



Alabama's **TREASURED Forests**

FALL 1995

STATE FORESTER'S MESSAGE

by TIMOTHY C. BOYCE, State Forester



Education is the key to the future of Alabama, and one of the priorities of the Alabama Forestry Commission is to educate the citizens of this state on the environmental and economical benefits of forestry. Too often we face a “misinformed” or “uninformed” public, and the only way to change that is to ensure that the real facts about forestry issues are brought to light. A key effort in this is working with our youth.

Recently I participated in a 4-H Forestry Judging Contest in Shelby County and was very much impressed with the leadership efforts of two people, Shelton Hawsey and Tony Dozier of the Alabama Cooperative Extension Service. Since 1984 these men have worked tirelessly to make this program one of the most successful 4-H events in Alabama, and the pride and enthusiasm of the students serve as evidence of their success.

The main thrust of the program is that students understand practical forestry skills and the significance of forestry in their daily lives; however, a great deal of emphasis is placed on leadership talents and character development.

In addition to competing at the state level, the winning team represents Alabama in the National 4-H Forestry Invitational. Events at this national competition include tree identification, insect & disease identification, compass and pacing, forest evaluation, and tree measurements.

Because of the dedication and commitment of Shelton Hawsey and Tony Dozier, as well as numerous others involved in this effort, thousands of our youth throughout the state are better informed about the benefits and values of forestry and related natural resources. The knowledge and experience gained will result in many of the participants choosing a career in natural resource management. This will help to ensure that our forests are healthy and productive for future generations.

Shelton Hawsey and Tony Dozier have recently retired from the Alabama Cooperative Extension Service, but their efforts to educate the youth of this state will benefit all Alabamians for many, many years to come.

I wish them well in their retirement!

Sincerely,

A handwritten signature in cursive script that reads "T. C. Boyce".

Timothy C. Boyce
State Forester

Alabama's TREASURED Forests

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FALL 1995

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The Alabama Forestry Commission supports the Alabama Forestry Planning Committee's TREASURE Forest program. This magazine is intended to further encourage participation in and acceptance of this program by landowners in the state. Any of the agencies listed above may be contacted for further information about the TREASURE Forest program.

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CONTENTS

Stewardship Today — For Tomorrow / by <i>COLEEN VANSANT</i>	4
Leaders — A Growing Experience / by <i>DENNIS A. EVANS</i> and <i>ANN MURPHY</i>	7
Cogongrass: Problem and Solutions / by <i>D.G. SCHILLING, J.F. GAFFNEY,</i> and <i>PAT WALDROP</i>	8
Alabama Stumpage: Will the Bull Market Continue? / by <i>STEVE NIX</i>	11
Federal Laws and Alabama Landowners / by <i>LOU HYMAN</i>	14
Alabama's Deer Management Program / by <i>EUGENE J. WIDDER</i>	15
New Cost-Share Program Available / by <i>TIM L. GOTHARD</i>	20
Maximizing Benefits from Tree and Shrub Plantings for Wildlife / by <i>TIM L. GOTHARD, STAN STEWART</i> and <i>PHILIP WILSON</i>	21
Forestry Education in Alabama / by <i>DON BURDETTE</i>	23
Forestry Planning Committees at Work	24
Developing Forest Trails / by <i>SARA B. BALDWIN, PH.D.</i>	25
The Southern Forests: A Legacy of Nations / by <i>DON BURDETTE</i>	27
Forest Roads and Water Protection / by <i>TOMMY PATTERSON</i>	28
1995-96 Seedling Price List	32

DEPARTMENTS

State Forester's Message	2
Editor's Understory	6
Threatened and Endangered Species: A "Lost World" in Bibb County, Alabama	10
Landowners Legislative Alert	16
Hidden TREASURES	18

COVER: The Chinnabee Trail in the Talladega National Forest offers a scenic hike in the fall. Photo by Kim Gilliland.

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Stewardship Today-For Tomorrow

by COLEEN VANSANT, Forest Education Specialist, Alabama Forestry Commission, Gardendale



"Wildlife Road" is .07 miles long and is planted in various wildlife foods and wildflowers.

So many people never plan ahead. They have no vision for the future. Reality is what they can hold in their hand—what's before them right now.

That's not the case with Bill and Jeanie Snoddy. They are striving to preserve the historical importance, natural beauty and integrity of their property today, while simultaneously gazing into the future. The couple already has plans and developments so that future generations can benefit and experience the same things they do from their TREASURE Forest.

Their 735-acre farm is called "RSS Forest" after Bill's brother, Marine medic Robert Samuel Snoddy, who was killed on Okinawa in World War II. It is located in the beautiful rolling hills of north Alabama adjacent to the Bankhead National Forest. History and tradition run strong and deep in the area. Because of their neutrality during the Civil War,

Winston County has been known as the "Free State of Winston."

The northern boundary of the Snoddy farm is known locally as Curtis Gulf. Folklore tells that some young men in the area hid out in this canyon to avoid being drafted into the Southern army. As you walk along the picturesque stream that dissects the canyon floor, you can listen to the sound of water cascading over ancient rock as it plunges to the bottom of the canyon. You can gaze up to the craggy cliffs of the high canyon walls and see caves and rock recesses, hidden behind the black-green limbs of hemlock. These areas gave shelter and protection to the sons of Winston County over 130 years ago.

History and tradition on the Snoddy farm runs as straight and true as the folklore of the county. Bill's great-grandfather, William R. Bonds, took title to one

tract of land in the 1870s by declaring homestead. James S. Snoddy, Sr. (Bonds' son-in-law) homesteaded the property next to it. The deed to the land shows that the property was deeded from President Grover Cleveland to James S. Snoddy on July 9, 1894. The two properties were joined at the death of Mr. Bonds. Bill's father, Dr. James S. Snoddy, acquired the original parcel of land in 1948 and over the years each generation has added additional acres to the original homestead. Until a few years ago the original log homestead was still located on the property. Bill inherited the property from his father in 1964.

When it was first settled, the tract was cleared with the intention of farming and grazing livestock. The land turned out to be very poor farmland and eventually most of it was converted to pasture. According to Bill, his father had just begun to plant trees when he died in the early 1960s.

Putting a Plan into Action

With Bill and Jeanie living in Huntsville where Bill worked for the Marshall Space Flight Center, very little was done to the land. It wasn't until 1982, with the help of consulting forester Bill Bustin, that the first forest management plan was put into action.

According to Bill, the first thing that had to be done was to reclaim the land from public use and abuse. Access to the land by the public was stopped by closing roads and putting up gates. Action was also taken to clean up and undo damage that had been done over a period of 20 years. Boundaries were also surveyed and marked.

A forestation program was initiated on what was once pastureland, along with thinning and seed tree cuts on existing pine. The hardwood-covered hills and valleys of the beautiful scenic property were left. These trees are kept for wildlife and aesthetic purposes. Bill adds that he and Jeanie like the diversity of a

hardwood forest and they “did not want to change the nature of the property.”

Prescribed burning has also been used over the years in the forest management plan and to control kudzu in several areas. According to the Snoddys, in 1987 they updated their forest management plan. New and more intensive prescriptions were written for the management of the property.

It is their goal to maintain a diversity of stand condition classes with a desirable balance of hardwoods for mast and open areas for game habitat. They also want to continue a timber program using a combination of thinning and improvement cuttings, some regeneration cuttings, and prescribed burning as needed.

Currently, timber is being cut and a lake constructed. The lake will not only attract wildlife, but will serve as a recreational area for the family.

In meeting their wildlife objective, 12 wildlife openings have been created on the property and offer excitement and enjoyment for the Snoddy family. Several of the family’s walking trails pass by these areas. The “Wildlife Road” is a ridge clearing about 60 feet wide and 0.7 miles long. It was cleared in 1987 and is planted with different wildlife foods. Wildlife Road and the other food plots include such critter delectables as chufas, ladino clover, fescue, lespedeza, and sawtooth oak.



Water pours down ancient rock into Curtis Gulf.

Environmental Enhancement and Aesthetics

Although growing timber commercially is important to the Snoddys, protecting and enhancing the natural beauty of the land is the utmost priority. Wildflower plantings along access roads, with species like black-eyed Susan, California poppy, Indian blanket, rocket larkspur, and cosmos, create an optical illusion of brilliant colors during the spring and summer.

Jeanie is the family wildlife enthusiast, and native plants on the farm, particularly in sensitive areas, are conserved. Many wildflowers, plants and shrubs around the family cabin and along walking trails and “special places” have been either retained or transplanted from other areas. Preserving and enhancing the natural beauty of the land is so important to the couple and their children that in 1994 the services of a landscape architect were obtained. Geoff Rausch developed and landscaped an environmental enhancement plan for selected areas of the property. He is the landscape architect who designed the Huntsville Botanical Gardens.

Commitment to Education

Bill is actively involved in the TREASURE Forest program and works closely with many groups to promote multiple-use forest management in Alabama.

He is a member and on the board of directors of the TREASURE Forest Association of Northeast Alabama, Inc. (Madison County), which actively promotes sound forest management practices. The Snoddy family cooperates with local schools in the use of their TREASURE Forest for forestry education activities. The county forestry judging contest has been held on the property for several years.

Not only is Bill interested in promoting forestry awareness for school children and the general public, he places great importance on educating himself about good forest management practices. Bill and Jeanie both have a great desire to keep themselves informed and up-to-date on resource management techniques, problems and opportunities.

Planning for the Future

Although they are growing commercial timber, the Snoddys place an emphasis on developing the property for the enjoy-



By working with native plants in the area and adding accents like this one, the Snoddys want to create a Japanese garden on their TREASURE Forest.

ment of their family and guests. Developing and planning for present and future generations is very important to them.

A major vision of the couple and their two children is to investigate the possibility of part of their property being used for retreats. The retreat foremost in their mind would be a nature center dedicated to the encouragement of the musical arts by providing an environment to enhance creative and learning processes.

Recognizing a need for a master plan to provide focus and motivation is important to them. During the Thanksgiving holidays several years ago, family members had a “brainstorming session” on possible elements to incorporate into a plan. One guideline is that the elements should require limited resources to both develop and maintain.

Here are just a few of their ideas: more trails and wildflowers; a lake (currently under construction); a chapel; wildlife food plots; “ancient” astronomical observatory; orienteering course; a play area; development of scenic views; golf cart trails; Spanish and Japanese areas (to be done by adding cultural accents); gravity driven fountains; a Monet water lily garden; and a replica of Thoreau’s Walden cabin.

The possibilities will never cease. ♪

Editor's Understory

by COLEEN VANSANT, Forest Education Specialist,
Alabama Forestry Commission, Gardendale

What do you get when you cross the scientific mind, planning skills, and strategic thinking of a rocket scientist with the organizational abilities, motivational talents, and eye for detail of a mother, homemaker, amateur archeologist, and art lover?

Give up? The answer is the Huntsville-Madison Botanical Gardens.

Jeanie and Bill Snoddy have been instrumental in nearly all phases of the Gardens. They've combined their many talents and abilities and lent a hand in creating one of the fastest growing and most beautiful attractions Huntsville and Alabama has to offer.

The Snoddys became involved in the project around 1986 when the committee was involved in the "property stage," according to Bill. The 112-acre site (approximately 35 acres are currently developed) on which the complex is located was provided for the garden's use by the U.S. Army through the Alabama Space Science Exhibit Commission and the City of Huntsville.

"Now that we have land, what's next?" This was the question being asked by most of those involved, and this was where Bill became very actively involved. Although he's retired now, at that time Bill was serving as the Deputy Director of Program Development at the Marshall Space Flight Center in Huntsville. What they needed was a plan, and with his background in managing and organizing, he was just the man to help.

At the time the Snoddys became involved, the society had already incorporated with a board of directors and bylaws. Since then, the organization has grown to over 5,000 members. Bill served on the board of directors and was the current president at the ribbon-cutting ceremony for the garden's adminis-

trative building and gift shop. Although the society had a locally developed master plan, Bill was one of the leaders who encouraged the group to seek a nationally known botanical garden master plan-



Bill and Jeanie Snoddy look on while Huntsville-Madison Botanical Garden Greenhouse Manager Mike Gibson (kneeling) points out water plants in the aquatic garden.

ning firm. Bill and Jeanie worked with other members of the society to find a landscape designer to create the master plan for the complex. According to Bill, "This was not something we can afford to make a mistake on."

They visited some of the most famous gardens in the Southeast, like Disney and Callaway Gardens, to see what had been done. Out of the 25 master planners who were interviewed, Geoff Rausch of Environmental Planning and Design of Pittsburgh, Pennsylvania, was selected. He and his associates spent two years devel-

oping what, when complete, will be a \$50 million project.

After obtaining the master planner, Bill was actively involved in the first phase of the planning process: developing a mission statement. He adds that developing the mission statement was a very long and tedious process, but when it was complete, the rest of the plan began falling into place.

With an organized Botanical Society and a master plan, the group now needed money, and plenty of it. The city of Huntsville was approached and \$1.5 million was promised to the group. The society set their own goal to match what the city promised and soon Bill and Jeanie were involved in raising funds. One of the largest fund-raisers was a plant sale Jeanie helped organize and conduct that raised \$48,000. In the end the society raised \$1.4 million in cash and the rest in promised in-kind services.

It was decided that \$1 million would be placed in an endowment fund for the operations of the facility, \$1 million on the first phase garden elements, and \$1 million on a space thrust.

The first two elements of the plan to be developed were the Central Corridor Gardens and The Center for Biospheric Education and Research (CBER). The Snoddys were instrumental in both phases.

Jeanie worked with committees in planning and developing the Corridor Gardens. The Corridor Garden includes a very large perennial garden, an aquatic garden and the ever-changing annual garden. Jeanie is heading a committee responsible for developing the shade garden portion of one trail. She has used her talents and abilities on several projects: developing a science education program for city and county fifth grade students;

(Continued on page 9)

LEADERS –

A Growing Experience

by DENNIS A. EVANS, Extension LEADERS Specialist & Professor
and ANN MURPHY, Extension Assistant Editor, Auburn University

Anyone involved in forestry work in Alabama should be aware of Auburn University's LEADERS program. The LEADERS program is looking for up-and-coming young professional foresters, landowners, or related persons who want to become better spokespersons for Alabama's agriculture and forest industries.

LEADERS is a special leadership education program administered by Auburn University's College of Agriculture, School of Forestry, and the Alabama Cooperative Extension Service. The program is officially named the Alabama Agriculture and Forestry Leadership Development Program, but is called "LEADERS" for short. The program joins young leaders in Alabama's agricultural and forestry sectors to help them become more effective spokespersons and leaders for their industries.

