

Alabama's **TREASURED Forests**

WINTER 1994



STATE FORESTER'S MESSAGE

by TIMOTHY C. BOYCE, State Forester



As your new state forester, I follow in the footsteps of the man who has had many successes and who has provided tremendous leadership to our state.

C.W. (Bill) Moody is a man of vision who saw that a forest was more than just trees—a forest was a TREASURE, which included many resources that benefit the people of Alabama. Bill Moody articulated and fully believed the motto: “Making Alabama Better for People Through Forestry.” His work over the last 23 years reflected that drive. He led the development of innovative forest management assistance programs, creative urban forestry programs, and a strong system of volunteer fire departments.

He also showed how far people can go if they do not care who gets the credit. Bill Moody’s cooperative spirit led him to find partnerships with as many groups as he could, so that we could work together to solve our common problems. He was a “founder” who had the vision to begin cooperative efforts that became models for others to follow. He was the founder or co-founder of the Alabama Forestry Planning Committee, the

TREASURE Forest Program, the Rural Community Fire Protection Institute, the Alabama Forest Resources Center, and Alabama People Against a Littered State (PALS).

Because of Bill Moody, Alabama is indeed a better place for people through forestry.

The Alabama Forestry Commission will go on, and move forward in our mission. We are rededicating ourselves to three major goals: forest protection, landowner assistance and public enlightenment.

The AFC has primary responsibility to protect the rural resources and communities of Alabama from fire, forest insects and disease, and other influences that may harm the productivity of our land. We do this in partnership with volunteer fire departments, the fire college, fire institute, legislative fire caucus and others who join with us to make their communities safe.

We will work with landowners to maximize the potential of their land to meet their personal goals in such a way as to benefit all of society. Ninety-five percent of Alabama’s forestland is privately owned, and those landowners are responsible for the growth of our resources. Because of their efforts we now have more forest acres than at any time this century, more hardwoods than ever, more game, and an improving quality of life.

A major problem facing us is that the majority of our fellow citizens are uninformed or misinformed about the role forestry is playing in their lives. We must work toward educating all Alabamians on the benefits of our forests and man’s role in their balanced environmental and economic contribution to our state.

One of the most exciting parts of my new job is the opportunity to work more closely with TREASURE Forest owners. You have made stewardship part of your life and the guiding philosophy of your land management program. No doubt the answer to many of our environmental challenges in the years ahead is TREASURE Forest.

It is an honor to work with you as we continue to “Make Alabama Better for People Through Forestry.”

Sincerely,

A handwritten signature in black ink, reading "T. C. Boyce". The signature is written in a cursive, flowing style.

Timothy C. Boyce
State Forester

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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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A VALLEY OF HARDWOODS

by KIM GILLILAND, Editor

Every fall, people flock to areas of North Alabama to view the hardwoods in their brilliant hues of red, yellow and orange. One of the places this fall color is so extraordinary is the DeKalb County town of Valley Head. R.B. Brown's TREASURE Forest lies in this area, and naturally the hardwoods are plentiful on his property.

Brown's 1,800-acre TREASURE Forest is composed of mountainous land as well as about three miles of a large valley. Brown's grandfather bought the original property from a mining company in 1924. Brown inherited some of the property, along with other family members, and he has purchased several additional tracts of neighboring land over the years. He estimates that he's bought and sold over 200 separate parcels of land during his lifetime. "I buy it, improve it a little, and then sell it," he said.

Hunting Operations

Although timber is the main objective for this TREASURE Forest, the secondary objective of wildlife is extremely important because of the income it provides.

A 25-member hunting club has a lodge on the property, and each member pays a different fee according to whether he hunts, fishes, or does a little of both. Thirty-one deer were taken last hunting season, and the property is under the Department of Conservation's Deer Management Program. Deer stands are located throughout the property, and shelters for hunters have also been made in case they get caught in the elements.

Also hunted on the property are quail, turkey, and rabbits. The quail hunting is leased solely to a private company. "I've got about 75 coveys," Brown said.

There are five ponds currently on the property, with plans to construct an additional one soon. The largest of the ponds, consisting of 15 acres, is a sizable attraction for ducks. At one time the pond was drained every year, planted and then flooded. But now Brown has changed his management to include a food plot adjacent to the pond. He says about the same number of ducks are attracted, and it's more cost-effective and takes less time than draining the pond.

Colorful hardwoods make this property a beautiful site in the fall.

Large food plots have also been established, most being planted in wheat, peas and corn. Brown has high hopes for a new food source, however. Two winter plots this year have been sown with birdsfoot trefoil. Although it is not widely used in Alabama for food plots, Brown believes it will be something to look for in the future. When checked in mid-October, the plants were beginning to come up strongly.

Hardwoods and Pines

“The first pulpwood ever cut in this county was cut off of this place back when they were building Georgia Kraft,” Brown proudly proclaims. Ever since this took place in 1952, he has worked to reforest and manage the property so that it would continue to bring in an income. “I started planting trees years and years ago.”

Although the property is predominantly in hardwoods and mixed stands, pine plantations have been established over the years. Approximately 100 acres of loblolly pines were established between 1980 and 1988. In addition, 155 acres were established in 1986-87 under the Conservation Reserve Program. Permanent fire-breaks were put in around the plantations in 1987-88.

Brown admits that he has learned from mistakes over the years when managing his property. One of the biggest was not prescribe burning when he should have. When Brown was first beginning to develop his property for wildlife, he realized that something had to be done to provide a better habitat. “A deer couldn’t even get through my woods,” he said. He got some good advice from an SCS representative about that same time, even though it wasn’t being recommended by everyone else. “He said you cannot have wildlife unless you start burning your woods. But you’ve got to do it at the right time.” Brown then began a prescribe burning program in his pines which has contributed to an increase of deer and other wildlife on his property.

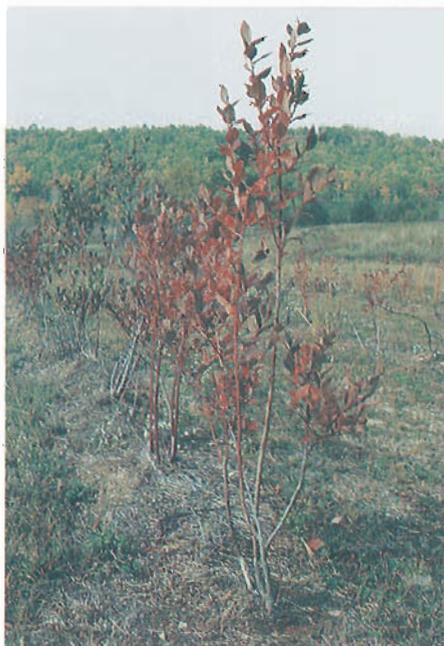
Brown believes that a good way to improve hardwood timber is to go ahead and clearcut whole tracts. “It’ll come back before you can do anything to it, because hardwood comes back from the seed, the root and from the stump. The timber that would come back would be good timber,” he said. For doubters who think it takes a long time for hardwoods to grow back, Brown cites an experience by a friend who



Although mostly in hardwoods, pines are an important part of this TREASURE Forest.

clearcut some hardwoods several years ago. His friend had planted the field in kudzu for his cattle. But, according to Brown, “It came back in hardwoods so quick that it even killed the kudzu! Today, on that land that he cut off of, he’s got the best stand of hardwood timber.”

Some of the hardwoods on Brown’s property are difficult to harvest because of the steepness on the side of the mountain, but increased technology is allowing these areas to be reached. “We’ve got a lot better stuff to cut it with now than we used to. They can just about go anywhere,” he said.



About 10 acres of blueberry bushes are managed.

Dream House

At one point Brown owned over 3,000 acres, but sold 1,200 acres in 1992. This has allowed him to spend more time and energy building his dream house. The house is being built almost entirely of wood from Brown’s property. Cedar, ash, cherry, pine and maple are just a few of the different woods being used. The house has been under construction for over a year, with Brown there almost every day doing some of the work himself. Much of the wood being used is cut by Brown and sent to a mill for sawing and a kiln for drying. Every room is paneled, and there are hardwood floors throughout the home. The house sits on top of a hill, and a living area with large glass windows on three sides will allow a breathtaking view. Another pond is planned for construction in the near future, which will also be visible from the new house.

