Professional Products

Federal Cooperators:

Environmental Protection Agency
U.S. Department of Agriculture, Foreign Agricultural Service/International Cooperation and Development (FAS/ICD)
U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS)
U.S. Department of Agriculture, Economic Research Service
U.S. Department of the Air Force, Wright-Patterson Air Force Base
US. Department of the Army
U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA)
U.S. Department of Energy
U.S. Department of the Interior, Bureau of Land Management
U.S. Department of the Interior, Fish and Wildlife Service
U.S. Department of the Interior, Geological Survey, National Wetlands Research Center
U.S. Department of the Interior, Geological Survey, National Wetlands Research Center
U.S. Department of the Interior, National Park Service

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Changing the Way We Work: Improving Administrative Efficiency

Administrative service functions for several Forest Service units have been unified under the Eastern Administrative Zone (EAZ). The EAZ Service Center serves the SRS, the National Forests in North Carolina, the Francis Marion and Sumter National Forests in South Carolina, the Savannah River Natural Resource Management and Research Institute, the Lyndon B. Johnson and Schenck Civilian Conservation Centers, and Forest Health Protection in Asheville, NC. A full range of human resource services-staffing, classification, workforce management, employee relations, labor relations, employee development, pay and benefits-are provided to an internal client base of nearly 1,600 people. Acquisition services are also provided to the EAZ clients.

The Fiscal Resources Staff provides accounting, auditing, processing, and financial analysis to internal and external customers. Fiscal year 1999 was a challenge to this staff as they prepared to change to a new accounting system. This accounting system, Foundation Financial Information System (FFIS), is intended to achieve accountability in several ways for the Forest Service. Financial statements will be readable, reliable, and provide useful financial information and financial deficiencies will be corrected by adhering to financial accounting standards. We will be able to communicate better with internal and external constituencies and resolve long-standing audit issues. For the Forest Service to retain leadership in the natural resource arena, the agency must become expert at managing its financial resources. The FFIS will enable us to reliably reflect our diverse business operations and help us use financial information to plan, manage, and set priorities for programs to better carry out our mission. By implementing a new approach to financial management and an integrated financial management system, the Forest Service will become the first natural resources agency to merge good business practices with resource decisions.

The Information Resources Staff reviewed, upgraded, and replaced telecommunications and computer technology where necessary to bring the SRS to 100 percent compliance for Y2K readiness. This included the forest inventory and monitoring software that was identified as a noncompliant critical application by the Washington Office.

Our Civil Rights and Workforce Diversity Program continued to give emphasis to the civil rights/human rights philosophy developed last year — "the right of everyone in the workplace to be treated fairly, impartially, and respectfully." The philosophy was the subject of a video created by our Civil Rights Committee, which was viewed and discussed by all employees. While the SRS supported employee resource

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groups, the focus has been on building unity, not separateness. The SRS and National Forests in North Carolina added a Heritage Awareness Month to the traditional monthly awareness celebrations to focus on the value all cultures bring to the workforce.

The SRS seeks development of new approaches to reach underserved populations with our programs and services. We are strengthening our relationships with southern minority landowners by participating in conferences and expanding our publication distribution services. Publications from three SRS research work units addressed issues and strategies involving diverse publics and minority low-income communities. Ten grants and agreements, totaling $583,214, were awarded in FY99 to minority universities. We are working on recruitment efforts for new employees from underrepresented populations with the development of a career information Web site, along with other efforts.

We have demonstrated a strong commitment to the Continuous Improvement Process (CIP) for positive change in the work environment. We had 66 percent participation in the FY99 survey—up 10 percent from the last survey and well above the 44 percent national participation rate. Good progress has been made to act on the commitments from CIP this year in response to recommendations. We have a well-below-average personal injury frequency rate of .83 and have been diligent about requiring employees to give deliberate attention to safety. Headquarters employees attend monthly safety meetings on topics chosen by the hosting staff. We have conducted an active awareness program for prevention of workplace violence.