Currently in its eleventh year, the LEADERS program has a who's who among its graduates. State Forester Timothy C. Boyce is among the alumni, as well as TREASURE Forest owners Edward McCullers of Elmore County and Jake Harper of Wilcox County.

LEADERS is a two-year non-credit, non-degree program for persons directly associated with agriculture or forestry, who reside in Alabama, and derive most of their income from farm, forest or related sectors. The main objective of LEADERS is to prepare leaders for the agriculture and forest industries in Alabama, especially within the public affairs arena. In today's world, we need agriculture and forestry leaders who are confident and have the leadership skills necessary to discuss issues and problems, and often-times, defend agricultural and forest industries against attack.

Effective forestry leaders in the state need to be able to explain management practices and convince the public that good stewardship is being followed. Having a broader view of things—and that is

agriculture and forestry was really valuable." McCullers is past president of the TREASURE Forest Landowners Association and currently serves on its board of directors.



TREASURE Forest landowner Edward McCullers (left) of Elmore County and fellow Class V member Daniel Autrey of the Pulp and Paper Institute (right) talk with Dr. Tennant McWilliams, a dean at the University of Alabama-Birmingham and a speaker during a Study Institute.

what the LEADERS program tries to accomplish—helps develop leadership potential and sharpen the skill necessary to articulate a sound position for agriculture and forestry.

TREASURE Forest owner Edward McCullers says he wishes he could have gone through the LEADERS program before becoming an officer in the TREASURE Forest Landowners Association. He adds, "The leadership training, the contacts made, and meeting with and learning from people involved in other commodities and interest areas within

Course of Study

During the two-year program there are nine study institutes, one national study tour during the first year, and one international study tour during the second year. In-state study institutes are held at Eufaula, Montgomery, Guntersville, Huntsville-quad cities area, Mobile, Birmingham, Andalusia (Solon Dixon Forestry Education Center), Tuscaloosa, and Auburn. National and international

(Continued on page 11)

Cogongrass: Problem and Solutions

by D.G. SCHILLING and J.F. GAFFNEY, Agronomy Department, University of Florida, Gainesville,
and PAT WALDRON, Alabama Forestry Commission

*Newly established
cogongrass in a natural
loblolly pine stand in Bay
Minette, Alabama.*



Cogongrass flowers

Cogongrass (*Imperata cylindrica*), also known in Alabama as Japgrass, was introduced in the United States in Gainesville, Florida and Grand Bay, Alabama in the early 1940s as a soil erosion control plant and as a possible forage. Native to Southeast Asia, this grass does not work well as a forage plant but does work well for soil erosion control. Similar to another plant introduced in the 1940s—kudzu—it has become naturalized and is very difficult to stop. In Florida it has spread throughout the state, and in Alabama it has spread roughly 120 miles from Grand Bay. Using Interstate 10 as a corridor, it has spread along the coast of both Mississippi and Louisiana. Along Interstate 65, it has reached the Atmore exit.

Cogongrass creates problems for foresters and land managers with natural regeneration, particularly in longleaf stands. It also creates a severe fire hazard, especially when mixed with other volatile fuels such as waxmyrtle, gallberry and young pines. It also ruins the habitat for gopher tortoises and indigo

snakes, which are both threatened species in the area.

Cogongrass is an exotic, perennial, rhizomatous grass and has colonized large tracts of natural and disturbed ecosystems. It grows in loose to compact tufts, producing creeping, scaly rhizomes. The leaves are 1/2 to 3/4 inches wide, up to 4 feet long, with an off-center midrib and rough edges. The seedhead is a white, fluffy spike. Cogongrass spreads by both seed and rhizomes, and once established has the ability to dominate and limit species diversity in forests, rangelands, roadways, and reclaimed mined lands.

Previous attempts to control cogongrass have proven insufficient due to its large rhizome reserves and quick recovery following tillage, burning, or herbicide treatments. Ultimately, if an

ecological niche filled by cogongrass is not replaced with another plant species following control, cogongrass will reinvade. An integrated management strategy utilizing all available methods of control is needed to effectively manage cogongrass.

Mechanical Control

Mowing and tillage are tools which have been used effectively for management of many perennials. Mowing of cogongrass may be an effective management strategy if time is not limiting. One mowing alone has little effect on subsequent regrowth, due to large rhizome reserves which quickly produce new growth. However, sequential mowings over two or more years will eventually deplete rhizome reserves. Discing has a dual effect of knocking down shoot growth and damaging rhizomes by chopping and desiccation. As with mowing, regrowth occurs and numerous tillage operations may be necessary for complete control. Cogongrass rhizomes have

difficulty producing shoots from depths of greater than 6 inches, thus deep tillage is important.

Chemical Control

Only a few herbicides have shown promise for cogongrass control. Imazapyr (Arsenal) at 0.75 lbs ai/A and glyphosate (Roundup) at 2.0 lbs ai/A provide 70 to 80 percent control up to 12 months after treatment, but both herbicides are nonselective and imazapyr has considerable soil residual activity. Consequently, establishment by other plant species could be inhibited when Arsenal is used. Fluazifop (Fusilade 2000 - 0.7 lbs ai/A) and glufosinate (Ignite - 1.0 lbs ai/A) provide good control for up to 3 months. Timing of herbicide application is also important, and a September or October application (if before a killing frost) provides longer cogongrass suppression than a spring or summer application. Once again, 100% control has not been achieved with a single application of any herbicide. As part of any control strategy, check with your county extension agent or other expert to consider legal and technical issues.

Competition

The long-term control of cogongrass can only be achieved by changing the ecology of an area to a competitive, diversified plant community. Establishing new species in cogongrass infested areas is difficult due to the chemicals exuded by cogongrass that are toxic to other plants, the extensive rhizome system, and the dense canopy of cogongrass which allows only limited light penetration. Plants which show promise in competing with cogongrass include hairy indigo (and possibly other legumes) bermudagrass, and bahiagrass. Establishment of native species in cogongrass infested areas is difficult due to a lack of experience in the management of most desired species.

Integrated Management

Reliance on a single means of control will generally result in failure to effectively manage cogongrass. Integrated management, including burning, tillage, mowing, chemical, and cultural control will increase the likelihood of cogongrass suppression. Burning, which removes old growth and dead biomass, has two bene-

fits. One, the rhizomes are forced to re-allocate starch storage reserves to produce new shoot growth, thereby weakening the rhizomes. Second, removal of the substantial biomass improves other management practices, tillage operations are more effective and once regrowth occurs, greater herbicide coverage of actively growing tissue is achieved. Allowing regrowth after burning and tillage, followed by a proven herbicide, is the most effective management program. When the above ground tissue is young and actively growing, the rhizomes have been weakened, and if timed correctly (September/October application), the rhizomes may be very strong photosynthetic sinks.

After suppression of cogongrass, the establishment of desirable plant species is essential for long-term control of cogongrass. The essence of our strategy is to replace cogongrass, not just kill it. If a replacement plant species does not fill the niche occupied by cogongrass after suppression, then cogongrass will simply refill the niche. Presently, improved forage species such as bermudagrass or bahiagrass have been successfully utilized to fill the cogongrass niche. Various practices such as fertilization and mowing have been shown to encourage the competitiveness of the desirable species. Practices that will encourage native species establishment and persistence are presently being investigated.

Ultimately the effective displacement of cogongrass using the aforementioned integrated approach should be successful albeit costly. In many areas the cost is justified; however in others this is not the case. Nevertheless, cogongrass is established and continues to spread into many low maintenance areas where cost constraints preclude the aforementioned approach. Therefore, as part of the overall strategy, some form of classical biological control will be essential. Without some form of widespread management, a continuous source of seed and rhizomes will persist. Consequently, no matter how effectively we control cogongrass in some areas, spread and reinfestation will continue. When dealing with a noxious and invasive plant such as cogongrass, a regional or national strategy is essential. Effective management of cogongrass will only be successful if cooperation is achieved between many groups, organizations, and involved states. ♣

Editor's Understory

Continued from page 6

developing the overall garden tour; and helping train the garden's many volunteer guides.

Bill was the leader in developing the CBER. Garden founders knew this element of the facility was critical because it would raise the Huntsville Botanical Garden from a garden of local appeal to one of national interest. The mission of the CBER is to increase knowledge and understanding of closed ecological systems (biospheres), both natural (such as Earth itself) and manmade (a space station or a base on the moon or Mars).

Because of his work at Marshall, Bill was able to bring current and retired scientists and researchers from NASA and the Marshall Space Flight Center (MSFC) and other members of the aerospace community together to design the CBER program. Many of these people were and are the masterminds behind some of the United States space programs in recent decades.

Bill and this group managed to obtain a "surplus" full-size mockup of a piece of the International Space Station from NASA/MSFC. The garden transformed the "node" into a Lunar Greenhouse, and it is proudly housed in the new CBER building.

Also located in the complex is "Ground Truth Site," a research station monitored by NASA from a space satellite and from the ground by local high school students. Test results are compared to see if data from space and from the ground match.

"Biological Laboratory for Student Research" is also part of the space thrust at the garden. It is a space lab manned by college students. Their first shuttle flight experiment flew successfully aboard Columbia in October 1992.

As Jeanie and Bill walk through the garden they never fail to speak to staff members and workers, calling them by name and making comments on the jobs they are doing. The Snoddys speak with pride of the accomplishments at the garden and each new thing stirs an air of excitement. And they should be proud and excited. It is through their dedicated work and commitment, along with many others just like them, that the Huntsville-Madison Botanical Gardens became a reality. ♣

THREATENED & ENDANGERED SPECIES

A “Lost World” in Bibb County, Alabama

by JAMES R. ALLISON, Botanist, Georgia Department of Natural Resources,
Georgia Natural Heritage Program

Editor's note: Last issue's article on endangered species was about the gentian pinkroot, a plant found in Bibb County. In this issue we take a look at some other rare species found in Bibb County.

For over a century, the watershed of the Cahaba River in Bibb County, Alabama has been known to contain a considerable number of rare plants. Among these are **Mohr's Barbara's-buttons**, protected under the Endangered Species Act, and the locally rather better known **Cahaba lily**, a candidate species for national protection. Bibb County was known to be home to six other national candidate species as well, namely **Alabama croton**, **Georgia rock-crest**, **impressed-nerved sedge**, **lobe-leaved black-eyed-Susan**, **Nevius' stonecrop**, and **southern columbine**. Besides these, the county was verified to contain about 16 other species on the Alabama Natural Heritage Program's Rare Plant List¹, making it one of Alabama's richest counties in number of rare plant species.

Significant Diversity

Botanical explorations since 1992 have revealed that Bibb County is blessed with an even greater number of rarities than anyone had imagined. It appears, in fact, to support the most significant diversity of rare plant species of any county in the temperate Southeast!

Most important was the discovery in 1992 of seven different plants that were

previously unknown to science. Using the names that have been given to their relatives, they include an **Indian paintbrush**, a **coreopsis**, a **prairie-clover**, a **daisy fleabane**, a **blazing-star**, a **false-gromwell**, and a **rosinweed**.

These explorations have revealed eight other species that had never before been reported from Alabama. One of these is a national endangered species, **gentian pinkroot**, previously known only from a few small populations in the Florida Panhandle, where it's considered in grave danger of extinction. Fortunately, there are several thousand plants of gentian pinkroot in Bibb County! Other state records include **Thorne's beaksedge**, a national candidate species known previously from a handful of sites in Georgia, Florida, and North Carolina; **Virginia nailwort**, previously unknown in the territory between Arkansas and Virginia; **false-cloak fern**, disjunct from Texas; **shining ladies'-tresses**, thought to range only as far south as Tennessee, where it is quite rare; **wiry beaksedge**, previously known as far south as Tennessee (until found in Texas in 1989); and **blue wild-indigo**. An even more noteworthy addition to the flora of Alabama is a plant that had been presumed extinct, **dwarf horse-nettle**. Its existence anywhere had not been confirmed since the 1830s, when it was twice found in Georgia.

Bibb County is now thought to support more populations than any other county, anywhere, of three plant species listed under the national Endangered Species

Act. Besides Mohr's Barbara's-buttons and gentian pinkroot, mentioned above, are five newly discovered populations of **Tennessee yellow-eyed grass**, a plant that had previously been known in Alabama only from one small population about 100 miles to the northwest.

Among other recent discoveries are 10 locations for **jamesianthus**, a candidate species that had been assumed to be restricted to a tiny area in Alabama more than 110 miles to the northwest. **Royal catchfly**, until recently a national candidate species, was known only historically in Alabama, from Bibb County and a few Black Belt counties. It had been feared extinct in the state but is now known from about a dozen places in Bibb County.

In addition to all of these ultra-rarities are about 25 other plants considered rare by the Alabama Natural Heritage Program and only recently found to grow in Bibb County.² All totalled, Bibb County contains at least 70 rare species of plants, an incredibly high number!

Factors Contributing to Diversity

Why Bibb County should be blessed with such a bonanza of botanical rarities is not fully understood. There are, however, several factors that surely have contributed to its tremendous biological diversity.

One factor is the considerable variety of geological formations found in the county. Three geographic regions, each with a distinctive assortment of plants and animals, intersect there: the Upper


Coastal Plain, the Cumberland Plateau, and the Ridge and Valley. A second factor is the mostly rural character of the county, with much intact habitat for wildlife. A third factor is the presence of multiple outcrops of a most unusual kind of rock.

Fully half of the rare plant species of Bibb County are found principally on or near open, mostly treeless, glades that have developed over an ancient (upper Cambrian) rock formation known as the Ketona Dolomite. Dolomite is a sedimentary rock composed chiefly of the carbonates of calcium and magnesium. There are several other kinds of dolomite found in Alabama and the other southeastern states, but they typically have considerable impurities, especially siliceous materials such as chert. It is not unusual for chert to form 40 percent of such rocks. Ketona Dolomite, by contrast, is unusually pure, with only about 2 percent impuri-

ties. This has important consequences for the development of plant life where this rock is exposed.

Because its magnesium carbonate is not significantly diluted by chert, the soil derived from the weathering of Ketona Dolomite is exceptionally high in magnesium. Magnesium is an element necessary for plant growth, but toxic in high concentrations because it interferes with the uptake of other essential elements.

The combination of high magnesium levels and a shallow, droughty soil where the rock is at or near the surface produces conditions that only specially adapted plants can tolerate. The result is a community of drought- and magnesium-tolerant plants able to evolve in the absence of competition from more generally adapted types. The presence of multiple newly discovered species, several of them with seemingly primitive features, as well as the presence of others whose nearest

known locations are hundreds of miles distant, suggest that this plant community is an ancient one. Indeed, these glades, with their extraordinary assemblage of rare species, constitute a "Lost World" in Bibb County, Alabama! 