When it comes to managing forestland, Brown says his best advice to other landowners is to recognize the future benefits of planting trees. “When you start to set out trees or do woodland work, if you’ll sit down and figure out what it’s going to cost in today’s market, it’s not feasible to do it. So you don’t figure what the timber’s worth *today*. But if you figure out what it’s going to be worth 15 or 20 years from now, it is feasible. And timber will actually grow you more money per acre than cattle or anything than I’ve ever found.” 🌲

Editor's Understory

by KIM GILLILAND, Editor

When Robert Barry Brown was born, his older sister commented to family members that he looked just like a teddy bear. He soon became "Brother Bear," and later just "Bear"—a nickname that has followed him into adulthood.

Brown grew up in Valley Head, Alabama, and has lived on the property he now owns for most of his life. He married his wife Emily, a local girl, in 1952. They have four children—three boys and a girl—and are also the proud grandparents of eight.

The area comprising Brown's TREASURE Forest has a somewhat flavorful history. In 1897 a mining town called Kaolin was located there. White clay was mined and sent to northern states to be made into china. There was a post office, depot and quite a few houses in Kaolin. Two miles up the road was Battell, which was a rather progressive town for that time period. All the homes had running water and electricity. The towns soon faded, though, and the property was sold to private landowners. Most of the homes and buildings were moved to surrounding towns, so there aren't many remnants left of the communities.

Over time, Brown has taken advantage of cost-share programs dating back to the Soil Bank years. Some of the property had been used for row-cropping when he first obtained it, and Brown converted some of this to pine trees back when Eisenhower came out with the Soil Bank program. "I had harvested it off and planted it back in corn when they came out with the Conservation Reserve Program, and I set it out in trees again."

Brown's property has diverse uses, all of which help bring an income for the family. In addition to using the trees to build a new home, there are several other ventures. One of his sons is managing about 10 acres of blueberry bushes. He sells the berries, and the bushes are also



Brown had this room designed with windows on three sides to allow a panoramic view of his TREASURE forest.



R.B. "Bear" Brown stands in a room of his new house panelled with "wormy maple" cut from his TREASURE Forest. "Wormy" is the term used to describe wood that has been attacked by any variety of borers. The technical term used to describe this wood is WHND—Worm Holes No Defect. Several different woods have been used to by Brown to panel his new home.

rooted and sold. A small rock quarry is also located on the property and slate is quarried there. Some of this slate will be used on the outside of the new home Brown is building. Although it is no longer in operation, for about 10 years Brown raised rainbow trout and operated a hatchery in one of the ponds.

In 1991 Brown's TREASURE Forest was chosen as a district winner for the Helene Mosley Memorial TREASURE Forest Award. In addition to the Alabama Forestry Commission, Brown is grateful to the Soil Conservation Service for their assistance over the years. He is also glad to see the forest industries developing their landowner assistance programs in the North Alabama area, and thinks their advice will benefit many local landowners.

The Brown property is used in numerous ways to provide income and enjoyment for everyone associated with it. Brown intends to keep it that way, and wants to find even more uses for it. Looking to the future, he sees an increased opportunity for landowners to sell to overseas markets. He also looks forward to the time when the oil and natural gas he's found present on his property can be utilized in some way. As he expressed, "I'd like to see us become a more energy efficient nation." ♣

Alabama Agricultural and Conservation Development Commission Program

The Alabama Agricultural and Conservation Development Commission Program is an excellent investment in the future of all Alabamians through the proper management and conservation of our valuable soil and water resources. Established by the Alabama Legislature, the program authorized the Commission to make cost-share grants available to eligible landowners for the encouragement and financing of soil erosion, reforestation, and water quality improvement practices.

The Alabama Agricultural and Conservation Development Commission is a program whereby an eligible applicant can receive assistance on a 60 percent state/40 percent applicant cost-share basis to install conservation practices or measures directly on the landscape to help solve a particular soil erosion or water quality program. Cost-share assistance received by any one applicant cannot exceed \$3,500 per program year (October 1 - September 30). Examples of practices approved by the Commission at the state level include permanent vegetative cover establishment, terrace systems, critical area treatment, animal waste control facilities, manure dry stack facilities and composters, and forest tree stand improvement and tree planting.

The Alabama Agricultural and Conservation Development Commission Program is implemented at the local level by Soil and Water Conservation District. There are 67 conservation district offices in the state (one for each county). Each district is governed by five local Soil and Water Conservation District Supervisors. These men and women serve without pay and provide the necessary leadership to implement the program. The district secretary in each county is the contact person and program manager for each Soil and Water Conservation District.

Technical assistance for landowners is provided by the USDA-Soil Conservation Service for erosion and water quality practices and by the Alabama Forestry Commission for reforestation practices.

The Alabama Agricultural and Conser-

vation Development Commission Program is an example of how a strictly voluntary approach to agricultural nonpoint pollution prevention and correction is being successfully accomplished. Landowners are adopting these Agricultural Best Management Practices and solving their erosion and water quality problems. This is beneficial to everyone

by protecting our resource base and ensuring that future generations will have clean flowing rivers, streams, and lakes.

This program is an excellent example of how state and federal agencies, with leadership and coordination provided by local people, can work jointly to provide a good, viable, resource management program its land users. ♣

I T M A Y B E
SMOKEY'S
BIRTHDAY, BUT
WE'RE THE ONES
GETTING THE
G I F T.

Healthy, thriving forests. That's what Smokey's given us for the past 50 years. With your help, we can all go on enjoying this gift far into the future. Be prudent with matches and campfires. And remember — only you can prevent forest fires.



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PLANT YOUR FOREST CORRECTLY

by TOMMY PATTERSON,
Forest Management Chief,
Alabama Forestry Commission

A landowner makes a significant effort and dollar outlay when planting a stand of trees. To insure that these dollars and efforts are not wasted, much attention must be paid to the quality of the tree planting job.

The Alabama Forestry Commission has been concerned with tree planting quality for many years. This concern is displayed by the attention given to producing the best seedlings possible in our tree nurseries. The AFC is also concerned to the point of creating tree planting standards and prompting use of these standards across the state. These combined efforts have significantly increased survival of planted seedlings over the past few years, saving Alabama landowners hundreds of thousands of dollars. The benefits of this success are passed by many ways to all citizens of Alabama.

From the time a tree seedling is removed from the nursery bed, until that seedling is established in its new growing site, cumulative stress is placed on the seedling. Of course, with enough stress, the seedling will not survive and must be replaced.

The AFC has gone to considerable effort to assure proper handling of seedlings. Refrigerated holding coolers have been used at the nurseries for some time. In the recent past, a refrigerated van has been used to transport seedlings to satellite holding coolers across the state. This system allows the seedlings to remain at the proper temperature throughout the transport process.

Upon receipt of seedlings from the coolers, the responsibility for proper handling and planting quality is passed

Alabama Forestry Commission

on to the landowner/tree planter.

The tree seedlings need to be planted as soon as possible when removed from the coolers. The reforestation standards say seedlings need to be planted within two weeks of leaving the nursery. Partial shipments can usually be arranged with the nursery to prevent seedlings from having to be stockpiled. During the entire seedling's life, it must be kept from lethal heating, freezing and root dryness. Seedling bundles should not be stacked more than three high and not left stacked on truck beds more than a few hours. Keep the seedling bundles out of direct sunlight to prevent the bundle from reaching a lethal 85 degrees. Air temperatures of 33 to 75 degrees are the preferable range. Keep the seedling roots moist and cool at all times.

When hand planting, carry the seedlings in a canvas bag or bucket containing wet moss, hydro-mulch or sawdust. Planting machines have a hopper to hold the seedlings. Keep the hopper covered and the seedlings moist. Don't expose the roots to sun and wind. The planting hole should be about ten inches deep and three inches wide. When planting, don't cramp the roots or cause the roots to turn upward in the hole. Plant the seedling 1/2" deeper than it grew in the nursery. When using a dibble, make a second hole to close the planting hole.

A correctly planted seedling must have a shoot length of at least 5 inches above ground. The root collar must be below ground and no roots visible above ground. The soil around the seedling must be

packed to prevent air pockets. To test for proper soil pack, the seedling must remain firmly planted when pulled by the top four needles and not move up or down. The seedling should be vertical in the hole but not exceed 45 degrees from vertical. Don't plant seedlings in frozen or excessively wet soil.

A good tree planter will treat tree seedlings with care. They know that each time a seedling is put under stress, it's survival ability is reduced.

Someone once made the statement, "If it's worth doing, it's worth doing right!" Nowhere is that philosophy more important than in tree planting.