Recruitment Initiatives: The SRS serves as the lead unit for two special recruitment initiatives at Historically Black Colleges and Universities: Alabama A&M University (AAMU) and Florida A&M University (FAMU). Each initiative has a Forest Service employee working as a liaison with the university and students, carrying out recruitment and placement activities. In FY99, eight FAMU students were placed in Forest Service summer temporary-employment program appointments, and one participated in the Forest Products Laboratory summer intern-research program. There were nine students at AAMU, partially or fully supported by the Forest Service, who received undergraduate degrees in forestry, environmental, or plant science in FY99. Three graduates were placed in permanent full-time positions with the Forest Service. There were 32 students placed in summer jobs with the Agency through the AAMU Initiative. Initiative student

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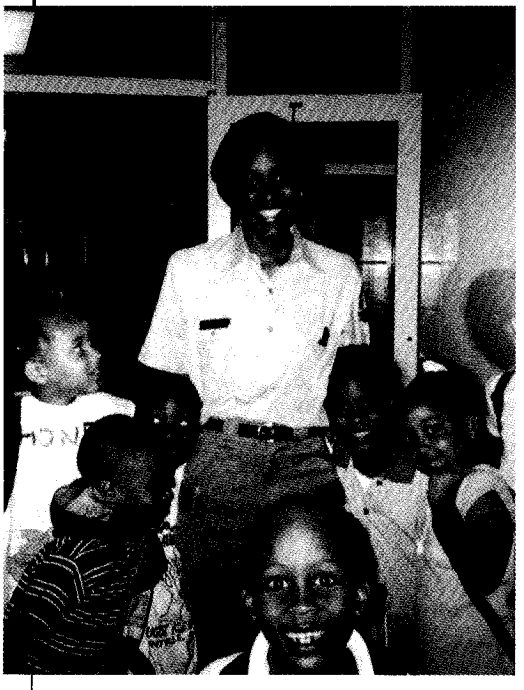
Latrice Swain, Outstanding Freshman in the AAMU School of Agriculture and Environmental Sciences, was selected for Who's Who in American Colleges and Universities.



National Multicultural Recruitment Initiative at Alabama A&M University
Web Site:

http://www.srs.fs.fed.us/aamu.

Careers in Forest Service Research and Development Web Site:

http://www.srs.fs.fed.us/careers/index.htm.

Branching Out to the Youth of America

In 1992, the USDA Forest Service, Northeastern Area State and Private Forestry and Northeastern Forest Experiment Station initiated the Conservation Education Outreach Program's (CEOP) *Branching Out to the Youth of America* Program. The SRS has participated in the program for 7 of its 8 years and in FY98 assumed its coordination. Intern teams are based in Asheville, NC; Atlanta, GA; Huntsville, AL; and Milwaukee, WI. The program currently contacts over 8,000 children annually in summer day camps, American Indian youth programs, civic groups, boys and girls clubs, and summer schools. In FY99, the SRS provided support for a partnership between the *Branching Out to the Youth of America* interns and the Upward Bound program at Mars Hill College in western North Carolina. This collaboration provided conservation education experiences to high-school-age youth in a 6-week biology and mathematics curriculum. The CEOP Team at AAMU reached over 1,800 children in 4 States through fun, educational games in English and Spanish.

The concept of the CEOP is to engage urban youngsters in conservation education activities in urban settings in the inner cities where they live. The target audiences are selected for cultural, sociological, and economic diversity specifically including

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underserved, nontraditional publics. The goals of the program are: (1) to interact with urban youth from diverse age groups, socioeconomic backgrounds, ethnicities, and geographic locations helping them to gain an appreciation for natural resource conservation and sustainability; (2) to create an interest in Forest Service careers among underrepresented populations in urban environments; and (3) to provide contact between scientists and the summer interns to encourage them to pursue advanced degrees, thereby expanding the pool of diverse candidates for research positions.

The Conservation Education Program Web Site:

http://www.srs.fs.fed.us/consed/index.htm.

Improving Customer Service

The SRS Web site attracted a half million hits from over 70,000 individual visitors, and has been recognized as a government Internet leader and innovator. The Web site contains data bases for publications (can be downloaded in PDF format) and scientist and employee contacts, as well as links to SRS research work units and other SRS sites. The quarterly Recent Publications Catalog was sent via e-mail to over 1,000 customers. Our hard-copy catalog distribution continues; while it is at a much-reduced level, it meets the needs of those who use our information but do not have Internet access. Our overall publication distribution has increased dramatically as our outreach efforts continue, and our customers are able to acquire publications directly from the Web-over 150,000 were downloaded during FY99. In addition to responding to direct requests, we distribute some publications to mailing lists and at meetings and conferences. Many SRS publications can be found at libraries throughout the country.