Footnotes

1. Alabama lipfern, Alabama phlox, Alabama skullcap, bay star-vine, big-flowered grass-of-Parnassus, Elliott's fan-petal, false rue-anemone, ginseng, lesser white-topped sedge, maidenbush, needle palm, plains poppy-mallow, shadow-witch, smooth blazing-star, streambank St. John's-wort, and Wherry's catchfly.
2. Alabama snow-wreath, Allegheny spurge, Butler's quillwort, croomia, decumbent toadshade, Georgia aster, heart-leaved plantain, Great Plains ladies'-tresses, ivory sedge, limestone adder's-tongue fern, Nashville breadroot, one-flowered cancer-root, ovate maidenfern, prickly-ash, purple coneflower, small-flowered phacelia, Smith's sunflower, soapwort gentian, striped gentian, sunny-bells, wide-leaved bunchflower, white four-o'clock, widespread gladeceess, Wood's false-hellebore, and yellow least gladeceess.

LEADERS

Continued from page 7

study tour destinations are determined on a class-by-class basis. Various classes have been to China and Japan, Argentina and Brazil, New Zealand and Australia, and Western Europe. Most of the study institutes are three days in length. However, the national study tour is about a week long, and the international study tour is about two weeks. The program takes a total of 50 days spread over the two-year period.

LEADERS participants and graduates can be found in top leadership positions in agriculture and forestry as well as in corporate and government offices in our state. This is a further indication that LEADERS is paying rich dividends to everyone and not just the LEADERS participants themselves. Good leadership in high places is more critical today than ever.

"It was a tremendous experience that greatly enhanced my horizons," says Jake Harper. Harper is a graduate of Class I and also sits on the state board of directors of the Alabama Farmers Federation. "It was hard to make the sacrifice necessary for me to participate, but I'm glad I did," he adds.

"LEADERS helped me see beyond raising cows and crops and holding land. It gave me the courage to pursue some

leadership opportunities I never would have taken otherwise. It's an overall growing experience that has made me a more rounded person," Harper says.

Becoming a LEADER


Class V will be graduating in December 1995, but plans are well underway for a Class VI in 1996. The LEADERS staff, graduates, and friends of the program are looking for good candidates for this unique leadership education effort. A LEADERS participant is usually between the ages of 25 and 40. Most participants will be individuals who are directly involved in production, processing, management or marketing of farm, forest or related products. A limited number of professionals in government, education, or others indirectly involved with the food and fiber industries may be admitted to a class.

LEADERS class participants pay a tuition fee, currently \$4,000, for admission into the program. Most participants have help from lenders, suppliers, or commodity groups to make that individual tuition payment. Expensive as this tuition fee may seem, this fee is only a portion of the direct costs of the program for each participant. Actual direct costs for each participant are around \$8,000, so the individual participant by no means pays full costs. Private sources fund other direct costs. Auburn University also con-

tributes by defraying indirect costs of the program such as staffing and related costs.

The LEADERS program has enjoyed the full support of agricultural and forestry related commodity trade groups and entities since its early days. The Alabama Farmers Federation, the Alabama Forestry Commission, the Alabama Forestry Association, the Alabama Poultry and Egg Association, GoldKist, Inc., the Alabama Peanut Producers Association, the Federal Land Bank Association, the Alabama Council of Cooperatives, and many others have pulled together to help fund the LEADERS program. The LEADERS Alumni Association is now taking an active role in seeing that LEADERS continues to exist.

The LEADERS program maintains an open application procedure, meaning anyone may apply. The program is non-discriminatory and women and minorities are encouraged to apply. Nominations are also sought from graduates of the program or from others knowledgeable in agriculture and forestry. You are also invited to submit the name of someone you feel could benefit from the program.

For more information, contact the LEADERS office at Auburn University at (334)844-4443, or write Dennis Evans, 201 Duncan Hall-ACES, Auburn University, Alabama 36849. 

Alabama Stumpage:

Will the Bull Market Continue?

by STEVE NIX, Forest Resource Analyst, Alabama Development Office

Alabama's raw wood fiber is overwhelmingly controlled by forest ownerships which are neither publicly held nor are under the care of forest industry. Only 28 percent of Alabama's forestland is owned by government or a wood using company. This fiber and solid wood market is held by 214,000 owners who are fast becoming wise to the value of timber.

This non-industrial forest fiber owner has the wood and will continue to control the value of Alabama timber. They will reap the rewards as well as share in any economic downturns which will affect the value of wood. But significant downturns over the long-run are highly unlikely.

Never has the Alabama timber market performed as well as it has in the past several years. According to data collected by Timber Marts, Inc., most major forest product classes grown and held as an uncut tree (stumpage), doubled in value since 1990. Timber has proven to be an excellent long-term investment for people who have stayed the course.

The Timber Bull

Alabama's roundwood commodity market has enjoyed a bull run since approximately 1990. Dramatic increases in prices started about the beginning of this decade. Since then timber owners generally have received outstanding prices for their timber. Rumors of extremely high sales have turned out to be correct. This usually occurred in areas where there was an acute need for wood and the seller knew the value of his product.

Prices have increased in all product categories. As of the first quarter of 1995, Timber Mart-South indicates that pine sawtimber stumpage is up 108 percent over 1990 prices; hardwood sawtimber

stumpage up 130 percent; peelers up 79 percent; poles up 68 percent; pine pulp up 62 percent; hardwood pulp up over 100 percent (see Figures 1 and 2).

Partly because of this upward movement of timber prices, the sale of timber has increased, resulting in an increased harvest. Alabama severance tax records indicate the 1994 harvest was the largest ever recorded.

This Market Is Complex

The price of local timber "growing on the stump" is affected by many things. A forestry textbook on the timber market would indicate that tree species, tree size, tree quality, volumes per acre, access, logging method, markets, conditions put on the sale, and location all affect timber prices. These are primarily local factors influencing price.

In addition to local factors, global, national, and regional situations will affect timber prices. The timber market is extremely complex.

There must be a demand. The demand for wood is strongly dependant on the global and national economy. Pulpwood demand, which depends on the demand of paper, is very sensitive to general business conditions. Sawtimber demand, which depends on housing construction, fluctuates as interest rates change. More specifically, housing and things depending on housing fluctuate with interest rates.

It would be safe to say that wood prices will rise and wane with the general economy. It can be assumed that the economy has recently suited the timber market because we are experiencing a peak in demand for wood products.

There must be an available market for buying trees. Alabama is blessed with a healthy market that is constantly

looking for trees for manufacture. According to the latest Alabama Forestry Commission *Forest Industry Directory*, there are over 400 products made from trees harvested in Alabama by nearly 1,200 manufacturers.

Over 1,000 buyers of timber (as listed in a timber buyer directory published by the Alabama Forestry Commission) are looking for trees every day in Alabama. The market price is basically determined by the best bid, which is determined by its demand for a particular product on a particular day.

It is the ultimate goal of every timber seller to have the most desperate buyer looking at the most valuable product on a day when this product is difficult to find. It sounds simple, but it can be very hard to do.

There must be a grower selling trees. Remember that in Alabama no buyer grows nearly all the trees he needs. The Alabama buyer has to go to the open market—which is made up of over 200,000 growers. This same timber grower, as prices become better, is becoming more and more sophisticated.

There has never been more technical advice available to the seller, including hundreds of forestry consultants. These professional foresters know the value of more than 16 different product classifications and are holding out for better prices and larger total sales.

These sophisticated sellers, taking technical advice from trained professionals, are selling in the best market in the nation and this adds up to increased stumpage values.

Will the Bull Continue?

The saying, "What goes up must come down" is appropriate here. If history can predict the future, there will continue to be short term declines in timber prices as

there will certainly be declines in the economy. It is difficult to believe they will reach pre-1990 levels.

What will sustain higher, long-term timber prices?

- There is a decreasing contribution of timber from Western states because of wilderness issues and environmental regulations. If this continues, Southern timber prices will benefit from the drop in wood availability.
- World wood supplies are decreasing, particularly within developing nations. This increases the demand for Southern timber products within the world market. Presently Alabama is exporting more forest tonnage through the Port of Mobile than ever before. This has been mostly driven by the hardwood chip market.
- There is an increased awareness of the value of Alabama timber stumpage as an investment. The educated Alabama seller is holding out for larger profits and seeking advice on the value of their investments.
- Technology is expanding the use of lower quality timber. Traditionally unused Alabama wood is more frequently being sold because of developing technology.

- As long-term economic stability in the U.S. continues, Alabama timber prices will remain good.
- As Alabama continues to increase procurement ranges via the system of waterways, traditionally poor markets will become viable markets because of this expanded market area.
- An alternate building material or non-virgin fiber does not appear on the scene.

Alabama will continue to have excellent forest product markets. The above indicators point to continued good times for timber owners. Odds are the future holds higher prices for wood products. 📍

References:

Neal, J. and F. Norris. "Southern Stumpage Prices 1979-1989." *Forest Farmer* 28th Manual Edition, Feb. 1991.

"Stumpage Price Mart," *Standing Timber*, Quarterly and Summary Data Sheets, Timber Mart-South, P.O. Box 1278, Highlands, N.C. 28741.

Figure 1 Pulpwood Stumpage Prices in Alabama

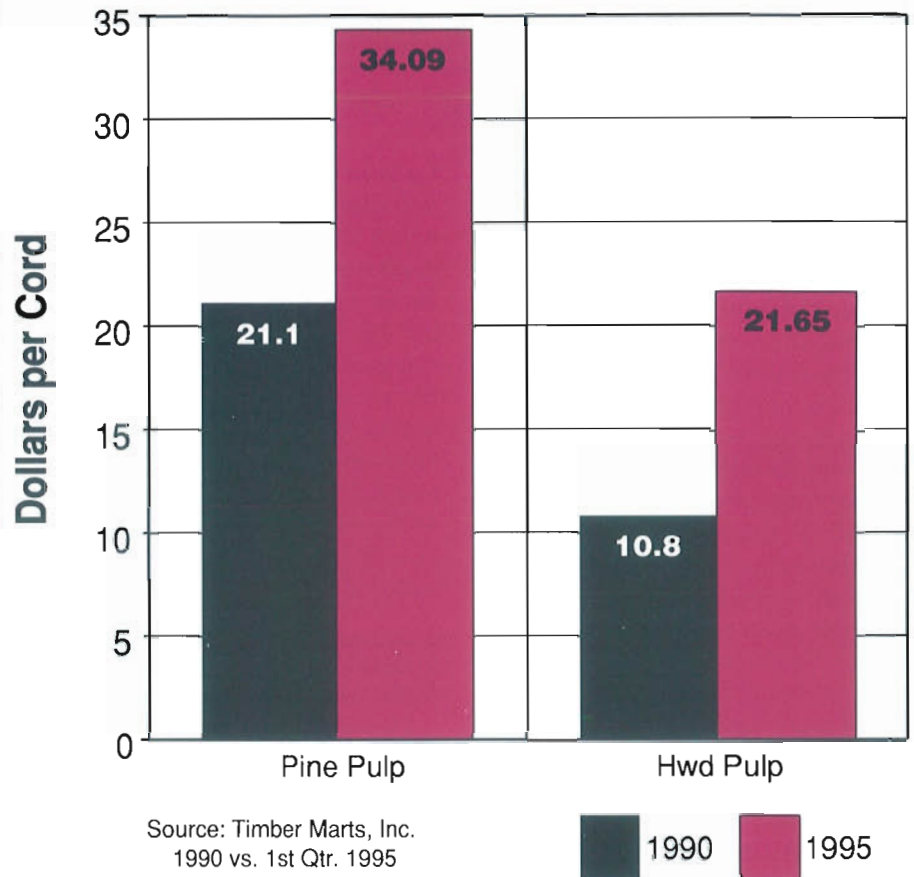
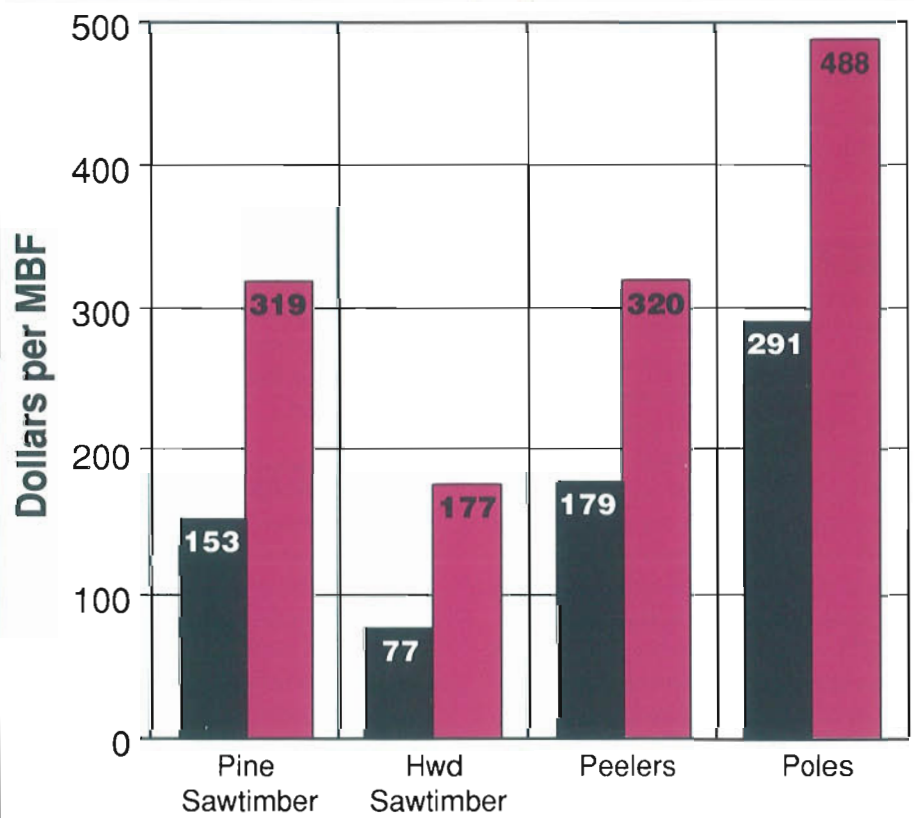


Figure 2 Solid Wood Stumpage Prices in Alabama



Federal Laws and Alabama Landowners

by LOU HYMAN, Alabama Forestry Commission

Landowners in Alabama have a partner in their operation, the federal government. At one time many considered Uncle Sam to be a “silent partner” who only took a share of the income when harvesting occurred, but recently the silent partner has become more outspoken.