More detailed instructions about planting specific tree species can be obtained from your local representative of the Alabama Forestry Commission. ♣

4-H Wildlife Team Wins National Championship

For the third time in five years, the Alabama 4-H Wildlife Team captured first place honors at the National 4-H Wildlife Habitat Evaluation Invitational. For the first time in the history of the competition, the national event was held in Alabama. The Eufaula National Wildlife Refuge and the Barbour County State Wildlife Management Area was the setting for the competition, which is held in a different location each year.

A group of Tuscaloosa County 4-H'ers represented Alabama this year. This marks the second time that a Tuscaloosa County team has captured the national title.

In only five years, this relatively new Alabama 4-H Wildlife Habitat Evaluation Program is already establishing a proud tradition in showing the nation the quality of youth in the state. Alabama's record in the 4-H wildlife judging program shows that the state's commitment to environmental quality starts at a young age and that youth are being prepared to become better stewards of our national resources.

The event is sponsored by Champion



Pictured left to right are: James McGhee, Barbour County Extension Agent; William Wallace; Keith Smith; Jarrod West; Edwina Mitchell; Wayne Ford, Tuscaloosa County Extension Agent and team coach; Gary Moody, Alabama Game and Fish; and Tucker Hill, Champion International Corporation.

International Corporation, the U.S. Fish and Wildlife Service and the Rocky Mountain Elk Club. Additional support for the 1993 event in Eufaula was provided

by Gulf States Paper Corporation and the Alabama Game and Fish Division of the Department of Conservation and Natural Resources. ♣



The drum chopper should be pulled up and down slope so chopper blades will parallel the contour.

MANAGING SITE PRODUCTIVITY

by ARTHUR J. GODDARD, Soil Scientist, USDA Forest Service

Site productivity can be generally defined as the capability of a piece of land, say an acre, to grow food or fiber. In this case we're talking about trees. Productivity is determined by site quality plus management activity. When we use the term site quality, we're actually referring to the biological and physical features of the site. Management activity on a piece of land is easily controlled, whereas site quality is stable, at least in the short term. Site quality is not readily improved but it may be damaged quite easily.

Primary biological features that contribute to and influence productivity are stand density, genetic stock, control of competition from undesirable species, and insect and disease problems. Like forest management, we can control the biological features to a certain degree. Foresters choose the planting rate, can select genetically improved seedlings, control species competition through site preparation methods and, to a point, ward off insect and disease problems. Primary physical features that contribute to and influence productivity are climate, topog-

raphy, and soils. There is not much one can do to control climate or topography. Soil significantly affects tree growth and can be either maintained or altered to improve site productivity. Unfortunately, soil can also be altered to damage site productivity.

There are numerous physical, chemical, and biological properties that make up a soil. As a forest landowner or forester, concern needs only to revolve around those soil properties that have the greatest impact on site productivity. They are soil depth, porosity, nutrients, and the

ability to take in and hold moisture. When we refer to soil depth, we are primarily interested in the surface depth (organic matter and topsoil). Depth of soil determines the rooting medium from which trees obtain nutrients, water and anchorage. Porosity or air space within a soil is where tree roots obtain oxygen vital to root growth. Porosity also provides for drainage which influences nutrient cycling. Moisture or available water within a soil is considered the most important factor affecting tree growth. Soil structure and texture determine the water holding capacity of a given soil. An example is that clayey soil holds greater moisture than sandy soil. Nutrient availability is basically determined by the mineral content of the soil, which relates to the geology from which a soil was derived. Nutrients are not usually a concern in undisturbed forests. In a disturbed forest, research has found nitrogen and phosphorus to be the most frequently deficient nutrients. Deficiency can be inherent, such as the case in sandy soils, or be the result from past land management use such as abandoned agricultural lands.

How can timber management affect site productivity? Three factors come to mind: erosion, compaction and nutrient removal. These factors are common whenever man-made activities occur on land. With proper management they can be held to a minimum with little effect on site productivity. However, any one of the three factors can result in significant loss of site productivity if allowed to develop severely. Erosion is directly related to steepness of slope and the amount of soil exposed to the forces of wind and rain. Erosion can permanently alter a soil's physical and chemical properties. Compaction destroys soil porosity which limits oxygen exchange, available moisture and drainage. Nutrient removal can reduce tree growth if excessive (i.e. whole tree harvesting).

Protecting Site Productivity

Now that we have a basic knowledge of what constitutes site productivity and how timber management can possibly effect it, we can turn our attention to protecting site productivity while managing a woodland. We can divide timber management into three parts: logging, site preparation and reforestation. The great-

est impacts to site productivity occur during logging and site preparation, with reforestation playing a minor role. We have highly productive soils in the South, along with high rainfall—amounts conducive to growing trees. We also are confronted with highly erodible soils on many of our upland sites and we must deal with soils high in clay content that can be readily compacted. The most effective way to manage for site productivity is to recognize and incorporate soil data into the timber plan of operation. Identifying any specific soil hazard ahead of time will make for a more efficient logging operation both economically and environmentally.

When entering a tract of land to harvest the trees, the most important part of the operation is the transportation network. Research has demonstrated that during logging operations, 90 plus percent of the erosion and compaction occurs on roads, skid trails and loading decks, with less than 10 percent occurring outside the transportation network. The average transportation network takes up 10 to 15 percent of the land being harvested. So when we look to reduce erosion and compaction, we can see the need to concentrate our efforts on the transportation network. Knowing the soil, slope and "lay of the land" we may be able to construct our transportation network to avoid soils with high clay con-

tents near the surface. We know that clay holds moisture, so we do not want to have a road that stays wet and slick, resulting in higher maintenance costs and erosion. We can select well drained sites to place our loading deck(s). We can also identify equipment hazards such as soils with excessive amounts of clay or sand. Placement of drainage structures along roads will keep water runoff from the bare soil on the roadway, thus reducing erosion. The greatest return from prior knowledge of soils may be a reduction in road construction costs, as well as reduced road maintenance costs. Usually a planned transportation network will have less miles of roads and skid trails.

Compaction is expected on roads and skid trails. This can be corrected through restoration. Restoration involves many techniques. A standard method to break up compacted soil layers is to rip or disc roads and skid trails followed with spreading of grasses and fertilizer to provide a cover crop that protects the soil from erosion. Where we want to minimize compaction is on areas other than roads and skid trails—where the trees grow. This can be accomplished by logging during dry periods or the dry season (late summer/fall) if possible. Skid trails should be concentrated on clayey and silty soils if hauling must be done during wet periods, since research has shown that one vehicle trip may do as much



Ninety percent of erosion during logging operations occurs on roads, skid trails and loading decks.

compaction as several trips. The opposite is done for sandy soils; skid trails should be dispersed, since little compaction occurs after a few trips. If several sites are to be cut in a year, diverting logging to sandy soils during wet periods and clay soils during the drier periods reduces the chances of compaction.

Types of equipment used for harvesting determines the amount of compaction. An obvious sign of compaction by equipment is rutting. Some rutting is acceptable on a road or skid trail that will be restored. The one or two trips a skidder makes off-road to haul a tree is where you want minimal rutting to no rutting to occur. Use of low psi tires, choosing a forwarding system of harvesting rather than skidders, or other techniques available can assist in reducing soil compaction.

Nutrients are not evenly concentrated throughout a tree. The bulk of nutrients within a tree are found in the needles or leaves and fine branches and are normally returned to the soil through litter fall and decay. Nutrient loss from harvesting can be reduced by distributing rather than concentrating slash. Use of limbing gates should not be concentrated at loading decks but spread out across the land. The distribution of logging slash across the land becomes more important on soils with low organic matter such as sandy coastal plain soils. In addition, logging slash impedes overland flow of rainwater, thus reducing erosion. Whole tree harvesting results in the greatest loss of nutrients from a site.

Effects of Site Preparation

Methods of site preparation have varying effects on erosion, compaction and nutrient loss. Any form of site preparation that involves use of equipment will also involve compaction. One way to lessen the impact is to perform site preparation during dry weather to the extent possible. Erosion potential is maximized when using shear and rake, windrowing or heavy discing. These forms of site preparation expose the most soil. Reduced soil exposure can be accomplished during shear and rake operations if the blade is kept out of the soil. Raking should be done carefully so as not to gouge the ground. Windrows should be held to a minimum. Keep them small and placed on the con-

tour. Large windrows tend to have soil piled up within them as the brush, pushed along for large distances, drags soil with it.

Heavy discing should be avoided on slopes greater than 2 percent. Discing on sites with slopes above 2 percent most often results in moderate to severe erosion. Drum chopping results in slight to moderate soil exposure. The drum should be pulled up and down slope so that the chopper blade marks will parallel the contour. This will slow down water flow, reducing erosion. Chopping also leaves broken debris scattered across the site, a source of nutrients and an impediment to runoff. Problems with soil exposure and erosion arise when the site is wet and the tractor and chopper become bogged down causing frequent wheel/track slippage.