The Forest Service has a nationwide customer service comment card program that is used both electronically and through hardcopy mail. The SRS is among the units receiving the most responses from the comment card system, with the comments being overwhelmingly positive. The few negative comments are quickly addressed and we try to make improvements in our service accordingly. We are developing an additional form to elicit comments evaluating our publications and anticipate beginning distribution of these with requested publications by the end of FYOO.

Careers in Forest Service Research and Development Web Site:

http://www.srs.fs.fed.us/careers/index.htm.

Southern Research Station Comment Card Web Page:

http://www.srs.fs.fed.us/customer/commentcard_srs.htm.

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Individual and Team Recognition

Chief's Honor Award:

The Chief of the Forest Service recognizes outstanding contributions that support the Department of Agriculture's Employee Recognition Program and reinvention of government initiatives, major improvements in service to the public, workforce diversity, and ecosystem management initiatives.

The staff of the Coweeta Hydrologic Laboratory, located near Franklin, NC, received the Chief's Stewardship Award for "the significant knowledge and application of science generated by the Lab providing major advances in the stewardship of water, soil, and air resources for regional, national, and international programs."

The Center for Aquatic Technology Transfer, located in Blacksburg, VA, with cooperators in Oxford, MS, received the Chief's Award for Excellence in Technology Transfer for "outstanding achievement and innovation in technology transfer promoting scientifically-based management of aquatic habitat and resources on forest and range lands."

Dr. Emile Gardiner, Research Forester at the Center for Bottomland Hardwoods Research in Stoneville, MS, received the Chief's Early Career Scientist Award for "sustained productivity and exceptional promise for significant future achievement from research on oak ecophysiology and the regeneration biology of bottomland hardwood forest ecosystems. "

Dr. Jim Barnett, Project Leader of the Southern Pine Management Research Work Unit (RWU) in Pineville, LA, received the Chief's Superior Science Award for "individual research in seed and seedling physiology that has significantly improved reforestation success and for team leadership in sustaining the long-term productivity of southern pine plantations."

Other Chief's Awards:

Dr. Ron Thill, Project Leader of the Wildlife Habitat and Timber Resource Integration RWU in Nacogdoches, TX, and Steve Kirkindall, volunteer, received the Chief's Outstanding Achievement Award for Conservation Education,

recognizing their work to develop and promote the Stephen F. Austin Interpretive Trail in east Texas.

Dr. Frank Bonner, retiree from the Center for Bottomland Hardwoods Research in Stoneville, MS, received the Chief's Retiree Volunteer Service Award for "leadership and contributions to the revision of Agriculture Handbook 450, Seeds of Woody *Plants of the United States.*

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Individual and Team Recognition

Dr. Paul Hamel, Research Wildlife Biologist at the Center for Bottomland Hardwoods Research in Stoneville, MS, was part of a team receiving the Chief's Volunteer Award for a Forest Service Employee in Research for "advancing the Forest Service mission by effectively recruiting and utilizing volunteers in the studies of birds and mammals of bottomland hardwood ecosystems."

Center for Bottomland Hardwoods Research, RWU SRS-4155, Stoneville, MS, received the Chief's Volunteer Award for a Forest Service Research Unit for "advancing the Forest Service mission by effectively recruiting and utilizing retired, student, and international volunteers to accomplish important research on bottomland hardwood ecosystems."

External Awards

Dr. Phil Araman, Project Leader of the Tree Quality, Processing, and Recycling RWU, Blacksburg VA, was one of four recipients of the National Hardwood Lumber Association's 1999 Hardwood Research Award for recognition of pioneering research in the development of machine vision technology for the forest products industry.