Uncle Sam influences your forest management through the provisions of the federal income tax rules, the estate tax rules, cost sharing provisions, and management assistance, as well as proscriptive regulations. This article will look at some of the major federal laws that directly impact forest landowners in Alabama.

Society has the right to regulate how people use their property to protect the rights of future landowners and of society as a whole. In addition, landowners cannot impose costs, including pollution, on their neighbors. Under the police powers of the state, regulation of private landowners can be used to protect public health, safety, morals and welfare. These powers have also been used to limit actions by landowners that might damage forest productivity or cause pollution. Most federal regulations rest on the constitutional provision to regulate interstate commerce, which includes anything that moves between states, such as rivers and birds.

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) is the basic environmental charter of the federal government. NEPA created the Environmental Protection Agency and set up a procedure for assessing the environmental impact of all federal actions. These environmental impact statements (EIS) are detailed studies that look at all environmental consequences of any proposed action and any reasonable alternatives to that action.

NEPA is a procedural law. If an agency finds a possible environmental problem after an EIS, the agency can decide that other values outweigh the costs and proceed with the action.

NEPA applies to federal actions only,

but these actions can have impacts on private forestlands. In a recent case, the Tennessee Valley Authority was forced to develop an EIS on whether to issue a permit for a chip mill to build a conveyor belt that crossed 15 feet of TVA land. One proposal in the EIS was to require that all landowners in a 42-county region surrounding the chip mill obtain timber harvesting permits from the state. This proposal was later rejected, and instead TVA refused permission for the chip mill to be built, limiting the market for hardwood pulpwood in northeast Alabama.

Federal Insecticide, Fungicide and Rodenticide Act

The Federal Insecticide, Fungicide and Rodenticide Act of 1947 (FIFRA) requires the registration of all pesticides and is aimed at protecting consumers from poisoning. It was rewritten in 1972 to strengthen it and give power to EPA to enforce it.

The basic result of FIFRA is the requirement that the label instructions of any pesticide will become legal regulation, binding on the user. If a pesticide is found to cause health problems for humans, the label can be withdrawn, in effect banning the chemical. In order for this to happen, the pesticide must show an unreasonable risk to human health, which can be a small probability of a large loss or a large probability of a modest loss.

FIFRA impacts forest management through the control of chemicals that can be used by the landowner and how they can be applied.

Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended in 1978, 1982, and 1988, mandates protection of threatened or endangered species of animals and plants. The principal portion of the law that affects landowners is the prohibition of “take” and “harm,” which means the landowner cannot kill or hurt any listed animal or modify or degrade its habitat. This last part about modifying habitat has been

a major bone of contention about the ESA.

In the recently decided “Sweet Home” case, the U.S. Supreme Court ruled that the Fish and Wildlife Service can regulate how private landowners manage their land, including restricting timber harvesting. The major species that affects Alabama landowners is the red-cockaded woodpecker, which builds its nest in living older growth trees, especially longleaf pine. This species is very rare, with less than five colonies known on private lands in the state. Landowners with red-cockaded woodpeckers must leave colony trees, a buffer zone and a foraging area for the birds.

The ESA also gives limited protection to rare plants on federal lands. On private lands, plants are only protected to the limits of state laws, which means in Alabama that persons cannot trespass onto someone else’s land to take a listed plant. Landowners are not required to protect the plant’s habitat, but they may not use federal funds (cost-share payments) to destroy habitat. You may not, for example, use cost-share money to drain and fertilize a pitcher plant flat to improve the growth of slash pine.

EPA also has set up an endangered species protection program that addresses uses of pesticides in areas containing endangered species. Each county will have a map showing habitat zones in which landowners need to be careful about the use of chemicals. Your local county Alabama Forestry Commission office has a copy of these maps and can assist you in determining if your land is affected.

Clean Water Act

The Federal Water Pollution Control Act of 1972 is designed to stop pollution of all surface water and ground water, with the goal of having all lakes, rivers and streams in the United States to be “fishable and swimmable.” The act was amended many times and now is referred to as the Clean Water Act (CWA).

(Continued on page 18)



Alabama's Deer Management Program

by EUGENE J. WIDDER, District Wildlife Biologist

Even though the Alabama Cooperative Deer Management Program (DMP) isn't new, some landowners and hunting clubs may still not be aware of it. The program was developed in 1984 by the Game and Fish Division of the Alabama Department of Conservation and Natural Resources.

The DMP Program began due to concerns of Alabama sportsmen and sportswomen over the growing number and declining physical condition of the deer in the state. Another concern was the increasing number of crop depredation permits issued annually to farmers and landowners losing crops to deer. Hunters wanted to improve the physical condition and antler development of the deer, while farmers demanded relief from crop depredation.

When the DMP began, wildlife biologists and conservation officers met with those expressing interest in the program. Habitat surveys were conducted to determine carrying capacity of the various lands owned or leased by people requesting assistance. In a vast majority of the areas the deer herd was found to exceed the carrying capacity of the land. When this phenomenon exists, deer do not receive the required amount of nutritious forage to maintain top physical condition. It would be much like you being forced to eat crackers and chips instead of meat and potatoes. On a deer, antler development suffers first and then body weights decline

rapidly. In many areas, Game and Fish Division personnel found 3½- and even 4½-year-old bucks that had only spike antlers. Even more alarming was the discovery of 1½- and 2½-year-old bucks without visible antlers! This finding helped explain the complaint from numerous hunters that they didn't see many bucks, just a lot of does (antlerless deer). Hunters thought that the bucks had been "shot out."

The Game and Fish Division objective was to improve the condition of the deer for hunters and reduce or eliminate crop damage for farmers. Deer herd reduction measures were needed to satisfy both parties. A reduction in deer numbers would allow the natural habitats to produce more food. Remaining deer would be in better condition due to receiving more nutrition. Less crop damage would result from more natural food and less deer.

Starting the Program

After each person desiring assistance (termed a cooperator) collected required biological data from the deer they harvested, wildlife biologists could determine the condition of the various deer populations. If the analysis of this data compared to habitat survey results warranted herd reduction, antlerless deer tags were issued to that cooperator. Harvest of antlerless deer along with antlered deer would significantly assist in reduction of herd numbers.

Some cooperators wanted results without having to harvest antlerless deer, but that just couldn't happen. The only thing that would allow would be a reduction in the antlered segment of the population which, in many cases, was already overharvested. Cooperators following Game and Fish recommendations began what is mostly a slow process of reaping the benefits of a better managed herd. Body weight and antler development improved. This did not happen overnight. In many cases, results were not noticeable until after three or more years of significant harvests of antlerless deer.

Cost Involved

Very few things, at least worthwhile things, are free anymore. The popularity of the DMP caused rapid increases in number of active cooperators. The 1984 pilot DMP started with 10 cooperators managing 79,685 acres. With a phenomenal growth rate that averaged 148 cooperators and 299,793 acres per year, the current status of the DMP stands at 1,633 cooperators who manage 3,297,726 acres.

Increased demands were placed upon Game and Fish Division personnel to administer this rapidly growing program. Consequently, the user-fee system was initiated to offset the high cost of admin-

(Continued on page 18)

LANDOWNERS

LEGISLATIVE • ALERT

NATIONAL

by TERRI BATES, Washington Representative, National Association of State Foresters



When they adjourned in early August, a weary Congress left town

knowing they would be returning after Labor Day to work on an agenda fraught with controversy and confrontation on issues ranging from welfare and regulatory reform, budget and appropriation bills, and tough natural resource issues.

Budgets and Appropriations

Although final work and approval of a seven-year budget and next year's 13 appropriations bills were not finalized as of press time, significant direction for forestry and conservation programs was already evident.

In their initial budget-cutting proposals of last spring, both House and Senate Republicans proposed drastic scaling back if not outright elimination of a range of private landowner assistance programs.

The appropriations committees have begun to carry out these proposals. Despite its popularity and success, Congress rescinded all moneys appropriated to the Small Business Administration's tree planting program earlier this year.

An impact for forest landowners is the potential elimination of the Stewardship Incentives Program (SIP). SIP provides financial cost-share assistance to small, non-industrial forest landowners for multiple resource management on their lands. The full House and Senate Appropriations Committee had eliminated all funding for the program in early August before an amendment on the Senate floor partially restored SIP to a \$7.5 million level. SIP was funded at \$18 million last year.

The Forestry Incentives Program (FIP) was cut in half last year, from \$12.5 million to \$6 million. So far this year, the House has recommended that next year the same funding for FIP be combined with several other small programs into a type of block grant program. The USDA would determine funding levels for the mix of programs according to conservation priorities.

The Agriculture Conservation Program has gone from a funding level that was close to \$200 million two years ago to a House recommendation of only \$75 million. The House also proposes to fund no new sign-ups for the Conservation Reserve Program. The Wetlands Reserve Program, which received a recommendation from the Clinton administration for \$210 million, would be provided only \$77 million by the House. As with FIP, the Senate has yet to make any budget recommendations on any of these programs.

Federal support for fire prevention and protection programs to the states and rural volunteer fire departments is mixed. Assistance to the states appears relatively stable; however, a small program that provides grant assistance directly to volunteer fire departments would be slashed over 50 percent. This program is also fighting off proposals on several fronts to combine it in larger block grant programs that would pool limited grant dollars from diverse USDA programs, such as waste water treatment. Special fire weather forecasting services previously provided by the National Weather Service look as if they are going to be discontinued based on the assumption that the private sector can and will provide them. Given the threat that fire poses to life and property, fire protection agencies are concerned that this concept has not

been fully explored.

A Forest Service program that provides assistance for urban and rural communities to manage their community forests is in a guarded position. The House would provide a continuing level of \$28 million; the Senate would reduce funding to \$18 million.

All appropriations actions were expected to be finalized by the end of the fiscal year, which ended September 30.

Farm Bill

The mammoth five-year Farm Bill due for reauthorization is moving at a snail's pace. Most of the programs established under the Forestry Title were granted permanent authority and do not need to be reauthorized. There are no plans or apparent issues for a forestry title in 1995, except FIP, which is scheduled to sunset on December 31, 1995. A range of forestry groups, including the National Association of State Foresters, is supporting its reauthorization. With Congressional concurrence, this may be done through either a minor amendment to the 1995 Farm Bill or some other legislative vehicle likely to pass Congress in the months ahead.

Federal Forest Land Issues

Much focus is being drawn to federal land management issues. There have been a variety of proposals introduced in Congress to reduce federal land holdings by returning them to state or private ownership. At the same time, there has been a strong drive by Congressional Republicans and Western members, frustrated by what they perceive as extreme environmental requirements or regulations, to

(Continued on page 17)



It must have been some wag far wiser than this writer who once said: "The more you try to understand, the less you understand."

Never more true was this statement than on July 31, the 30th and final day of the 1995 Regular Session of the Alabama Legislature. Forestry Commission officials were reasonably comfortable with a modest increase or at least level funding in the general fund budget when they went to bed on the night of July 30. It was, however, during those nocturnal hours that a conference committee of three senators and three representatives came to a decision that sliced away \$1,289,474 from their new budget.

It all began when the governor recommended a 15 percent cut from the current budget, the 1994-95 budget being \$12,973,963. The governor recommended \$11,006,610 for fiscal 1995-96. The House concurred in this but the Senate Finance and Taxation saw it differently.

Finance and Taxation member E.B. McClain of Brighton convinced the committee to restore the Alabama Forestry Commission budget to level funding. Still another amendment by Senator Roger Bedford of Russellville placed an additional \$300,000 to ensure support for volunteer fire departments. The full Senate approved this measure. Then came the blow that sent the Forestry Commission reeling as the conference committee pulled \$1,589,474 from the Senate version, dropping the Commission's operating fund almost \$1.3 million below its fiscal 1994-95 budget.

A Critical Time

All of this came amid one of the most severe southern pine beetle attacks in years, coupled with a sudden outbreak of wildfires throughout the state.

This, too, came in the wake of the Alabama Forestry Commission's 1994-95 budget being reduced by \$200,000 to assist in funding other state agencies. This loss in revenue will impact on several critical projects that had been planned by the Alabama Forestry Commission, such

as fire training for many forestry workers.

Legislative leaders had offered a \$5 million conditional appropriation to the Forestry Commission, predicated on the passage of a controversial cigarette stamp discount bill which died in the Senate on the last day of the session.

Both the House and Senate adopted the \$854 million general fund budget, as recommended by the conference committee, with minimal debate.

Insiders will tell you that there was a shortfall in money for the general fund. This was true, and other agencies were forced to take some cuts for the new year, but it hurts when so much is dependent on so few dollars to run an organization such as the Forestry Commission, which so many Alabamians depend on for the safety and survival of their woodlands.

Tag One for Forestry

On the brighter side of the ledger, our personal vehicles will soon brighten the highways with a new distinctive license plate extolling the value of our forests. Senator Bobby Denton of Tusculumbia and Representative Jimmy Warren of Castleberry took the lead on a bill providing for a distinctive license plate for supporters of Alabama's forests. Act No. 95-553 cleared the legislative calendar and was signed by the governor during the final week of the regular session.

It provides for the establishment of the "Forest Stewardship Education Fund" and for a Forest Stewardship Education Committee, as described in our last issue of *TREASURED Forests*. The Committee has completed work on a colorful, eye-catching design that will be available at all probate offices, the same as other distinctive and personalized plates.

The Act becomes effective on November 1, 1995. Proceeds are stipulated for the promotion of professional management of our trees and related resources and to educate the general public regarding the numerous contributions that our forests make to the economy and environmental quality of this state.

Prescribed Burning

Prescribed burning also was a hot topic


during the waning days of the session.

The Alabama Trial Lawyers Association objected to a couple of provisions relative to "nuisance" and "negligence" in the original bill proposed by Representative Allen Layson of Reform and Senator Phil Poole of Moundville. Officials of the Forestry Association worked out the differences and the bill became Act No. 95-609 following the governor's signature.

Basically it states that no property owner, or his or her agent, conducting a prescribed burn in compliance with this Act shall be liable for damage or injury caused by fire or resulting smoke unless it is shown that the property owner or agent failed to act within the degree of care required of others in similar situations.


The Act formally declares that the application of prescribed burning is a landowner's right and a land management tool that benefits the public, the environment and the economy of Alabama. The Alabama Forestry Commission will promulgate rules for the certification of prescribed burn managers and set guidelines for the prescribed burn.

February 6, 1996

If no special session is called by Governor James, the next regular session will begin on Tuesday, February 6, 1996. 'Til then, please keep our legislators aware of the Forestry Commission's critical need for adequate funding. It's a wise investment for your tax dollar. 