Fire is a useful tool in site preparation but also effects site productivity if used improperly. Extremely hot fires can alter the chemical and physical properties permanently, much like a wildfire. Prescribed burning should be performed when there is adequate soil moisture. The moisture provides protection from heat. When moist, the organic matter layer on the surface is also protected from being totally consumed by fire. Under proper conditions (moist soil, moderate air temperatures, wind and humidity) a hot fire can be accomplished without consuming all the surface debris and organic matter. A hot fire without adequate soil moisture usually results in excessive soil exposure subject to the forces of erosion. Chemicals are a tool that results in little to no soil exposure, compaction or nutrient loss. They are effective tools when used in an environmentally safe manner.

Reforestation, mentioned earlier, has little effect on erosion, compaction and nutrient loss. As with logging and site preparation, potential for problems occur if machine planting is used. Again, we are using equipment so we need to operate during dry weather whenever possible.

Proper Steps to Managing Site Productivity

Hopefully one can now see that managing site productivity is not as difficult as previously thought. In the future, consider the following steps and incorporate

them into how you plan to manage your forest:

1. Obtain soil maps for all land holdings being considered for management.
2. List the pluses and minuses of the different soils on the land noting what was discussed above: soil depth, porosity, drainage, erosion potential and compaction hazard.
3. Adapt logging methods to local and seasonal soil conditions.
4. Leave foliage and small branches near the vicinity of the stump.
5. Plan out your transportation system in advance.
6. Restore skid trails and roads no longer needed.
7. Displace as little of the forest floor and topsoil as possible; select a site preparation method that accomplishes the job but also compliments the soil and landscape.
8. Minimize the use of hot fires for slash and brush reduction unless moisture conditions are right.

President Franklin Delano Roosevelt once said, "The history of every nation is eventually written in the way in which it cares for its soil." This is appropriate as we face the challenge to continue to supply wood fiber in the future to meet an ever increasing demand.

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New Coastal Zone Management Guidelines

by LOU HYMAN, Chief, Forest Resources Planning, Alabama Forestry Commission

The Coastal Zone Act Reauthorization Amendments of 1990 require coastal states, including Alabama, to institute non-point source pollution controls to protect coastal waters such as Mobile Bay and the Gulf of Mexico.

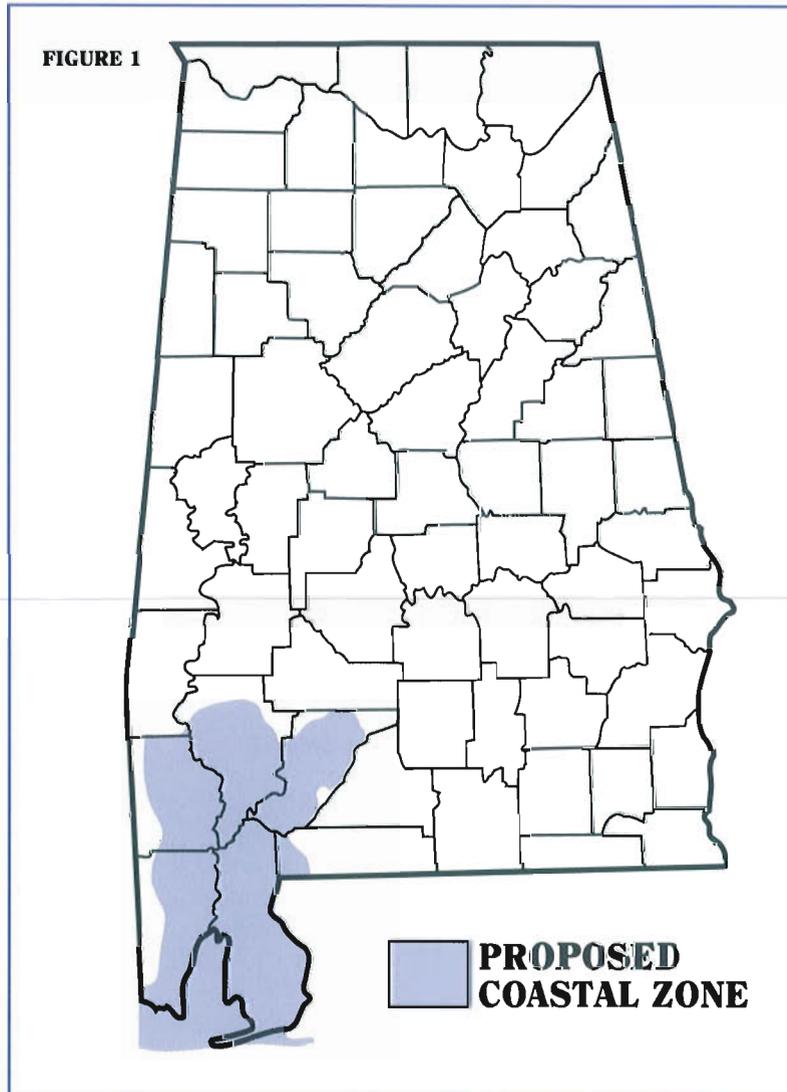
In 1993, the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) published Coastal Zone Management Guidelines. The guidelines call for the State to set up mandatory "management measures" to prevent non-point source pollution in all coastal watersheds.

The program establishes Coastal Watershed Zones, within which all activities must follow the guidelines. NOAA and EPA have published a proposed preliminary watershed boundary for the state (Figure 1).

The EPA guidelines for forestry within this zone would require mandatory and enforceable Best Management Practices. EPA will allow the state to modify the measures, but they must meet or exceed EPA's mandatory levels. The program also includes an added requirement of preharvest planning and either logging permits or a strong program of compliance audits (See pages 14-15 for a full listing of the EPA proposal).

According to a 1982 Soil Conservation

FIGURE 1



Service (SCS) study, forestlands make only minor contributions to sediment pollution in the eight county area that contains coastal watersheds. According to the SCS, forestlands have an average erosion rate of only 0.43 tons/acre/year, which is roughly one-third of the area-wide average.

The Alabama Forestry Commission (AFC) believes that existing laws are suf-

ficient to protect and improve the physical, chemical and biological integrity of the waters of Alabama. The AFC strongly supports the use of non-regulatory BMPs. The AFC feels that present laws are strong enough to protect the waters of the state. There is no need for mandatory forest practice regulations.

The Alabama Department of Environmental Management is the state director of non-point source pollution programs and the coastal zone regulatory program. They must develop a set of regulations for Alabama to cover agriculture, forestry, urban development, marinas and wetlands by the summer of 1995. This must be done following federal rule-making guidelines and with public hearings. ADEM has indicated that the AFC would be a member of the development committee.

Landowners in Alabama should become aware

of this program. The process set up by EPA and ADEM calls for full public involvement. TREASURE Forest owners need to make sure their concerns are made part of the discussion.

For more information about the Coastal Zone Management Act and its implications, contact Steve Sandlin, ADEM, 2204 Perimeter Road, Mobile, AL. 36615. ☎

COASTAL ZONE MANAGEMENT ACT

Management Measures for Forestry

Developed by EPA

A. PREHARVEST PLANNING

- a) Perform advance planning for forest harvesting that includes the following elements where appropriate:
- (1) Identify the area to be harvested, including location of water bodies and sensitive areas such as wetlands, endangered or threatened aquatic species habitat areas, or high erosion hazard areas (landslide prone areas) within the harvest unit.
 - (2) Time the activity for the season or moisture conditions when the least impact occurs.
 - (3) Consider potential water quality impacts and erosion and sedimentation control in the selection of silvicultural and regeneration systems, especially for harvesting and site preparation.
 - (4) Reduce the risk of occurrence of landslides and severe erosion by identifying high erosion hazard areas and avoiding harvesting in such areas to the extent practicable.
 - (5) Consider additional contributions from harvesting or roads to any known existing water quality impairments or problems in watersheds of concern.
- b) Perform advance planning for forest road systems that includes the following elements where appropriate:
- (1) Locate and design road systems to minimize, to the extent practicable, potential sediment generation and delivery to surface waters. Key components are:
 - locate roads, landings and skid trails to avoid, to the extent practicable, steep grades and steep hill slope areas, and to decrease the number of stream crossings;
 - avoid to the extent practicable locating new roads and landings in Streamside Management Areas (SMAs); and
 - determine road usage and select the appropriate road standard.
 - (2) Locate and design temporary and permanent stream crossings to prevent failure and control impacts from the road system. Key components are:

- size and site crossing structures to prevent failure;
 - for fish-bearing streams, design crossings to facilitate fish passage.
- (3) Ensure that the design of road prism and road surface drainage are appropriate to the terrain and that road surface design is consistent with the road drainage structures.
 - (4) Use suitable materials to surface roads planned for all weather use to support truck traffic.
 - (5) Design road systems to avoid high erosion or landslide hazard areas. Identify these areas and consult a qualified specialist for design of any roads that must be constructed through these areas.
- c) Each state should develop a process (or utilize an existing process) that ensures the management measures in this chapter are implemented. Such a process should include appropriate notification, compliance audits, or other mechanisms for forestry activities with the potential for significant adverse nonpoint source effects based on the type and size of operation and the presence of stream crossings or SMAs.