Dr. Jim Miller, Research Forest Ecologist with the Vegetation Management Research and Longleaf Pine Research RWU, Auburn, AL, received the 1999 Weed Scientist of the Year Award from the Southern Weed Science Society for outstanding achievements in research and technology transfer related to forest vegetation management science and for senior authorship of Southeast *Forest Plants and Their Wildlife Uses.*

Dr. Thomas Miller, Retired Plant Pathologist, Olustee, FL, received the Southern Forest Pathologists Achievement Award at the Southwide Forest Disease Workshop for his work as codirector of the Integrated Forest Pest Management Cooperative and for collaboration on fusiform rust research.

Dr. Paul Hamel, Research Wildlife Biologist at the Center for Bottomland Hardwoods Research in Stoneville, MS, was one of the group receiving the Partners in Flight Award for Investigations. The award went to "those most directly involved with making the Mississippi Alluvial Plain Migratory Bird Initiative the first real model for integrating the needs of various bird species groups and molding these into a solid plan of action."

Dr. William D. Boyer, Research Forester Emeritus (retired from the Vegetation Management and Longleaf Pine Research RWU), Auburn, AL, was inducted into the Alabama Foresters Hall of Fame by the Society of American Foresters. Dr. Boyer was recognized for his research and technology transfer accomplishments related to longleaf pine ecology and management and his long-term service to the Society of American Foresters.

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Experimental Forests

The SRS maintains 19 experimental forests located on or near National Forest System lands. Scientists in research work units use these as sites for their studies and demonstration projects in conjunction with the managing national forest unit. Experimental forests are designated to represent a specific ecosystem or forest type, and to present opportunities for the study of different approaches to sustaining forested ecosystems. Several of the experimental forests in the South were selected for their potential to demonstrate rehabilitation of deteriorated farm forests and soil resources that occurred during early European settlement and plantation farming of the region.

Among the experiments conducted on these forests are studies on stand management and regeneration; restoration of wildlife and plant populations; watershed management; and the effects of pollution, climate change, and timber harvest. Many experimental forests also provide educational and nonmotorized recreation activities, including interpretive methods to enhance public understanding of forest management principles. Research on experimental forests plays a vital role in the conservation of America's natural resources.

State	Experimental Forest	National Forest	Acres	Date Established
Alabama	Escambia	—[1]	2,990	06/14/61
Arkansas	Alum Creek	Ouachita	4,281	04/02/59
	Crossett	Ouachita	1,675	08/27/40
	Henry R. Koen	Ozark	720	09/17/51
	Sylamore	Ozark	4,180	03/28/34
Florida	Chipola	—[1]	2,760	06/21/61
	Olustee	Osceola	3,135	03/28/34
Georgia	Hitchiti	Oconee	4,602	12/04/61
	Scull Shoals	Oconee	4,487	09/17/38
Louisiana	Palustris	Kisatchie	7,515	07/19/35
Mississippi	Delta	—[1]	2,580	06/14/61
	Harrison	DeSoto	4,111	07/19/34
	Tallahatchie	Holly Springs	4,569	04/12/50
North Carolina	Bent Creek	Pisgah	5,242	06/25/27
	Blue Valley	Nantahala	1,400	06/23/64
	Coweeta	Nantahala	5,482	03/28/34
South Carolina	John C. Calhoun	Sumter	5,082	10/08/47
	Santee	Francis-Marion	6,000	07/06/37
Texas	Stephen F. Austin	Angelina	2,499	06/28/61

[1] Private land

Caring for the Land and Serving People

The Basics: Your Tax Dollars at Work

Experimental Forests

The following are descriptions of some of the experimental forests in the South including establishment histories, past research emphases, and current research projects.

Bent Creek Experimental Forest

Bent Creek Experimental Forest—the first to be established in the South, is one of the oldest research areas maintained by the Forest Service. Its purpose was to provide opportunities for the systematic development of experiments in silvicultural practices. Since 1925, before its establishment as an experimental forest, scientists have been developing and demonstrating sound forestry practices at Bent Creek. Their research-both early and current-on fire, insects, diseases, timber, wildlife, and water is being applied over much of the Southern Appalachians. With an increasing intensity of land use throughout the region and around the country, research conducted at Bent Creek is important to the sustainability of the South's forested lands.

Current research is focused on: (1) understanding the distribution and productivity of forest vegetation as a function of the controlling environmental variables; (2) understanding the structural and compositional dynamics of forest vegetation in relation to both natural and human-imposed disturbance regimes; (3) relating wildlife habitat to forest structure and composition; and (4) synthesis and integration of research information to provide decision support to forest managers.