National Legislative Alert

Continued from page 16

allow for increased timber harvests and activities on public lands. The results have included strong direction to the USFS to increase their salvage (dead and dying timber) and green tree sales on National Forest lands. There are a range of reviews underway to look at federal fire protection, forest health policies, and major reform of the principle laws that guide federal land management agencies. These issues are likely to carry over into next year. 

Federal Law

Continued from page 14

The CWA follows an approach referred to as a “command and control” system. Congress set up a series of standards with strong agencies (the water quality programs in EPA and the Army Corps of Engineers) to issue regulations and guidelines. All persons or companies who put anything in the water must get a permit, which restricts the actions and imposes guidelines for the person to follow.

Needless to say, this system results in very complicated regulations. All companies that produce point source pollution (for example, from a pipe or other directly deposited waste systems) must follow detailed regulations. This part of the system has been very successful and has greatly improved the quality of water in our lakes and rivers.

In 1987, the CWA was amended to include restrictions on non-point source pollution (primarily run-off from any property). The key to controlling non-point source pollution is controlling erosion and sedimentation. The CWA places the burden on controlling non-point source pollution on the state. The State of Alabama implemented a system of voluntary Best Management Practices (BMPs), backed up

with a strict water quality law. Other states, such as Florida, use forest practices regulations that specify how a tract must be harvested to prevent any sedimentation.

The other major provision of the CWA that affects Alabama landowners is the Wetlands Section 404 regulation. The history of wetland regulation goes back to the 1899 Rivers and Harbors Act, which gave control of all navigable waters to the Army Corps of Engineers (ACE). The Federal Water Pollution Control Act of 1972 took control of all dredge and fill actions in “waters of the United States.” A series of lawsuits between environmental groups and the ACE extended this control from navigable waters to all waters and adjacent wetlands of the United States.

Any action that moves soil in a wetland area requires a permit from the ACE. These permits are public decisions that may require an Environmental Impact Statement and public hearings. In 1977, forestry and agriculture were exempted from the wetlands requirements. However any changes in land use, such as from forestland to farmland, must be done under an ACE permit.

The CWA is undergoing a major reworking in Congress this year, so many of the restrictions on forestry may be changed.

The Farm Bill

The federal government sets agricultural policy on a five-year basis through a comprehensive Farm Bill. The Farm Bill of 1990 was the first one to address forestry by setting up programs in Urban and Community Forestry and the Forest Stewardship Program. The Forest Stewardship program encourages landowners to sustainably manage their lands in a way that looks at all aspects of the forest, including water, wildlife, recreation and timber.

The Forestry Title of the Farm Bill works as an incentive to help landowners. These incentives include cost share programs such as the Stewardship Incentives Program and technical assistance through state forestry agencies. It is included in this discussion to make the point that not all federal programs are regulatory.

Conclusion

This article is just a summary of some of the laws and regulations that may affect forest landowners. *Alabama's TREASURED Forests* will try to keep readers up-to-date on this topic through articles like this one and the “Legislative Alert,” which appears in each issue. ♣

DEER

Continued from page 15

istration. This conservative fee is six cents (.06) per acre plus \$35 per year for private operations or \$100 per year for commercial operations. Monies received from this user fee offset much of the cost of managing the program.

The DMP provides biologically sound management recommendations and is well liked by most cooperators who follow the management recommendations. The popularity of the DMP continues to soar, as is evidenced by the number of new cooperators added each year. New cooperators joining the DMP are selecting objectives ranging from “Increasing Deer Density” to very strict “Trophy Deer” management regimes.

As with any program, there are always a few problems; the DMP is no exception. Cooperators managing large acreages have problems harvesting

enough antlerless deer each year, especially when there are only a few members in the club. Management objectives are hard to achieve unless the recommended number of deer are harvested annually.

Hunting violations have occurred on some DMP cooperator lands also. This results in not only stiff fines for violations of the Alabama Game and Fish laws and regulations, but also suspension from participating in the DMP. Special regulations apply to DMP participation and violation of any of these constitutes grounds for remedial action by the Game and Fish Division.

A Success Story

If any of the wildlife management practices recommended are to be successful, wildlife biologists must be educators of the hunting and non-hunting public. Wildlife biologists continually study research and survey project results

to keep abreast of correct management practices. They must then be articulate and convincing enough to persuade the public to follow their recommendations. Nevertheless, recommendations given are scientifically proven and will work if followed.

Is the DMP working? Yes! It has been slow but, yes, it is working. Results would have been realized sooner if DMP concepts had been administered on all lands at the same time. However, in areas where harvest and habitat improvement recommendations have been adhered to, beneficial results are being enjoyed. Therefore, the future of the DMP appears to be quite bright, and will continue to be a Game and Fish Division service to the public as long as there is a demand for professionally administered deer management.

For more information on Alabama's Deer Management Program, contact Eugene Widder, State Project Leader, P.O. Box 933, Jackson, AL 36545; 334-246-2165. ♣

TREASURE Found in Covington County

by MICHAEL OLDER, Alabama Forestry Commission, Covington County

When Marion and Myra Nell Mickelson acquired 320 acres in Covington County, the majority of the land had been cutover. The previous owners had made no effort to regenerate the forestland, and Mr. Mickelson remembers that he could look across his property and see the north boundary three-quarters of a mile away. Fortunately, there were enough seeds in the duff to begin naturally regenerating the longleaf and loblolly pine stands. At the time they acquired the property, Mr. Mickelson was serving on active duty in the United States Air Force. When he retired from the Air Force in 1967, the scars from the previous harvest had begun to be replaced with native trees.

The Mickelsons immediately began to bring their land under management. Since neighbors had been hunting and burning their land as they pleased during the Mickelsons' absence, their first priority was to come to an understanding with their neighbors and control access and illegal burning. From here they went on to develop permanent firelines and implement a prescribed burning program. Old fields were planted in longleaf pine at a time when few people would attempt to do so. Mr. Mickelson realized that longleaf pine was on his property for a reason and wanted to replicate what was natural. He

also noticed that longleaf pine may be slow starting, but will catch up and pass other species.

The Mickelsons' efforts in multiple-use management were recognized in



The Mickelsons speak to a group of school children who are visiting their TREASURE Forest.

1990 when their property was certified as TREASURE Forest #773. They have continued to be active in the everyday management of their property. They participate in the Stewardship Incentives Program and both are active members of the Covington County Forestry Planning Committee. Mr. Mickelson was the chairman in 1994.

The Mickelsons spend an average of two hours every day working on and enjoying their property. They have realized the need of good stewardship and have committed themselves to building a better future for those to follow. Their interest in multiple use extends from

planting trees to providing additional nest boxes for flying squirrels, "because they need a place to live, too." Wildlife management is not only used to enhance hunting, but to provide habitats for non-game species including a beaver family in the pond that serves as a property boundary. Wild orchids have been found and protected on their property as well. Firewood from poor quality trees helps warm their home in the winter and the tall pines and hardwoods around their home help cool it in the summer.

Their TREASURE Forest has been used for planning committee tours, Lurleen B. Wallace College forestry students, school children, and others. Their

interest has spread from their property boundary into the local school. The Mickelsons have "adopted" W.S. Harlan Elementary School in Lockhart in conjunction with the county forestry planning committee and the TREASURE Forest Landowners Association. The Mickelsons were selected as the District Three runner-up for the Helene Mosley Memorial TREASURE Forest Award this year.

For the Mickelsons, being a TREASURE Forest landowner is a way of life. They live, work and enjoy their property daily and strive to leave it a better place than it was when they found it. ♣

New Cost-Share Program Available

by TIM L. GOTHARD, Alabama Forestry Commission

A new, privately funded cost-share program is now available to Alabama landowners. The Openland Tree Planting Program (OTP) is being funded by the Alabama Power Company. Alabama Power will reimburse approximately 75 percent of average private landowner expenses for openland (rowcrop, hay, or pastureland) tree planting. Any private, non-industrial landowner owning 10 or more acres of openland located in the shaded area of Figure 1 may apply. Cost-sharing is provided for site preparation, tree planting, and competition control measures as needed for each specific site. Practices that may be prescribed include the following:

- prescribed burning
- bush hogging
- subsoiling
- seedlings and planting
- herbaceous weed control

Why Alabama Power?

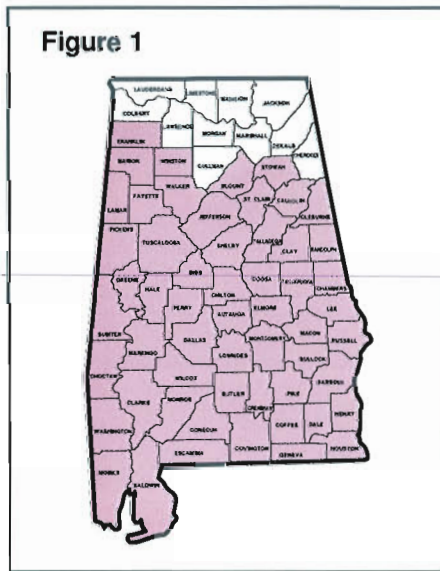
You may ask, why is Alabama Power interested in planting trees? The answer is simple. Trees have the ability to cleanse the air, produce useful forest products, improve water quality, and provide habitat for animals. Trees also extract and store carbon taken from carbon dioxide in the air.

Reports show that one acre of loblolly pines planted on openland can provide carbon storage benefits in excess of 50 tons over a 30-year period. Alabama Power is interested in tree planting in order to assist with atmospheric carbon dioxide reduction. The joint efforts of Alabama Power and private landowners under the OTP enables landowners to enjoy the benefits of forest ownership. In addition, it allows Alabama Power to make a voluntary contribution to a cleaner and healthier environment through beneficial carbon storage in solid wood products. Since solid wood products such as furniture and lumber remain in solid wood form for extended periods, carbon can be beneficially stored for long periods.

Who Determines What Practices Are Needed?

Once an application is approved by Alabama Power, the Alabama Forestry Commission will visit the site and prepare a treatment plan for the landowner to follow. The plan will outline needed practices and provide details about how the work should be performed. Landowners hire and pay the necessary vendors to perform the work. After the practices are performed and the Forestry Commission certifies successful completion, Alabama Power reimburses the appropriate cost-share amount to the landowner.

Figure 1



What Are the Terms of the OTP?

Landowners who take advantage of OTP cost-share agree to do the following:

- Maintain the tree planting for 30 years by protecting it from destructive fire, insects, and grazing.
- Maintain a minimum tree density of 50 square feet of basal area per acre.
- Thin the stand at least twice over the 30-year period, once between the ages of 10-15, and once between the ages of 15-30. **All income from thinning remains with the landowner.**
- Assign to the Alabama Power Company any **Carbon Storage Benefits**

accrued by the tree planting for the 30-year life of the agreement and all years thereafter until the trees are harvested.

Isn't 30 Years a Long Time?

It is a lengthy time, but growing a forest for 30 years can be beneficial to both the landowner and Alabama Power. Solid wood products are the most valuable products obtained from trees, and they take time to grow. Thirty years will put landowners under the OTP in a position to produce valuable solid wood products such as sawtimber, ply-logs, and maybe even poles—all of which the landowner owns at the end of the 30 years. At the same time, the 30-year term will maximize carbon storage in these same wood products and keep it there for the long-term.

What Happens After 30 Years?

Alabama Power is not interested in obtaining the wood product value for the trees established under the OTP. At the end of the 30-year period, landowners have fulfilled their obligations and have no further maintenance responsibilities. The trees belong to the landowner.

What about Changes in Ownership or Land Use?

If you sell the land and the new owner accepts the agreement for the remainder of the original term, you do not have to repay the OTP cost-share amount you received. If you decide to sell the property and the new owner will not accept the agreement, or you decide to change land use, you must repay the OTP cost-shares you received plus interest compounded annually at 8 percent.

How Do I Apply?

To learn more about the OTP, or to apply for the program, call or stop by your local office of the Alabama Forestry Commission or Alabama Power Company and obtain a copy of the OTP cost-share brochure and application form.

Maximizing Benefits from Tree and Shrub Plantings for Wildlife

by TIM L. GOTHARD, Alabama Forestry Commission,
 STAN STEWART, Alabama Department of Conservation and Natural Resources and
 PHILIP WILSON, Alabama Forestry Commission

A host of native and adapted trees and shrubs are available for wildlife plantings. Most were originally identified as beneficial based on the fruit (seed, berries, acorns) produced and its value as a food source for certain wildlife species. Many of the same species can also provide other wildlife benefits when planted in the proper fashion. To maximize the benefits from tree and shrub plantings for wildlife, you should determine the appropriate answers to the following questions:

- What species of wildlife do you wish to benefit?
- What is the desired outcome of your efforts?
- What are the habitat needs of the species you wish to benefit, both in general and on your property?
- What trees or shrubs can provide the needed benefit or produce the desired outcome?

Determining Your Objectives

Once you have answered questions one and two, you have taken the first step toward maximizing the results of your efforts—you have identified your wildlife management objectives. Objectives may vary, but most fall in one of two categories: 1) increased viewing opportunities, and 2) creating or improving needed habitat.

Increased viewing opportunities, whether for watching, photographing, or harvesting, are often readily achieved by increasing the availability of choice foods. Food is usually not the factor that limits wildlife numbers. Often a potential food source goes unused because other

Table 1
Trees and Shrubs Commonly Planted for Wildlife

TREE/SHRUB SPECIES	USED BY	BENEFITS PROVIDED
Autumn Olive	Quail, Turkey, Songbirds	Berries provide fall/early winter soft mast. Escape cover when planted in clumps or hedges.
Chinese Chestnut	Deer, Squirrel	Nuts provide fall hard mast.
Dogwood	Deer, Quail, Turkey, Songbirds, Squirrel, Wood Ducks	Berries provide fall/winter soft mast.
Eastern Redbud	Deer, Songbirds	Legumes/seeds provide fall/early winter food source.
Oak	Deer, Quail, Rabbit, Songbirds, Turkey, Ducks, Squirrel	Acorns provide fall and winter hard mast.
Pecan	Deer, Squirrel	Nuts provide fall/winter hard mast.
Persimmon	Deer, Quail, Songbirds, Turkey, Rabbit, Squirrel	Fruit provides fall soft mast.
Plum	Deer, Quail, Songbirds, Squirrel, Turkey	Fruit provides soft mast. Escape cover when planted in clumps or hedges.
Sawtooth Oak	Deer, Turkey, Squirrel	Acorns provide early fall hard mast.
Shrub Lespedeza	Deer, Rabbit	Foliage provides food source.
	Quail	Seeds provide food source. Plants provide escape cover when planted in clumps or hedges.
Southern Crab Apple	Deer, Quail, Songbirds	Fall source of soft mast.
	Quail, Songbirds	Escape cover when planted in clumps or hedges.
Red oaks: black, blackjack, bluejack, cherrybark, laurel, northern red, Nuttall, scarlet, Shumard, southern red, water, willow.		
White oaks: chestnut, chinkapin, live, overcup, post, sand post, swamp chestnut, white.		

habitat requirements are missing. Creating or improving needed habitat requires

a little more attention to detail about both the habitat needs of the species you

desire and the habitat that your property presently provides. For many species, the limiting factor on your property may be protective cover, nesting habitat, or brood rearing habitat. Once these needs and deficiencies are identified, you can determine what trees and shrubs are beneficial to plant.