B. STREAMSIDE MANAGEMENT AREAS (SMAs)

Establish and maintain a streamside management area along surface waters, which is sufficiently wide and which includes a sufficient number of canopy species to buffer against detrimental changes in the temperature regime of the water body, to provide bank stability, and to withstand wind damage. Manage the SMA in such a way as to protect against soil disturbance in the SMA and delivery to the stream of sediments and nutrients generated by forestry activities, including harvesting. Manage the SMA canopy species to provide a sustainable source of large woody debris needed for instream channel structure and aquatic species habitat.

C. ROAD CONSTRUCTION/ RECONSTRUCTION

- (1) Follow preharvest planning (as described under Management

- Measure A) when constructing or reconstructing the roadway.
- (2) Follow designs planned under Management Measure A for road surfacing and shaping.
 - (3) Install road drainage structures according to designs planned under Management Measure A and regional storm return period and installation specifications. Match these drainage structures with terrain features and with road surface and prism designs.
 - (4) Guard against the production of sediment when installing stream crossings.
 - (5) Protect surface waters from slash and debris material from roadway clearing.
 - (6) Use straw bales, silt fences, mulching or other favorable practices on disturbed soils on unstable cuts, fills, etc.
 - (7) Avoid constructing new roads in SMAs to the extent practicable.

D. ROAD MANAGEMENT

- (1) Avoid using roads when possible for timber hauling or heavy traffic during wet or thaw periods on roads not designed or constructed for these conditions.
- (2) Evaluate the future need for a road and close roads that will not be needed. Leave closed roads and drainage channels in a stable condition to withstand storms.
- (3) Remove drainage crossings and culverts if there is a reasonable risk of plugging or failure from lack of maintenance.
- (4) Following completion of harvesting, close and stabilize temporary spur roads and seasonal roads to control and direct water away from the roadway. Remove all temporary stream crossings.
- (5) Inspect roads to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or seeding of road surfaces, and, in extreme cases, slope stabilization or removal of road fills where necessary to maintain structural integrity.

- (6) Conduct maintenance activities, such as dust abatement, so that chemical contaminants or pollutants are not introduced into surface waters to the extent practicable.
- (7) Properly maintain permanent stream crossings and associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will occur if the drainage structures become obstructed.

E. TIMBER HARVESTING

- a) The timber harvesting management measures consist of implementing the following:
 - (1) Timber harvesting operations with skid trails or cable yarding follow layouts determined under Management Measure A.
 - (2) Install landing drainage structures to avoid sedimentation to the extent practicable. Disperse landing drainage over sideslopes.
 - (3) Construct landings away from steep slopes and reduce likelihood of fill slope failures. Protect landing surfaces used during wet periods. Locate landings outside of SMAs.
 - (4) Protect stream channels and significant ephemeral drainages from logging debris and slash material.
 - (5) Use appropriate areas for petroleum storage, drainage, and dispensing. Establish procedures to contain and treat spills. Recycle or properly dispose of all waste materials.
- b) For cable yarding:
 - (1) Limit logging corridor gouge or soil plowing by properly locating cable yarding landings.
 - (2) Locate corridors for SMAs following Management Measure B.
- c) For ground skidding:
 - (1) Within SMAs, operate ground skidding equipment only at stream crossings to the extent practicable. In SMAs, fell and endline trees to avoid sedimentation.
 - (2) Use improved stream crossings for skid trails which cross flowing drainages. Construct skid trails to disperse runoff and with adequate drainage structures.
 - (3) On steep slopes, use cable systems rather than ground skidding where ground skidding may cause excessive sedimentation.

F. SITE PREPARATION AND FOREST REGENERATION

Confine on-site potential NPS pollution and erosion resulting from site preparation and the regeneration of forest stands. The components of the management measure for site preparation and regeneration are:

- (1) Select a method of site preparation and regeneration suitable for the site conditions.
- (2) Conduct mechanical tree planting and ground disturbing site preparation activities on the contour of sloping terrain.
- (3) Do not conduct mechanical site preparation and mechanical tree planting in SMAs.
- (4) Protect surface waters from logging debris and slash materials.
- (5) Suspend operations during wet periods if equipment used begins to cause excessive soil disturbance that will increase erosion.
- (6) Locate windrows at a safe distance from drainages and SMAs to control movement of the material during high runoff conditions.
- (7) Conduct bedding operations in high water table areas during dry periods of the year. Conduct bedding in sloping areas on the contour.
- (8) Protect small ephemeral drainages when conducting mechanical tree planting.

G. FIRE MANAGEMENT

Prescribe burn for site preparation, and control or suppress wildfire in a manner which reduces potential non-point source pollution of surface waters:

- (1) Intense prescribed fire should not cause excessive sedimentation due to the combined effect of removal of canopy species and the loss of soil binding ability of subcanopy and herbaceous vegetation roots, especially in SMAs, in streamside vegetation for small ephemeral drainages, or on very steep slopes.
- (2) Prescriptions for prescribed fire should protect against excessive erosion or sedimentation to the extent practicable.
- (3) All bladed firelines, for prescribed fire and wildfire, should be plowed on contour or stabilized with water bars and/or other appropriate techniques if needed to control excessive sedimentation or erosion of the fireline.
- (4) Wildfire suppression and rehabilitation should consider possible NPS

pollution of watercourses, while recognizing the safety and operational priorities of fighting wildfires.

H. REVEGETATION OF DISTURBED AREAS

Reduce erosion and sedimentation by rapid revegetation of areas disturbed by harvesting operations or road construction:

- (1) Revegetate disturbed areas (using seeding or planting) promptly after completion of the earth disturbing activity. Local growing conditions will dictate the timing for establishment of vegetative cover.
- (2) Use mixes of species and treatments developed and tailored for successful vegetation establishment for the region or area.
- (3) Concentrate revegetation efforts initially on priority areas such as disturbed areas in SMAs or the steepest areas of disturbance near drainages.

I. FOREST CHEMICAL MANAGEMENT

Use chemicals when necessary for forest management in accordance with the following to reduce nonpoint source pollution impacts due to the movement of forest chemicals off site during and after application:

- (1) Conduct applications by skilled and, where required, licensed applicators according to the registered use, with special consideration given to impacts to nearby surface waters.
- (2) Carefully prescribe the type and amount of pesticides appropriate for the insect, fungus, or herbaceous species.
- (3) Prior to applications of pesticides and fertilizers, inspect the mixing and loading process and the calibration of equipment, and identify the appropriate weather conditions, the spray area, and buffer areas for surface waters.
- (4) Establish and identify buffer areas for surface waters (this is especially important for aerial applications).
- (5) Immediately report accidental spills of pesticides or fertilizers into surface waters to the appropriate state agency. Develop an effective spill contingency plan to contain spills.

10. WETLANDS FOREST

Plan, operate and manage normal ongoing forestry activities, including harvesting, road design and construction, site preparation and regeneration, and chemical management to adequately protect the aquatic functions of forested wetlands. ♻️

LANDOWNERS

LEGISLATIVE • ALERT

NATIONAL

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



"Reinventing Government" emerged as a new

theme for the Clinton Administration last fall. Unveiled by Vice President Gore, the comprehensive plan for streamlining and improving the effectiveness of the federal government included major changes proposed for the U.S. Department of Agriculture. The USDA national reorganization plan would streamline the number of separate agencies and offices from 43 to 30. The proposal includes consolidation of the Agricultural Stabilization and Conservation Service, the Farmer's Home Administration and the Federal Crop Insurance Corporation into a single farm service agency.

Also under the proposal, the Soil Conservation Service would be renamed the Natural Resources Conservation Service and given responsibility for ASCS conservation cost-share programs (e.g., ACP, FIP, CRP), allowing landowners to receive both technical and financial conservation assistance from a single agency. This change would not include the Stewardship Incentives cost-share program, which will continue to be administered by the U.S. Forest Service.