Coweeta Hydrologic Laboratory

The Coweeta Experimental Forest was set-aside in 1934 with a research emphasis on watershed management; and measurements of rainfall, streamflow, climate, and forest growth began. These have been continuously monitored since. In 1948, the site was renamed Coweeta Hydrologic Laboratory. In the early 1980's, Coweeta was selected by the National Science Foundation as one of 11 sites in the Nation for the Long-Term Ecological Research program. The Coweeta Basin is ideal for hydrologic research. Local rainfall is usually plentiful-80 to 100 inches per year. Solid bedrock underlying the soils permits hydrologists to account for most of the rainfall that enters the basin. The valley contains numerous small watersheds; many are similar in size, climate, and vegetation.

Each of the experimental watersheds has a weir in its stream to measure the flow of water. The weir is an accurate stream-gauging station. The height of the water behind the weir blade is continuously monitored by automatic recorders. The heights, along with the characteristics of the opening of the weir, permit calculation of streamflow day and night, storm and sunshine, throughout the year. Silt that accumulates in the ponding basin behind the weir may also be measured. These measurements show how natural or human disturbances to the watershed change stream characteristics. Research

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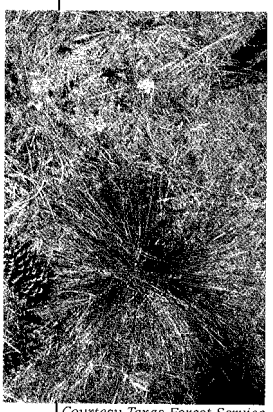
work at Coweeta has provided internationally important information about the effects of timber harvesting, road construction, and natural disturbance in watersheds.

Escambia Experimental Forest

The Escambia Experimental Forest was established through a 99-year lease agreement with the TR Miller Mill Company of Brewton, AL. This 3,000-acre tract in southwest Alabama was selected as typical of second-growth longleaf pine forests that, at the time, covered about 6.2 million acres in south Alabama and northwest Florida. Research on the Escambia was initially aimed at solving the principal management problems associated with longleaf pine, including natural regeneration, management alternatives, growth and yield, rotation lengths, thinning regimes, forest grazing, and economic costs and returns.



Courtesy Texas Forest Service

Today, the Escambia Experimental Forest constitutes a unique example of longleaf pine ecosystems in all stages of development. The forest supports continuing long-term research studies and management demonstrations. Research has involved all aspects of longleaf pine natural regeneration, including development of the shelterwood system for this species. Other long term studies and demonstrations include stand management and management alternatives; growth and yield of even-aged natural stands in relation to age, site quality, and stand density; and fire ecology, including long-term effects of season and frequency of prescribed fire, or fire exclusion.

Harrison Experimental Forest

The Harrison Experimental Forest is on the DeSoto National Forest, 25 miles north of Gulfport, MS. The Agency chose the site because its soils and appearance mirrored the South's 31 million acres of coastal forest land. By the 1930's, loggers had almost completely clearcut these vast stretches of southern pine. In some areas, residual trees produced seed for natural regeneration. Much more often, however, few seed trees remained to start the regeneration process. The seedlings that did sprout soon succumbed to cattle, feral hogs, palmetto competition, fire, or pest infestations.

Some of the earliest studies on the Harrison involved fire behavior and wood preservation. Scientists on the Harrison introduced water spray as a preprocessing preservative. This technique is still in use at sawmills today. Early trials of fence posts treated with various preservatives have been revisited every year since 1939. The problems with planting and growing trees and reestablishing forests soon became the primary focus for research at the Harrison. One important effort-the southern pine seed-source study-got

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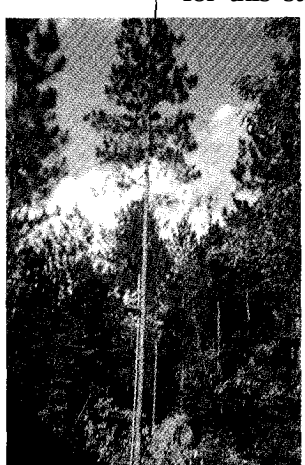
underway to match regeneration sites with seed sources and to determine how far seeds could be moved without jeopardizing regeneration.