Selecting the Proper Tree or Shrub

Most native or adapted trees and shrubs commonly used for wildlife plantings provide a food source suitable to one or more wildlife species, and often to a wide variety of species. For establishing long-term, perennial wildlife foods, suitable trees and shrubs are your best alternative. Table 1 lists a variety of trees and shrubs commonly used for wildlife plantings and the species that benefit.

Fruit produced by forest trees is called mast and is an important part of many wildlife species diets. Mast is classed in two different categories: hard mast and soft mast. Hard mast includes fruit such as acorns, pecans, hickory nuts, chestnuts, and beech nuts. Hard mast provides high quality fall and winter food for wildlife such as white-tailed deer, eastern wild turkey, gray squirrels, blue-jays and other animals. Soft mast includes fruit from species such as dogwood, persimmon, black cherry, and autumn olive. Most soft mast is available for only a short time in summer and fall. It is relished by a variety of animals such as songbirds, wild turkey, and bobwhite quail, just to name a few. Combining hard mast and soft mast plantings can extend the length of time mast is available for wildlife.

Hard mast species such as the oaks are very beneficial in areas dominated by pine. In most cases, native oaks will require 20-25 years before sizable acorn crops are readily produced and should be considered long-term investments in habitat improvements. Since white oak acorns mature in one growing season and red oak acorns mature in two growing seasons, a mixture of native oaks from both groups (see Table 1) can help ensure some form of acorn crop is available each year.

Sawtooth oak is an adapted oak that produces acorns at an early age and can be used to fill the gap until native oaks begin mast production. Sawtooth oaks drop acorns very early in the fall and may

Table 2

Planting Schemes for Selected Wildlife Plants

SPECIES	PLANTING SCHEME
Autumn olive	Plant multiple rows with seedlings on an 8 x 8 foot spacing to provide fruit production and escape cover for quail and songbirds.
Hawthorn	Plant multiple rows with seedlings on a 6 x 6 foot spacing to provide escape cover for quail and songbirds. Plant scattered individual seedlings for bird nesting habitat.
Plum	Plant in multiple rows with seedlings on a 3 x 4 foot spacing to provide fruit production and escape cover for quail, songbirds and rabbits.
Shrub Lespedeza	Plant in patches 5 rows wide, 150 feet in length, with seedlings 1.5 feet apart and rows 3 feet apart to provide seed production and protective cover for quail.
Southern Crab Apple	Plant multiple rows with seedlings on an 8 x 8 foot spacing to provide fruit production and escape cover for quail, songbirds, and deer.

yield acorns as early as age five if complete competition control and fertilization are used. However, without this care it may take 7-10 years or more to produce sizable acorn crops. Because sawtooth acorns are available for only a limited time during the fall, they cannot be expected to provide all the hard mast needs of wildlife.

In most cases, soft mast can be produced in less time than hard mast. Native trees such as black cherry and persimmon can provide fruit as early as age 10, but maximum fruiting occurs after age 20. Dogwood and red mulberry can produce fruit as early as age six, with fruiting abundance increasing as the trees grow older. Non-native soft mast producers such as autumn olive can also yield early fruit.

Creating or Improving Needed Wildlife Habitat

Most often, planting additional food sources provides wildlife with a luxury instead of filling a critical habitat need. Depending on your objectives, this may be the easiest improvement to make. However, if overall habitat improvement is your objective, providing additional food sources may be secondary to developing protective cover, nesting cover, and brood rearing habitat. Absence of specific kinds of cover reduces habitat quality and limits wildlife numbers. Bobwhite quail, for instance, receive the most benefit from improvements associated with escape, nest-

ing, and brood rearing cover. Escape cover is a habitat element that can be addressed with appropriate shrub plantings. Species such as plum, hawthorn, southern crab apple, autumn olive, and shrub lespedeza can be planted in a way that provides quality escape cover for quail and songbirds and sometimes provides an additional food source (see Table 2).

For large expanses of open land, travel corridors and hedgerows can be established using tree and shrub plantings. Tree corridors and hedgerows provide security cover and create wildlife habitat where none previously existed. Pine trees can offer rapid establishment of travel corridors over large expanses of open land. Hardwood trees can also be used but they take longer to establish.

There are vast opportunities to improve both long- and short-term food sources and habitats of many wildlife species with tree and shrub planting. To maximize the beneficial effects of your plantings, identify your objectives, evaluate the needs of desired wildlife species and the deficiencies on your land, and match the proper tree or shrub to your situation.

The Forestry Commission's Alabama Wildlife Nursery has a variety of trees and shrubs ideal for wildlife plantings. These are one-year-old bareroot seedlings, 18-24 inches tall. Remaining species and prices are listed on the back cover of this issue. Also refer to the brochure stapled in the center of this issue for more detailed information. ♣

Forestry Education in Alabama

by DON BURDETTE, Conservation Education Forester

In the public clamor over management of natural resources it's important that the forestry community's voice be heard and understood. A lot of progress is being made in this regard thanks to the efforts of many people. This article presents a sampler of some of the long-running and some fairly new forestry education programs in the state.

County Forestry Planning Committees

First of all, let's give the credit due to the people in every county of the state who have had ongoing programs for local residents and landowners for years. Personnel of state and federal agencies, local forest industry, landowners and others have bragging rights to a long list of accomplishments: newspaper articles, radio and TV programs, landowner seminars and tours, presentations to school and civic groups, shopping mall exhibits, county fairs and parades, and special programs, just to name a few.

Forest Industry

Industry has already been mentioned as being helpful in every county, but there are some special events in which company personnel have taken an especially strong and notable lead. In Baldwin County, Scott Paper hosts **Delta Discovery** and **Outdoor Experiences**, week-long workshops for teachers in cooperation with the Department of Conservation and Natural Resources. In Clarke County, Scotch Lumber is among the sponsors of **Sawmill Days** to commemorate the contributions that logging has made to Alabama in the past and present. From east Alabama, Kimberly Clark developed a K-12 environmental education curriculum, **The Paper Airplane**, that has been introduced to every public school system in the state. In north Alabama, Champion International has been one of the chief sponsors of a program called **FAWN** (for **Forestry Awareness Week Now**), where children from local school systems are

taken through a very effective forestry tour with stops geared toward their learning level.

Remember, this is only a sampler and many more forest product companies are providing exemplary services to the public in their respective communities.

Special Groups

Several advocacy groups are conducting effective forestry programs. The **Society of American Foresters** has chapters throughout the state, but has most effectively coordinated efforts in and around Huntsville where members sponsor forestry tours, public presentations, teacher training and adult education. The **Eagle Council** actively promotes multiple-use forestry throughout north Alabama with a bimonthly newsletter and presentations to targeted groups of community leaders. **Stewards of Family Farms, Ranches and Forests** is spearheading the development of a forestry "edu-tainment" software package designed to be run on multi-media computers. The program will guide users through the complexity of modern forest management using an interactive video game format.

Teacher Oriented Programs

Some of the best time spent in conservation education is in training and equipping school teachers, who during their careers will influence thousands of children with their attitudes about natural resources.

Project Learning Tree (PLT) is a one-day workshop conducted by forestry sponsors throughout the state to provide teachers with fun activities they can use to motivate their students to think objectively about our natural resources. Teachers are taught how to use the environment and inexpensive materials in the classroom to stimulate children's interest in nature, encourage them to make sound natural resource decisions based on scientific investigation and encourage them to take constructive action to improve our environment through sound management.

The annual **Teachers Conservation Workshop**, sponsored by the Alabama Forestry Association and the Auburn University School of Forestry, is a solid week packed with opportunities for teachers to experience the significance of forestry in Alabama. Teachers from all over the state are treated to classroom presentations and field trips to study modern, sustainable forest management. Teachers leave this workshop loaded with new knowledge, friends and resource materials that will aid them back home. The Teachers Conservation Workshop has been so successful and in such high demand that similar workshops on a smaller, local level have been set up around the state, specifically in Baldwin, Covington, Madison and Montgomery Counties.

The Center for Environmental Research and Service at Troy State University offers an outstanding **Forestry Issues Workshop**. The purpose of this hands-on, activity-based workshop is to provide educators with the background necessary to understand the complex economic and environmental issues involved in forestry. The workshop touches on endangered species, water quality, the demand for forest products and forest management techniques.

Forestry is well represented by exhibits, personnel and handout material in statewide educational events each year. The **Environmental Education Association of Alabama**, the **Alabama Science Teachers Association** and the **Alabama Education Association** provide professionals in the forestry and education fields with opportunities to meet, discuss natural resource issues and sharpen their skills in conservation education.

Student Oriented Programs

Some **TREASURE Forest landowners** are making good use of their property to enlighten school children about the environmental and economic benefits of sustainable forestry.

(Continued on page 29)

Forestry Planning Committees at Work

County forestry planning committees all over the state are working to better their communities and educate others about forestry. These committees are made up of private individuals and representatives from government and industry. *Alabama's TREASURED Forests* would like to recognize the efforts of these committees by occasionally featuring some of their accomplishments. It is also hoped that committees will benefit by reading about the works of others. In this issue we feature Covington, Jefferson and Monroe Counties.



Covington County

Covington County, this year's Masters Award winner, is involved in many activities geared toward education of the county's students and teachers. Several workshops were held for teachers last year. A NatureScope Teachers Workshop was held for the first time in 1994, and Project Wild and Project Learning Tree Workshops were also held. An advanced Project Wild workshop was held at the Solon Dixon Forestry Education Center. This two-day workshop covered Project Wild and Aquatic Wild manuals and provided many interesting field trips. The role of forest management was included to make this a comprehensive program. In addition, the committee sponsored a teacher's attendance at the Natural Resources Conservation Workshop in Eufaula.

The Covington County Forestry Planning Committee has "adopted" all eight county schools. Members have helped plant trees, given Arbor Day and general forestry programs, and developed outdoor classrooms. Every school receives several visits each year to promote conservation of natural resources.

The committee also sponsored a "Walk in the Forest" for three schools. Walk in the Forest is a program started by the Society of American Foresters and held on an annual basis. Two of the schools were taken to TREASURE Forests to learn about multiple-use management. Fourth graders at W.S. Harlan School hiked at Mr. and Mrs. Marion Mickelson's TREASURE Forest. At Fleeta School, fifth grade classes toured Mr. and Mrs. Jack Floyd's TREASURE Forest.

The committee has also received grant money to fund nature centers at three different schools in the county. Each center will have a water and bog garden, wildflower garden, arboretum, tree cross-sections, wildlife nest boxes, benches and other areas of interest.



Jefferson County

Jefferson County is known for having a high wildfire occurrence. Each year the Alabama Forestry Commission is responsible for the control and elimination of over 400 wildfires

throughout the county. To control these fires, control lines must be placed around them to remove all fuel (leaves, limbs, debris, etc.) from the oncoming fire. This is most often accomplished by using a bulldozer and a specially designed plow that cuts down to the bare mineral soil, spreading that soil 5 to 7 feet behind the dozer.

The Jefferson County Forestry Planning Committee has devised a plan to reduce the amount of erosion that may be caused by wildfire control lines, while increasing wildlife potential and protecting wildlife in areas destroyed by wildfire. The project is called "Green Acres," and is done with assistance from the CoWaCo Rural Conservation and Development Committee.

Green Acres calls for fertilizing and reseeding control lines immediately following their establishment at a wildfire. These reseeded areas not only protect against erosion, but serve as wildlife food plots and aesthetically pleasing vegetative cover. Since the inception of this project, nearly 25 miles of green lines have been established.

Another project of the Jefferson County Forestry Planning Committee is a quarterly newsletter for landowners. The newsletter is mailed to over 2,000 landowners who own 10 acres or more of forestland in Jefferson County. It is published to inform landowners of the latest information dealing with government programs and research concerning forestry and wildlife. Donations from sponsors and grants from various organizations fund the production and mailing of the newsletter.



Monroe County

When renovations expanded the local library in Monroeville, members of the Monroe County Forestry Planning Committee proposed that some of the new space be devoted to a forestry section. The library administration agreed, and the room has been a popular feature of the library since 1985.

The committee's goal was to provide an up-to-date and functional forestry information resource section in the library for the benefit of local citizens. Since the forestry room's creation, the committee has continued to add educational material and equipment. The room currently features forestry displays, posters, a video viewing center, more than 100 textbooks, 17 different magazines, as well as reports and videos. In addition, vertical files contain information on more than 70 forestry topics.

Students and teachers find the room's resources especially helpful. Forestry students from nearby Alabama Southern Community College and the Area Vocational Center have benefitted from using the forestry room. However, resources that appeal to the general public, such as information on building and remodeling with wood, landscaping, and attracting wildlife, are popular as well.

The forestry area consists of two adjoining rooms, occupying a 20-foot by 28-foot area on the second floor. Funding to purchase books, materials and display cases has come from several sources, including the W. Kelly Mosley Foundation, the Stewardship Program and Auburn University. Local forest products companies have also donated books and periodicals.

The Monroe County Forestry Planning Committee is still accepting donations for the library and plans to continuously update the materials to provide current research and information to local citizens.

Developing Forest Trails

by SARA B. BALDWIN, Ph.D., Registered Forester

What do you, your horse, and your TREASURE Forest have in common? You can each benefit from developing a trail system. Trail riding provides relaxed conditioning for both horse and rider. As you enjoy the outdoors, your horse can help you access parts of your property that you don't normally visit by foot or truck. The improved access can, in turn, help you manage your property, allowing you to inspect your timber and wildlife habitat and watch for problems from insects, disease, or trespassing.