Although not formally announced as of press time, Paul Johnson was expected to be named chief of the soon to be expanded and renamed Soil Conservation Service. Johnson is an Iowa farmer and former state legislator who was already occupying this position in a consulting role.

Sharing of resources among USDA agencies is the thrust of the new field plan. USDA field offices would be streamlined through consolidation, shared services, and computer areas into new USDA Service Centers. All told, the plan would reduce from 3,700 to 2,485 the number of

USDA field offices, and is designed to generate both cost savings and a more efficient delivery of services. Each center would serve customers from areas ranging from one to six counties. No major structural changes were proposed for the U.S. Forest Service. But the agency has been designated a "reinvention lab" under which the administration will pursue internal reviews and recommendations for restructuring.

Legislation to effect the wide-ranging USDA reorganization has been introduced in Congress (H.R. 3171) and is pending in the House and Senate Agriculture committees. Several hearings were held last fall in both the House and Senate, but no further action took place before the first session of Congress recessed for the holidays. Congress will reconvene on Jan. 25, 1994.

New Forest Service Chief

Although no immediate structural changes were in store for the Forest Service, leadership changes were. In mid-November, USDA Secretary Mike Espy announced he would name Jack Ward Thomas, a nationally renowned wildlife biologist and 27-year veteran of the Forest Service, as the 13th chief of the agency effective Dec. 1, 1993. Thomas has led several high-level scientific teams in past years to try and find solutions to the contentious Pacific Northwest forestry issues. He is considered to be the principal author of the so-called "Option Nine," the policy adopted by the Clinton Administration and currently under implementation to deal with the Pacific Northwest controversy.

Thomas holds degrees in wildlife management, wildlife science, and a doctorate in forestry. Despite a lifetime career with the Forest Service, his appointment has

drawn some criticism on the grounds that it is essentially a political appointment because he did not currently meet immediate criteria followed in the selection of the chief. Until now, the Forest Service chief has traditionally been a career professional. Thomas succeeds Dale Robertson, who was chief since 1987; Robertson was reassigned to Secretary Espy's office.

Clean Water Reauthorization

Congress did not get very far in the 1993 session on reauthorization of either the Clean Water or Endangered Species Act. Both can be expected to be a major focus of attention in 1994.

The main vehicle for Clean Water Reauthorization continues to be S. 1114, introduced by Senators Max Baucus (D-MT) and John Chafee (R-RI) early last year. S. 1114 would require states to develop and implement management measures for nonpoint sources (NPS) of pollution and to set milestones for implementation. While all agricultural activities would be considered existing nonpoint pollution, timber harvesting and forest roads would be designated as new sources. As currently proposed, implementation of management measures would be required for all new sources wherever they occur; implementation of management measures for existing sources would only be necessary for watersheds that have been designated as impaired. EPA estimates that forestry activities contribute less than 10 percent to the total nonpoint source problem nationally, whereas agricultural activities contribute more than 40 percent. Unlike the Senate, no comprehensive clean water bill emerged in the House during the 1993 session. But both the House and the administration are in the process of developing positions on Clean Water reauthorization that will add significantly

to the debate in 1994.

In another forestry-sensitive area, several wetland protection bills were introduced in both the House and Senate in 1993. Two bills in particular are expected to shape the tenor of debate in 1994: S. 1304 and H.R. 3465. Though not identical, both are sponsored by Congressional leaders and embody much of the new federal wetlands policy announced by the Clinton administration late last summer. The administration's policy was developed by a federal interagency working group convened by the president at the urging of a number of senators. Many of the policy changes deal with agricultural wetland delineation and permit processing. Major elements include:

- an interim goal of "no overall net loss" and a long-term goal of increasing the wetlands base.
- a requirement that all federal agencies use the 1987 Corps of Engineers wetland delineation manual and designation of the Soil Conservation Service as lead agency in delineating most agricultural lands.
- removal of the 53 million acres of pri-

or converted agricultural land from federal jurisdiction.

- issuance of a final "de minimus" rule broadening the scope of activities subject to federal jurisdiction.

Taxes

The final version of President Clinton's tax and budget package included no broad-based capital gains relief, as expected, but does contain some possible benefits for timberland owners. Although the new law sharply raises income taxes for individuals in higher brackets, it caps the maximum rate on capital gains at 28 percent. This compares to a maximum rate of 39.6 percent for individuals at the highest levels of other taxable income. The spread could result in significant tax savings on large timber sales, especially where the tax basis is small as is frequently the case with long-held, mature timber stands.

Timberland owners/managers may also be able to qualify for one of the few investment incentives contained in the new legislation. The provision allows small businesses and farmers to deduct up to \$17,500 for equipment purchases in the

year acquired, instead of through depreciation over several years. The equipment write-off provision, formally known as Section 179, was already a part of the revenue code, but had been limited to \$10,000 per year. The new higher deduction applies to qualifying equipment, such as a pick-up truck, placed in service this year.

The current Reforestation Tax Credit and Amortization provision was not changed by the new tax law. Landowners can still take a tax credit of up to \$1,000 a year and a write-off of up to \$9,500 over seven years for qualifying reforestation expenses. In the current Washington political climate, leaving a tax benefit alone is not without significance.

Efforts to add the Reforestation Tax Act (H.R. 960, S. 1123), which would have provided capital gains relief to timber and expanded reforestation tax incentives to the Clinton tax package were unsuccessful. But the legislation stays alive and is pending in both the House and Senate tax writing committees. Co-sponsors of the legislation include both Alabama Senators Heflin and Shelby and Representatives Beville and Callahan. ♣

ALABAMA

by FRANK SEGO, Legislative Liaison, Alabama Forestry Commission



While some members of the Alabama Legislature were nervously waiting to see if Governor Jim Folsom, Jr. was going to call

a special session in November on education reform or casino gambling, the Legislative Forestry Study Committee was studying proposals for the 1994 regular session. The fourth and final year of this quadrennium begins on Tuesday, January 11, and it's an election year.

At its October 13 meeting, the Forestry Study Committee welcomed Alabama's new State Forester, Timothy C. Boyce, who briefed the members with his "State of the Commission" update. Boyce emphasized the challenge of the Forestry Commission and its partnership with all agencies that work for the betterment of the state's world class forest resource.

Boyce Stresses Unity

The affable Boyce, who succeeded retiring Bill Moody as the state's top forester in September, praised the role of the volunteer fire departments, saying that it would be his goal to maintain the Commission's relationship with the Legislature and to work for adequate funding to insure two-man crews on every fire. He called on the Forestry Study Committee to help the Commission "guard the line" against any threat that might imperil its annual budget.

The Study Committee voiced its unanimous support for State Forester Boyce and pledged to work with him in achieving his goals.

If you are wondering what the function of the Study Committee is, and how it came into being, let's go back to 1979. Then Rep. John M. McMillan of Stockton, now the executive vice president of the Alabama Forestry Association, introduced a bill creating the Committee, with

three specific requirements:

- (1) To conduct a comprehensive study of all facets of Alabama's forestry program.
- (2) To develop an assessment of needs based on the Committee's findings.
- (3) To publish a report of its findings to the governor and members of the Legislature by the 15th of each January.

The measure received overwhelming approval and was signed by Governor Fob James as Act No. 79-711. Rep. James E. Warren of Castleberry was co-sponsor of the bill. He currently serves as chairman of the Study Committee.

Members of the Committee are selected quadrennially. Three are chosen from the House of Representative by the Speaker. The presiding officer of the Senate (lieutenant governor) selects three from the upper chamber. Seven are appointed by the governor from forest industry, business and education fields.

(Continued on page 21)

WOOD RESIDUES

by PAT WALDROP, Economic Development and Utilization Forester,
Alabama Forestry Commission

In October 1991, Congress redefined the solid waste disposal facility criteria under the Resource, Conservation, and Recovery Act. This part of the act dealing with solid waste is usually referred to as Subtitle D and went into effect October 9, 1993. Most municipal administrators and managers in Alabama are concerned with meeting these new requirements and still having landfill space. Although an extension has been given to some of the landfills, Alabama Department of Environmental Management officials estimate that 85 percent of the close to 100 sanitary landfills will be closing by October 1994. With estimates of over half the space of landfills being taken up by paper products and as high as 20 percent being taken up by woody residues, much attention lately has been given to reducing the input of these materials into landfills.