Long after the seed-source study results were reported, the plantings for this study continued to be useful for new research, such as efforts to determine the genetic basis of pest resistance, variation in wood quality, and effects of climate on pine growth. Most recently, Harrison's scientists have begun evaluating the original genetic variation of the plantings with a vision toward long-term gene preservation.



Since 1956, the Harrison has been home to the Southern Institute of Forest Genetics (SIFG). The institute's research on the inheritance of growth, form, and pest resistance of forest trees has guided tree improvement programs across the South. Some of its most recent research on DNA markers is being used to help incorporate resistance into the American chestnut needed to reestablish a species that has been obliterated from the forests of the East by the chestnut blight.

While planting trees and reestablishing forests were needed early in the century, sustainability is now the collective vision for southern forests. The South needs new knowledge and guidance on how to manage biological and ecological systems within a social and economic context. The SIFG scientists are working to discover the principles of heredity that operate in southern forests and to show how those principles may be applied in sustaining forest quality and productivity.

Palustris Experimental Forest

The Palustris Experimental Forest is an area of the Kisatchie National Forest designated by Congress to conduct forestry research. The forest is named Palustris in recognition of the species longleaf pine that was prevalent in the region prior to the great harvesting of virgin pine forests in the early 1900's. The Palustris consists of two separate tracts, which total about 7,500 acres in size. The area was used by pioneer Southern Forest Experiment Station (now Southern Research Station) researchers to develop early reforestation techniques for the four major southern pines. Studies have provided the information to convert a region of decimated forests to one where forestry is of leading economic importance.

The JK Johnson Tract, located 18 miles southwest of Alexandria, LA, is the site of numerous long-term studies, such as a longleaf pine planting spacing, prescribed burning, pruning, and a thinning regime study that is now 60 years old. It also serves as the area for plantings of shorter-term studies evaluating seedling physiology. At this tract, studies are underway to evaluate the effects of global

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climate change on forest productivity and to devise management strategies to reduce such effects. These studies require very intensive measurements of tree and stand morphology and physiology, and involve cooperative efforts with organizations and agencies outside the Forest Service.

The Longleaf Tract, about 35 miles south of Alexandria, LA, has been the site of some of the most intensive multiresource research in the South. Since the mid-1940's, the interactions of cattle grazing, wildlife management, and timber production have been evaluated. Current research emphasis includes evaluations of effects of forest management practices on long term soil productivity.

Numerous long-term (30 to 60 years) growth data sets have been collected for longleaf, loblolly, and slash pine. These data are the basis of growth and yield prediction systems that have been developed for these species. Other studies quantifying intensive soil and tree physiology measurements have been underway for about 10 years.

The Palustris Experimental Forest continues to serve as a field research laboratory, a demonstration site for new forestry practices, and an area to develop potential cooperative relationships. Federal, State, university, and forest industry scientists work together to address the forest concerns that now face the State, region, and Nation.

Stephen F. Austin Experimental Forest

The Stephen F. Austin Experimental Forest is located 8 miles southwest of Nacogdoches, TX, on the Angelina National Forest. It was designated with the objective of wildlife and timber management research. It contains approximately 1,800 acres of mature, bottomland hardwoods with the remainder being southern pine and mixed pine/hardwood forest. The site is used as an outdoor classroom in the study of forest ecosystems by students majoring in forestry, wildlife management, forest recreation, and environmental science. In 1990, management objectives were expanded to include educational and recreational opportunities for the general public. The Stephen F. Austin Interpretive Trail, which is wheelchair-accessible, was completed in 1997.

Current research studies relate primarily to understanding and maintaining populations of wildlife species that have, or are becoming threatened, endangered, or sensitive. A long-term study involves inoculating trees with a heartrot fungus to enable cavity dwellers, such as red-cockaded woodpeckers, to create cavities in younger trees. Studying the natural formation of snags, or snag dynamics, is important to many species that are dependent on standing, dead trees as a critical part of their habitat. Work with amphibians, snakes, and alligator snapping turtles also occurs on the Stephen F. Austin.