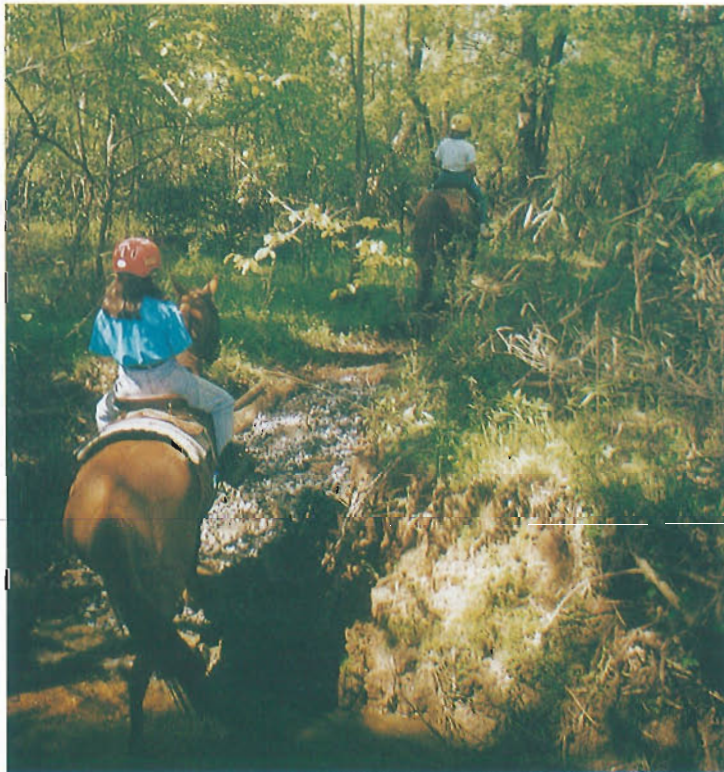
Developing a horse or multiple-use trail system will require some careful planning and some hard work. But if recreation is part of your TREASURE Forest plan, your work will be rewarded with increased enjoyment of your property for you and your riding friends. Or, you can be rewarded financially by having fee rides or a lease-permit arrangement.

Before you begin planning a trail system, you should ask yourself some important questions; your answers will affect how you design and construct the trails. The first of these questions is, Who will use your trails? Will they be used only by your family and friends, or will they be open to a saddle club or perhaps to the public?

If your trails will be used by a saddle club or the public, you must arrange to protect yourself from liability for accidents. Alabama has a law which recognizes the inherent dangers of equines (horses) and is designed to protect people who sponsor horse-related activities from liability. However, the law requires you to post special warning signs. Additional liability insurance and a corporate business structure to handle trail expenses and

income are also good ideas. Check with your lawyer and other business advisors before you set up a trail business.

A second question you should ask as you begin the planning process is, What are the skill levels of your trail users? A



Gravel and rock keep this muddy stream bank firm.

trail that is hilly, narrow, and winding is challenging to horses and riders; it requires both to pay attention to the footing and the clearance from trees and rocks. A trail that is relatively flat, wide, and straight offers a more relaxing ride for some, but will allow skilled riders to travel at faster speeds. Combining the two types of trails or providing options will appeal to a broader variety of riders.

A third question is, Will your trails be used only by horses, or should you plan for other types of users as well? Hikers, mountain bikers, ATV riders, dirt bikers, and horse riders can enjoy many of the same trails, but each needs some special

consideration. Hikers and mountain bikers will appreciate bridges over wet and muddy areas. Mountain bikers also have difficulty pedaling up and down steep grades and will appreciate trails laid out along the land contours. Because they can travel at high speeds, ATVs and dirt bikes have the potential to cause rapid trail erosion. Heavy use by these vehicles will require more trail maintenance and more frequent trail closures to protect your soil. Of all these different users, horse riders will require the highest overhead clearance; overhanging branches are annoying and possibly dangerous.

Planning Your Trail System

Planning your trail system will require both a good map and a good working knowledge of the lay of your land. Your map will show you where you are and where you want to go, but your experience can often show you the easiest way to get there. Plan to make use of what you already have. Building sections of trail to connect your

existing logging access roads will give you more riding distance with less work. A walk through the woods may also reveal many abandoned farm lanes and terraces that can easily be re-opened for trail use. Another reason to plan to incorporate your access roads into your trail system is for safety; being able to get a vehicle near an injured horse or rider may come in handy.

It is also a good idea to plan multiple routes—different loops that can be connected in various ways. This will allow you to vary your rides to keep things interesting, and to take shortcuts when the weather or other conditions, such as

tired horses and riders, suggest. Having alternate routes will also allow you to close sections of trail for maintenance or "rest" without shutting down your system altogether. This approach will also give you more flexibility to fit your trail use in with your other management objectives. For example, you will probably want to re-route your trail away from a planned timber harvest or a sensitive wildlife area. In turn, your trails can also be used by hunters, and following a timber harvest, the firelanes and logging access roads can be added back into your trail system.

As you plan your individual trails, try to avoid wet soils and choose stream crossings carefully. While stream zones offer a lot of aesthetic appeal to riders, many horses have difficulty with mud. Horses are heavy and their weight is concentrated on a small area of hoof. Because of this, horses tend to sink deeper in mud than a person on foot or even an ATV. Muddy areas on your trails can get badly churned up by just a few horses traveling at slow speeds. These will require more maintenance, or bridge construction, to keep your trails in rideable condition over time. A trail on a dry ridge overlooking a stream will require less work than a route in the stream bottom. Likewise, stream crossings that are rocky, gravelly, or have course sand will hold up better than mucky ones.

Somewhere in your planning process, you may want to consider a supplemental labor force. A saddle club or nearby stable may dearly covet your property and be willing to work with you to design and

construct trails in exchange for riding access; they may even initiate the project. However, for your privacy, protection, and peace of mind, you should maintain control of the project. Involve the group in the planning process just described, and stress that the trail use must be compatible with your other multiple-use objectives and with your overall land stewardship goals. Work out a written agreement that specifies in advance who will do what work, and how often and for how long the group will be allowed to ride. Your agreement should also address cleanup responsibilities and concerns about litter.

As you finalize your plans, an inventory of your tools is important. You will need a chain saw for initial brush clearing. Try to find one that is powerful, yet lightweight and dependable, so it will be easy to carry through the woods. You should also consider a carbide-tipped chain for cutting stumps and roots flush with ground level. A mattock, or grubhoe, is also useful for chopping roots and small stumps. A machete will be useful for side pruning, and a good pair of pruning shears and a small hand saw will be needed for overhead work. If many different people will be using your trails, you will also need road signs and trail markers. The former should be permanent, while the latter should be movable or reusable as you vary your routes.

Construction of Trails


The actual construction of the trails is fairly simple; it mainly requires physical labor. Because horses can go nearly any-

where if they don't get tangled up, most of your work will involve clearing brush. Begin with a chain saw for the large stems, and fine tune with hand tools.

As the base, the trails do not have to be wide; three to four feet is plenty. The base does not have to be graded, but does need to be clear of stumps and protruding roots that can trip horses. In rocky areas, loose rocks that could slide when stepped on should be moved aside. On hills, a log or crossie at a right angle to the trail, partially buried so it won't roll, can help hold the soil in place. The animals will likely treat it as a step. If the trail goes along the side of a hill, a long log wedged in place on the downhill side will serve as a curb. It will improve the footing as it helps keep the soil from sliding downhill.

The sides of the trail should be cleared of branches and briars to a width that allows riding without getting scraped and scratched along the way. Four feet should be plenty, but, as you ride, your knees will be the widest point, and you can judge your own comfortable trail width. Much of this work can be done quickly with a machete.

The overhead clearing is probably the most difficult, but it is important to prevent injuries. You cannot reach high enough from foot or from an ATV. A pole saw designed for pruning overhead is useful, but a person on the ground cannot always judge what is going to be in the way of a mounted rider. I do overhead work from horseback with a good pair of pruning shears and a small hand saw. I am lucky enough to have a horse that will stand when told to, will stop and start using voice commands, and does not mind branches and sawdust falling around her head. Many horses can get used to this, but start slowly. Avoid any temptation to use power tools or machetes while mounted. Also, remember that some horses are frightened by the sound of breaking branches and will never adjust to this line of work.

Trail planning, construction and maintenance can be a never-ending process. But if you enjoy riding and enjoy being out in your woods, the rewards will be worth the effort. You may have to experiment to see what methods work best for you, but these ideas should help you get started on your TREASURE Forest trail system. 

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The Southern Forests: *A Legacy of Nations*

by DON BURDETTE, Alabama Forestry Commission

Quite suddenly, people from a broad range of viewpoints are very interested in the history of our Southern forests. Why? For various reasons, we all want to know what the original forests were like before people came on the scene; how the forests were affected by human civilization; and how the forests that we see around us today came to be.

The continually changing forests of the South are the result of many natural and human events that have occurred through the centuries. In reviewing the past, we are reminded of important lessons about the conservation of natural resources, which we must continue to appreciate and practice.

In this article we will look at the South's original primeval forest, the last great natural transformation of the forest as witnessed by native Americans, the manipulated forests as the Europeans discovered them, as well as the effect of early logging and land use practices during the settlement of our country. In the next issue of *Alabama's TREASURED Forests* we will follow through with a look at the development of the South's second, third and fourth generation forests which were made possible by concerted conservation efforts.

America's Primeval Forests Develop

Primeval is defined in the American Heritage Dictionary as "belonging to the first or earliest age or ages; original." We know that eons ago forests of the South were huge, club moss trees that flourished in swamps. Our only record of what took place during this time occurs in coal bed fossils, and scientific evidence indicates that those forests were as complex as today's.

Clearly, over a long period of time, the character of the Southern forest went through phenomenal modification in response to changes in atmospheric composition, climate and geologic turmoil. The forest evolved from club mosses and ferns to the first gymnosperms (relatives of modern pine trees) and finally to mixed forests of gymnosperms and angiosperms (broad-leaved, deciduous species). The glacial period of geologic history caused species hardiness zones to migrate north and south as the ice fields ebbed and flowed out of Canada. By the time the last glacier receded to the north (20,000 years ago), a boreal forest of hemlock, pine and fir trees had extended as far south as north Alabama. These species occur today in a Canadian hardiness zone far to the north; only remnants of the eastern hemlock remain in some cool ravines of north Alabama. Perhaps the most interesting aspect of this transformation is that change is a natural process, and whole ecosystems emerged and became extinct without the presence of man.

Most people's interest in the Southern forests, however, is in more recent developments in which man is included as a part of the ecosystem. The forests and times of prehistoric man are interesting stories about the development of a human civilization that had to adjust to—and also helped create—a changing environment.

The first people to migrate into the South after the last glacier had receded to the north were called Paleo Indians by anthropologists. They came into north Alabama about 10,000 B.C. following herds of mastodons, giant bison and ground sloths that they depended upon for food and clothing. The South they discovered was dominated by beech and maple—the same forest type found today in the Midwest.

By 8,000 B.C. a changing ecosystem forced new developments in the human population. As the climate grew warmer and drier the forest types that we are familiar with in the South today—oak-hickory and mixed pine-hardwood—began to dominate and eventually stabilized by about 5,000 B.C. The megafauna hunted by Paleo Indians had become extinct in part due to an inability to adapt to ecological changes and partly due to severe hunting pressure. Archaic people were forced to switch to the hunting of deer, turkey and small game animals for sustenance. As the forest changed, Archaic people learned how to make better use of the forest for food, shelter, medicine and more sophisticated tools. As they learned how to live off what they could hunt and gather around them, a transition was made from a fully nomadic way of life to a semi-nomadic rotation between seasonal opportunities.

By 1,000 B.C., the Woodland people had discovered two new technologies that significantly improved their manner of living: rudimentary agriculture and pottery making. They found that by clearing patches in the forest and cultivating plants such as sunflower, squash and gourds, they could provide more food close to home. Settlements and clearings meant that the Indians were beginning to exert greater influence on the forests' condition.

Between A.D. 800 and A.D. 1500, the Mississippian culture continued to develop their agriculture, social structure, art, trade and religion. This prosperous native American society reached its zenith with the construction of temple mound cities such as Moundville, Alabama. These centers of a feudal system required large areas of the forest to be cleared for mounds, structures, ceremonial fields and cropland. By this time fire was a tool commonly used by the Indians to influence the forest to better provide for their needs. However, even before the arrival of Europeans, the Mississippian culture had begun a mysterious decline.

(Continued on page 30)

Forest Roads and Water Protection

by TOMMY PATTERSON, Forest Management Chief,
Alabama Forestry Commission

It has been said that the three secrets to good roads are DRAINAGE, DRAINAGE and DRAINAGE! Though this statement can apply to any kind of road, I want to discuss its particular relevance to forest roads.

Flowing water from rain or streams can move soil. This becomes a big concern with unpaved forest roads. Forest roads represent the single greatest potential for severe, long-term erosion from forestry activities. Good forest managers do not want soil washed into streams and they want their roads to remain serviceable. No matter how well the forest road is built, if it does not have the correct drainage, it will not function properly for long.

There are a variety of methods that are effective in controlling soil erosion on forest roads. The most common and least expensive methods are water bars for temporary roads and skid trails, and turnouts for more permanent roads.

Water Bars

A water bar is a mound of dirt placed across a sloping road to divert water off the bare soil. Water bars reduce erosion by slowing the speed of runoff water. They also provide conditions suitable for natural or artificial revegetation by allowing plants to take root instead of being washed away.

Water bars should be placed at an angle of 30 to 45 degrees to the road. The water bar turns runoff, not dams it. The height of the dirt mound should be about 2 feet above the roadbed. A trench of 1 to 2 feet deep should slope into the uphill side of the mound. The uphill end of the water bar needs to tie into the road bank while the other end needs to be open. The open end needs to extend far enough to disperse water onto undisturbed forest floor (Figure 1). The number of water bars and distance between is determined



A turnout is used to divert water away from a road or ditch.

by the slope (angle) of the road (see Table 1).

Road grade percent is determined by dividing elevation difference by horizontal distance. For example: a road 100 feet long with a drop of 6 feet would have a 6 percent grade (6 divided by 100 is .06 or 6 percent).

Water bars should be inspected after heavy rains to see if repairs are necessary. Due to the height of water bars, they are not generally suitable for high speed or heavy traffic. They are best used on roads closed to vehicular traffic.

Water Turnouts

A water turnout is known by many names. Wing ditches, kick-offs and turnout ditches all describe a method to move water away from the road or ditch. Turnouts can be used wherever water could accumulate or accelerate. The water is diverted onto undisturbed forest floor to absorb water energy and trap any sediment. Water turnouts can be used as

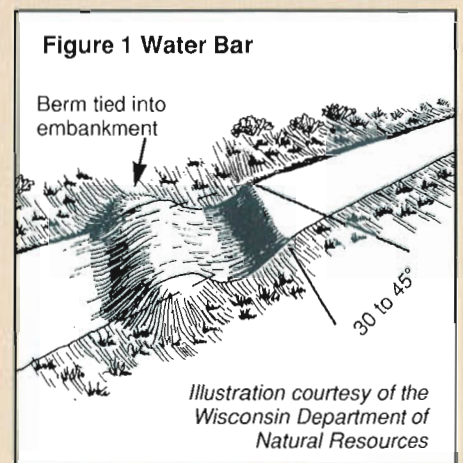


Table 1

Grade of Road (Percent)	Distance Between Water Bars (feet)
2	250
5	135
10	80
15	60
20	45
30	35

alternatives to culverts at much reduced costs.