This article takes a brief overview of how Alabama's forest products industry deals with woody residues they create. According to information collected for the "1989 Directory of Forest Industries," the industry creates 13,407,523 tons of woody residue annually. Of this amount over 96 percent is used in some fashion.

Wood for Fuel

Paper mills and sawmills have always created woody residue—primarily sawdust, bark, and chips—so they were faced early on with disposing or utilizing this material. By utilizing residues, they become an asset instead of a liability, as would be the case with disposal. Economics has driven the industry into becoming leaders in creative ways of disposal. New products are being developed that utilize more of this material.

Over 7 million of the 13 million tons (53 percent) of woody residue that the forest industry creates is utilized as fuel. With more than 120 manufacturing facilities in Alabama using wood residues for

fuel, Alabama ranks second in the nation in utilization. Scott Paper Company in Mobile has been one of the leaders in this area. In the past, it was a common occurrence for some logging residue to be left in the woods to rot or pushed into windrows and burned before planting. Today, however, Scott Paper Company fully utilizes branches, limbs, bark and small defective trees as fuel for boilers to create steam and electricity for its Scott-Mobile mill. In making productive use of this 400,000 tons of waste bark and fiber each year, Scott produces 100 percent of its energy needs for its Mobile plant. Since bark cannot be used in the paper-making process, and there are over 500 pounds of bark to a cord, the amount of bark alone that a paper mill produces would be a tremendous cost to operations if it was not burned.

Electrical power companies in Alabama are also conducting research and test burns to determine the economics of burning a combination of wood waste and coal to produce electricity. The new Energy Act creates some tax incentives and with wood being exempt from the new BTU tax, this co-firing method has shown great promise. Where this system is in place, a mixture of 10-15 percent wood is being used, with the rest being coal. One other advantage to using a mixture of wood and coal is that the sulfur emission is also reduced.

Recovery for Pulp

With the rise in stumpage prices, the 15 paper mills in Alabama are good at recovering chips with over 4 million (32 percent) of the 13 million tons of wood residues recovered in pulp production. This is over eight times the amount of chips exported from Alabama.

Many of the Alabama paper mills are using more and more recycled paper in the paper-making process. MacMillan Bloedel's old corrugated container facility at Pine Hill is the largest paper recy-

cling facility in the state, using 700 tons of recycled paper daily. With many municipalities going to recycling programs, our paper mills give Alabama an advantage over many states that don't have a market for their recycled materials. Plastics continue to be the recycled item with the poorest market.

Other Residue Uses

Over 728 thousand tons of residue is used for fiber and another 76 thousand tons are recovered for domestic fuel. Although the technology for pellet fuel production is here, it has been slow to develop in Alabama. The advantages of such a clean, environmentally safe fuel will eventually catch on.

Another 568 thousand tons is classified miscellaneous with uses such as mulch. There are three mulch producers in the state, using primarily pine bark. Of the over 4 1/2 million tons of bark produced annually in Alabama, close to 99 percent of it is utilized.

New Technology

New adhesives have increased utilization of the wood resource with the development of products such as plywood, particleboard, waferboard, fiberboard, laminated veneer lumber and oriented strandboard.

Two types of alcohol fuel, ethanol and methanol, can be produced from wood. Over 1 million gallons of these fuels are produced annually in the United States, yet only 4 to 5 million gallons are derived from wood. With the changing market for fuels, alcohol production from wood could increase, given the right market conditions.

A U.S. based company, Microterra Inc., has developed and patented a process in which microbes remove hazardous wastes from old utility poles and railroad ties. The bio-recycled wood can then be chipped and used for pulp. With

over 750 million crossies in use within the U.S., this system shows a lot of promise.

The U.S.D.A.'s Forest Product Lab in Wisconsin currently devotes much of its research to developing new uses of woody materials such as sawdust. One interesting use is General Motors' use of 50 percent wood flour (very fine sawdust) and 50 percent plastic in molding the automobile dashboards.

Conclusion

Because of the increased regulation on landfills, environmental concerns, and expansion of the forest industry, we feel that a system needs to be established to monitor and maintain a database on quantities and characteristics of biomass in Alabama on an ongoing basis. It is in the best interest of the state of Alabama that more quantification of mill and forest residue be undertaken to assess the potential for providing a renewable energy resource. The potential of increased industrial expansion utilizing mill residues for the manufacturing of reconstituted wood products should not be overlooked from an economic development standpoint. Although Alabama's forest products industry has a good overall use of woody residues, that doesn't mean there aren't companies such as furniture plants, sawmills and others that are not able to utilize residual material. Through the Forestry TEAM program, the Alabama Forestry Commission and others, such as Auburn University's Forest Products Development Center, Utilities, the Alabama Department of Economic and Community Affairs, and the Southeastern Regional Biomass Energy Program work with Alabama's industries to help them solve wood residue problems. For more information on these programs contact the Alabama Forestry Commission.

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10th Annual Alabama Landowner and TREASURE Forest Conference



The W.A. "Skip" Stacey family of Conecuh County was the winner of the 1993 Helene Mosley Memorial TREASURE Forest Award. The award is given annually to the outstanding TREASURE Forest in the state. The Stacey family is shown receiving their award from Dr. Paul Parks (left), Auburn University, and John Yancy (far right), chairman of the Alabama Forestry Planning Committee. District winners and runners-up to the state award were Sizemore and Sizemore Farms, Lamar County, and Al and Thelma Schmidt, Elmore County.



The Covington County Forestry Planning Committee (above) took top honors as the 1993 state committee winner. Other district winners were Talladega and Colbert Counties.



The Masters Award is presented each year to an outstanding planning committee that has previously won a state award. Jackson County was honored with the 1993 Masters Award.

Sixty-five Years in the Family

by GLENN BERRY and CLAYTON SCHWIND, Alabama Forestry Commission

Jack Langley was born on "The Farm" 64 years ago. Since he was old enough, he has worked the land; first by farming, then by raising cattle, and now by tree farming. Mr. Langley row cropped during the early years, but erosion became a problem on the cropland and most of it was converted to pasture to control the erosion. Cattle was raised for a short period. However, as time passed, more and more land was planted to loblolly pine. This was done both on his own and by taking advantage of cost-share programs.

Mr. Langley has always been an avid outdoorsman and wildlife enthusiast. All of his land management decisions have included practices that have benefitted wildlife and other land uses. In 1985, Mr. Langley's property became Chambers County's first TREASURE Forest. Due to Mr. Langley's stewardship of the land, he was awarded the "Governor's Conserva-



This fishing lake has provided added enjoyment for Jack Langley and his grandchildren.

tion Achievement Award for Wildlife" in 1988.

The farm consists of 1,100 acres located in the Ridge Grove community of Chambers County. Of this acreage, 90 acres are still in pasture, wildlife openings occupy 50 acres, and 950 acres are in woodlands. In addition, there's a 10-acre lake. The lake is the most recent development on the property and has provided a great deal of enjoyment for Langley in the last few

years when used for fishing by him and his grandchildren. Hunting and fishing are also enjoyed by family and friends.

Mr. Langley plants bi-color lespedeza, vetch, Japanese millet, brown top millet, proso millet, corn, partridge pear, wheat, and rye in the wildlife openings. Permanent firelanes are planted in fungus free fescue. Sawtooth oaks have been established throughout the property for wildlife food. Wood duck boxes have been erected along streams and beaver swamps, and hunting houses have been built on wildlife

openings. Prescribe burning is an important part of the timber and wildlife management scheme; 300 acres are burned annually. Timber is harvested as the stands reach economic maturity and areas cut are promptly reforested.

Mr. Langley exemplifies what land stewardship is all about and is willing to share his success with other landowners by showing the land and telling his story. ♣

Little Nashville

by WILLIAM BYNUM, Daily Sentinel Staff Writer

Jack McQuinn's 850-acre farm in Trenton has been designated a TREASURE Forest by the Alabama Forestry Commission.

"Little Nashville," as McQuinn refers to his farm, is named after a community by the same name which once existed on his land. The name still appears on topographical maps of the Paint Rock Valley area.

McQuinn lives in Huntsville; but

bought his Trenton farm about eight years ago. Since then, he has turned the farm into a virtual wildlife refuge, participating in state and federal programs aimed at improving soil conditions and preserving wildlife habitat.

"When I first came here, the land was spoiled by illegal dumping and erosion, and it had been damaged by too many years of single-crop

farming," McQuinn said.

"The land was just about worn out," he said. "The game wildlife was scattered, and the populations of deer and turkeys were very low. I wanted to see if I couldn't improve it."