The turnout should leave the road ditch line at a 30 to 45 degree angle to the roadbed. It should begin at the same level as the existing ditch and be slightly out-sloped. Turnouts should not feed directly into adjacent drainage or gullies. On a road of 3 to 5 percent slope they should be no greater than 235 feet apart, and no greater than 140 feet for grades of 5 to 10 percent.

Stream Crossings

Stream crossings have the largest potential for reducing water quality. Activities at stream crossings can cause great quantities of soil to be placed in a stream to the point of stopping water flow. Stream crossings should be held to a minimum by good planning. Crossings should always be at right angles to streams to make the length of streambed affected as short as possible. The use of drains and turnouts above crossings will help reduce the amount of water and/or sediment reaching the stream.

Stream crossings can be categorized into four general types: log crossings, fords, culverts and bridges. The selection should be based upon stream conditions and what kind of equipment will use them. However, it seems that most crossings are selected by their cost.



A log crossing is temporary and must be removed when activity (such as a logging operation) is completed.

Log crossings are created by placing hollow or solid logs lengthwise into the stream channel. **DO NOT** use a dozer to push piles of brush limbs and dirt into a stream for a crossing. The idea is to let

the water continue flowing through the crossing. Because of the material used, this kind of crossing is temporary. It must be removed when activity is completed.

Fords can be used as crossings in shallow streams that have low banks. A slight sloping of the banks is usually needed but care must be taken to pull soil away from the stream and not push soil into it. Rock can be used to stabilize the approaches and stream bottom. Fords should only be used when you are certain that equipment will not destroy the ford during use.

Culverts do a good job of protecting water at stream crossings, but they require some expertise in selection and installation. The diameter of the culvert is determined by the acres of surrounding area drained. A 12-inch diameter culvert is the minimum size recommended. Size specifications are listed in *Alabama's Best Management Practices for Forestry 1993*. When placed into a stream, the culvert should rest on the existing stream bottom. Do not dig out the bottom for the culvert. The culvert ends should extend beyond the fill material used to hold the culvert. Do not use fill material obtained from the stream channel. At least one foot of cover or one-third of the pipe diameter should be tamped over the culvert.

Bridges can be used for both temporary and permanent stream crossings. They can be built from local logs with rough planking or of more expensive metal and concrete. Bridges tend to cause less damage to stream banks and channels. Portable bridges are now being used by some forestry operations. These bridges have a higher initial cost but can be reused. The height of any bridge must allow for passage of water during peak stream flow.

All of the described water protection devices require some planning for them to be effective. Before a timber harvest, a landowner should include water protection in the timber sale contract. Most loggers have received training in the use of water protection devices. Technical assistance to landowners and loggers is available free of charge from your local Alabama Forestry Commission office. Further details are included in *Alabama's Best Management Practices for Forestry 1993*, also available from your local AFC office. ♣

Forest Education

Continued from page 23

Last year the **School of Discovery** in Selma piloted a program where they used forestry science as an emphasized course of study. By the end of the year, every sixth grader in the city had been introduced to the urban and rural forest resources around them and were encouraged to take greater care in their perpetuation and wise use. The teachers worked very hard to develop lesson plans that could help other school systems carry on a similar program.

The **Harrigan Forest Learning Center** at Mobile College is a unique cooperative program between a private college, a public school system and forest industry in south Alabama. Two full-time instructors put on workshops each week for visiting students and teachers of the Mobile County school system. A broad range of subjects is offered to teach higher awareness, appreciation and a sense of stewardship of forest resources.

Earth Camp is a similar program but for only two weeks during the summer. Bear Creek Education Center, with assistance from forestry interests in the northwest Alabama area, introduces kids to all of the natural resources that are important to the area, with forest resources and forestry receiving significant attention. The program promotes multiple-use conservation.

This fall, the Tukabatchee Area Council of the **Boy Scouts of America** (in central Alabama) will be piloting a forestry education project. Scouts trained in forestry in last summer's camp will in turn train their classmates in their home schools. If the program is successful, it will be introduced to the other Area Councils in the state next summer.

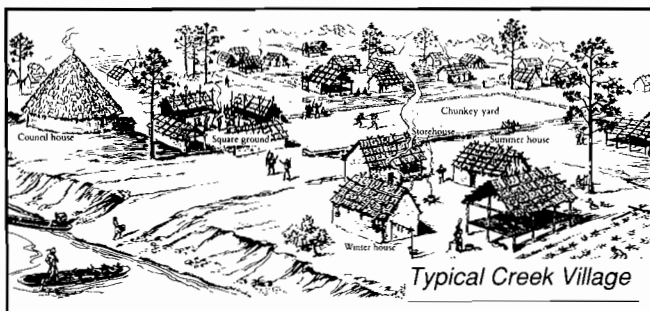
If you've been wondering whether forestry was getting any positive attention in the public arena, I guess you can see now that we've been making some progress. We could still use your help, though, in promoting and defending sustainable, multiple-use forestry—by your affirmation and encouragement for efforts that are being made, or your helping to plan or sponsor a local event some day. Contact with your county forestry planning committee through the Alabama Forestry Commission office would be appreciated. ♣

History

Continued from page 27

1500s: America's Open Southeastern Forests Are Discovered

The journals written during the Spanish exploration of the mid-1500s give the first historical account of how the native Americans lived and interacted with the natural resources of the South. The native American lifestyle throughout the Southeast at that time could best be described as dependent upon a combination of floodplain farming, hunting, fishing and gathering of natural foods and materials. Most Indian settlements were found within alluvial valleys of major rivers, where it was advantageous to cultivate corn, beans, squash, gourds and tobacco in the moist but well-drained, fertile and easily tilled soils.



Open burning was used for the initial clearing of new garden sites. Little effort may have been made to confine the fire and it spread to areas of adjacent woodlands and previous clearings. The trees in the garden area that survived the wildfire were girdled either with stone axes or by burning additional brush at the base. The vegetables planted beneath the deadened trees were then cultivated with simple hand tools.

Fires were also intentionally set outside the garden areas to open up and improve the surrounding upland forests for hunting and gathering purposes. Intensity and frequency of resulting wildfires probably varied with fuel, topography and weather conditions around the Southeast.

The result of intense, annual fires in the Lower Coastal Plains was that longleaf pine trees and other fire tolerant plant species usually dominated the landscape. The fires in this region removed or severely restricted most of the fire intolerant species from the forest composition. In addition, young regeneration of even the fire tolerant species was often destroyed resulting in open, grassy and park-like conditions throughout much of the coastal areas. Eventually, as the regular fires continued to prevent natural regeneration and the older trees died out, vast grassy savannas devoid of trees were maintained along the Atlantic and Gulf of Mexico coasts.

The fires that occurred outside the Coastal Plains do not appear to have been of a frequency or intensity to result in wholesale conversion of the forest to a fire climax composition. At least half of the South was most likely oak-hickory climax forest but with evidence of fire and storm damage interrupting the landscape.

Throughout the South there were places and times when fire was kept in check either by wet climatic spells or sustained moisture. Lulls in the burning regimes allowed periodic regeneration of natural longleaf pine and even upland hardwood stands in the Lower Coastal Plains. Also, the forests of huge bottomland hardwood and cypress trees in the swamps and wettest river floodplains could not have developed under pressure of frequent fires. The magnificent stands in these places were probably the only true old growth forests that were in the Southeast at the time Columbus discovered America.

It's a good thing fire didn't keep the forest bare forever! Wood was essential to the Indians as fuel and as a primary construction material for dwellings and other buildings, tools, implements, palisade walls, weapons and ceremonial objects. Several species of hardwood trees also produced food, medicine, and other properties which were important components of Indian survival and culture.

Historical records and archeological evidence indicate that the Indian settlements were moved frequently for a variety of reasons, including depletion of wood supplies, reduction in soil productivity, flooding and intertribal turmoil. Given the substantial Indian population in the Southeast at the time of the Spanish explorers, their use of fire, and the tendency to move whole communities fairly frequently, the native American impact on the forest was to create a mosaic of stand types, ages and conditions as well as open prairies. The gradually changing mosaic also provided habitat diversity which allowed, and may even have guaranteed, the sustenance of a wide variety of wildlife species during the Indian influence on the forests.

The Spanish explorers in the region introduced common European diseases to which the Indians had little or no immunity. Millions of people, an estimated 60-80 percent of the Indian population, died between the Spanish expeditions and the next wave of European contact. While natural and man-caused fires still continued during this time, they were less frequent so the forests had a greater chance to regenerate themselves. Pine and hardwood quantity and quality increased everywhere.

1600-1700s: America's Colonial Southeastern Forests Are Explored

During the 1600s and 1700s, territory in Southeastern North America was constantly claimed, taken by force or traded between Spain, Britain, and France before the founding of the United States.

The forests the British and French encountered were somewhat different from what the Spanish had described. Less frequent and intense burning as had been done by a well developed Indian society 150-200 years earlier, had allowed natural plant succession to increase both the quantity and quality of hardwood and pine stocking.

William Bartram, a noted English botanist of the late 1700s, described "grassy savannas of scattered longleaf pines, abundant cane, and narrow groves of hardwood forests on the banks of streams" within the Lower Coastal Plains of the South. This indicated that the Indians were still practicing burning in this area of the South. Bartram described stands of cypress and bottomland hardwoods in the Mobile swamps that were so tall,

straight and enormous that he was afraid of jeopardizing his credibility by giving the dimensions. He described "vast open forests without any considerable variation," almost entirely hardwood species, in the Upper Coastal Plains of Alabama. And finally, Bartram described "grand, high forests of stately trees," again almost entirely hardwoods though of different species, in the Appalachian and Piedmont mountains from Carolina to Alabama.

The first explorers made their living trading with the surviving descendants of the Indians. These survivors had regrouped into federations of tribes whom we know today by such names as Cherokee, Creek, Choctaw, Chickasaw and Natchez. Traders used ornamental items, iron axes and kettles to trade for furs and deerskins. The Indians in turn shared their techniques of girdling trees and using fire to open up the woodlands for agriculture and improved game habitat and hunting.

The fur traders had little more impact on the forests and land than the Indians but they opened up opportunities for early European settlements to establish, grow and spread inland from the coasts along waterways and Indian trade trails. As settlers came into the South, their first need was open land on which to grow crops and build their homesteads. They also needed grazing land for their livestock.

Early in colonial American history, an attitude developed toward the forests which regarded them as both an inexhaustible resource and an impediment to the advancement of civilization that had to be cleared out of the way. This belief prevailed for nearly two centuries during the early settlement and expansion period of American history. Besides the techniques of tree girdling learned from the Indians, the settlers brought beasts of burden, iron axes and buck saws, plows and guns to carve a living out of the wilderness.

After the initial clearing of the land, the settlers took on a greater appreciation of wood. Virtually every object on a farm and in a home was wholly or partly made of wood. Obviously the first uses for the trees found along the Lower Coastal Plains by the European pioneers were for homes, barns, rail fences, tools, implements, wagons and furniture. By far the greatest demand for wood was for fuel to heat, cook and forge by. Inefficient, open fireplaces required 20-40 cords of wood per year and soon created wood shortages near the larger and older settlements.

To succeed during these times, farmers needed to be part-time lumbermen, carpenters and coopers who learned the distinctive properties and potential of each wood species. Even though almost everything the settlers used required wood, the fine timber that stood in those days was far in excess of their immediate needs and had little to no commercial value.

Because of transportation problems, early lumbering enterprises remained small and supplied mainly local needs. The best trees were felled with axes, the branchless portion of the tree cut into logs which were dragged by oxen to a homesite. They were squared with broadaxe and adz and fitted into log cabins or other buildings. Because only the clear limbless portion of the tree was utilized for lumber, everything else (usually a sizeable portion of the tree) was burned for fuel, consumed in brush fires or left as waste to decay in the woodlands. Early harvesting and sawmilling

technology were altogether human or animal powered. The earliest method of cutting logs into planks was by pit sawing. Productivity was very low and inefficient.

Beyond the immediate needs for the homestead, one of the first export industries was the harvesting of oak, chestnut and red cedar timber, pine masts and naval stores for shipbuilding. Naval stores refers to pine sap which was extracted from longleaf and slash pines and made into pitch, tar and rosin used to waterproof wooden boats and ships.

During the time of exploration and early settlement along the Atlantic and Gulf Coasts, the Southeastern forests continued to increase in stocking. Burning the pine forests continued as a cultural practice by both Indians and white settlers for improving range conditions for semi-domesticated livestock. However, this burning and the beginning of land clearing and timber harvesting by a sparse white population did not yet have a significant overall impact on the forest condition in the Coastal Plains.

The interior hardwood forests probably showed considerably less impact by either Indian tribes or early European trappers and explorers at first. However, sustained contact by the Indian tribes with French and British deerskin traders resulted in rapid acculturation of European technology and standards of living. This meant that the Indians began to adopt and utilize the white man's iron axe, plow and beast of burden to make life in the interior forestlands easier and more prosperous.

By the mid-1700s sawmills began to be built along dammed streams where a waterwheel generated the mechanical power for sawing. This new technology increased the feasibility and affordability of uniform lumber production. In the late 1700s small communities grew up around the sawmills which produced planks, clapboards, shingles, barrel staves and shipbuilding parts.

As settlers moved into the Piedmont and Appalachians, charcoal production from hardwoods became another important forest product from beyond the Coastal Plains. Charcoal was used in iron and glass making, production of soap, gunpowder, filters, deodorizers and insulation.

At first, Americans may have felt hostility toward the forest as an immediate obstacle to their plans and purposes. When they became settled, however, it did not take long for them to realize how dependent they were on the forest. Early America was not only made possible, but it was made beautiful by wood. ♣

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Alabama Forestry Commission 1995-96 Season

Orders are still being taken for remaining species. The seedlings will be available for pick-up after December 1. Orders are taken on a first-come first-served basis. To obtain an order form, call your Alabama Forestry Commission county office; the seedling sales office in the Montgomery Headquarters at (334) 240-9345; FAX a request to (334) 240-9390; or write to: Seedling Order Form Request, Alabama Forestry Commission, P. O. Box 302550, Montgomery, AL 36130-2550.

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