McQuinn said he specifically wanted to do something about erosion in the valley: "So much of my land is near the river, and that's where the erosion problems



are really occurring.”

His secondary goal was to better manage and conserve the wildlife habitat in the area.

“I also wanted to provide a safe and wholesome place of recreation for my family, for my grandchildren,” he said.

McQuinn and his family often camp out on the farm. “My greatest joy is to bring people here to enjoy the land,” he said.

Hunting is a “low priority” on the farm, he said: “Some friends go with me sometimes, but there is no open hunting on my land.”

McQuinn said his overall objective is to “leave this land in better condition than it was in when I found it.”

County Forester Daryl Lawson said McQuinn’s pledge epitomizes the TREASURE Forest program’s goals.

The TREASURE Forest designation is awarded to landowners who practice good stewardship and demonstrate a commitment to the land.

McQuinn has planted trees, shrubs and other vegetation that provide food for deer, turkey and other game and non-game wildlife.

He has also planted some 45,000 trees on his land along the Paint Rock River to help control soil erosion—a serious problem in the valley.

McQuinn started his project by developing a conservation resource program in the areas near the Paint Rock River. The purpose of the program was to stop soil erosion in the bend of the river.

The Alabama Soil Conservation Service helped McQuinn develop his program. He planted 15,000 water oaks and 35,000 pines in the low-lying area alongside the river.

The next step was to begin a stewardship program, supervised by the Alabama Forestry Commission. McQuinn enrolled in three programs.

The hedgerow development program consisted of planting one mile of hedgerow 25-30 feet wide. Lespedeza,

crabapple, autumn olive, persimmons, sawtooth oak and dogwoods were all planted in the hedgerow. These plants and shrubs provide food for wildlife.

The erosion control program solved many of the farm’s erosion problems. “This farm gets most of the watershed from lower Jacobs Mountain,” McQuinn said.

McQuinn also plants several wildlife food plots, under the supervision of the Alabama Department of Conservation’s wildlife division. These areas provide food for game animals during the times of year when their food supply is exhausted in the forest.

McQuinn has also planted several game corridors, providing cover for wildlife traveling from the forest to food plots.

McQuinn worked for 25 years in the construction business in Huntsville and is retired from the U.S. Navy.

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State Landowners Legislative Alert

Continued from page 17

The state forester is a standing member of the Committee and serves as its permanent secretary. The dean of the School of Forestry at Auburn University also is a permanent member of the Committee.

Accomplishments Noted

If a committee is judged by the accomplishment of its goals, then the Forestry Study Committee is fulfilling its mission in a more-than-adequate manner. Some of its actions have included:

- Full support of the Forestry Commission’s fire protection program, encouraging the legislature to provide adequate funding for wildfire and insect emergencies.
- Review of the Commission’s nursery program and recommendation of an additional nursery at Thorsby.
- Endorsement of the role of the Forestry

Commission in wood residue utilization; pushing for a centrally-located wood energy system in the State Capitol Complex.

- Leadership in changing the status of the Department of Forestry to a School of Forestry at Auburn.
- Sponsorship of forums around the state to acquaint the small private non-industrial landowner with ways to increase the benefits of his investment.
- Promotion of the TREASURE Forest program, stressing multiple-use as the basic management concept for the forest landowner.
- Successful efforts in the passage of a uniform statewide forest acreage assessment law.

Forestry Legislation for 1994

During its most recent meeting, the Study Committee approved two new measures for the 1994 regular session:

- (1) Authorizing the Forestry Commission to design and issue a distinctive vehicle license plate promoting Alabama forestry. Receipts from the tag sales would be earmarked for forestry education.
- (2) Providing for an urban educational and job training program in the fields of forestry and horticulture. The pilot project would be targeted for Jefferson County.

The Committee also reinforced its support of a statewide one mill ad valorem tax for fire protection. Approval of the amendment would generate approximately \$17,800,000 for volunteer fire departments and the Forestry Commission. The amendment will appear on the June primary election ballot.

Our next Legislative Alert will feature action by the '94 Legislature and a preview of the coming elections. 'Til then.... ♣

Natural Resource Conservation Organizations for Private, Non-Industrial Forest Landowners

by DON BURDETTE, Alabama Forestry Commission

Would you like to stay in touch with other forest landowners at the local, state or national level? Or maybe you would like to hear about natural resource issues from a variety of viewpoints. The National Wildlife Federation lists over 500 such organizations in their *Conservation Directory*, but here are a few of the groups which have been most popular among Alabama forest landowners. Most of the organizations charge a fee for membership and/or for publications but you may find it well worth your while.

Alabama TREASURE Forest Landowners Association is an alliance of private, non-industrial landowners who are committed to multiple-use management of Alabama's forest resources for the greatest benefit to present and future generations. The Association...

- offers fellowship with like-minded Alabamians who believe in and practice good stewardship of land, water, timber and wildlife resources entrusted to them on their own property;
- fosters environmentally and economically responsible management of all forestlands in Alabama according to the TREASURE Forest multiple-use philosophy;
- provides a forum through which landowners can address programs and issues affecting forest conservation and landowner rights and privileges.

ATFLA, P.O. Box 210476,
Montgomery, AL 36121.

Alabama Forest Owners' Association promotes, protects and represents the interests of owners of forestlands in the state of Alabama; provides members with timely information on legislation, timber markets, environmental issues, forest taxation through monthly newsletter; assists members in obtaining forest management assistance and profitable marketing of forest products; coordinates discount services such as hunting liability insurance, aerial photography of property, and referral services; is involved in development of sound, equitable, responsible public policy; informs Alabama citizens of contribu-

tions made by and the critical importance of forest resources to Alabama. AFOA, P.O. Box 104, Helena, AL 35080; phone 205-987-8811.

County Forestry Associations are available in some Alabama counties. In general, these associations are administered by private landowners who promote multiple-use forestry interests; provide information in forestry and wildlife workshops, tours and literature; some associations coordinate such services as herbicide applications, tree plantings and hunting leases for groups of cooperating landowners. Contact a local office of either the Alabama Forestry Commission, the Alabama Cooperative Extension Service or the Soil Conservation Service to determine local availability of county forestry associations.

Forestry Committees. Various opportunities may exist in your county to either participate or benefit from sub-committees designed to help parent agencies plan, direct and implement forestry education programs and activities for local forest landowners. The private, non-industrial landowner's viewpoint, experience and contacts with fellow landowners are often sought to keep local programs focused on the most relevant needs and opportunities. If you would be interested in serving or benefitting, contact a representative of your local Alabama Cooperative Extension Service, Alabama Forestry Commission, Agricultural Stabilization and Conservation Service, County Forestry Planning Committee, Alfa or Soil Conservation Service.

National Woodland Owners Association is a nationwide association of woodland owners united to foster wise management of their non-industrial private forestlands. Working together with cooperating and affiliated state woodland owner/forestry associations, the association is a voice for private landowners on forestry, wildlife and resource conservation issues. NWOA publishes periodic *Woodland Reports* and *National Woodlands Magazine*. NWOA, 374 Maple Ave., E, Suite 210, Vienna, VA 22180; phone 703-255-2700.

Tree Farm System encourages landowners to reforest their forestland into trees as soon as possible for timber production and other multiple-uses. Participation entitles members to a Tree Farm certificate and sign; regular contact with a forester who can supply individual forest management advice; an annual subscription of *Tree Farm* magazine; newsletters, announcements and invitations to forest landowner meetings. TFS, 555 Alabama St., Montgomery, AL 36104; phone: 265-8733.

Landowners for Responsible Natural Resource Management is a tri-state group of citizens (Alabama, Georgia and Tennessee) organized to educate landowners about responsible forest management, to advocate private property rights and to help establish or expand industries that can utilize or develop markets for available forest products. They sponsor seminars and workshops and periodically notify their members about current issues. LRNRM, 102 Saralee Drive, Huntsville, AL 35811; phone 205-536-6583.

Nature Conservancy seeks to preserve plants, animals and natural communities that represent the natural diversity of life on earth by protecting the lands and water they need to survive. Land preserved stays protected for future generations to enjoy and use. The Alabama chapter was the main driving force behind Alabama's new "Forever Wild" program, working with several cooperating organizations to get a bill passed by the Alabama Legislature. They also sponsor field trips and an annual meeting for members and the public. NC publishes a bimonthly national magazine and quarterly state newsletters. NC, Pepper Place, 2821C 2nd Ave., S, Birmingham, AL 35233; phone 205-251-1155.

National Arbor Day Foundation is a non-profit organization that sponsors several tree planting and other environmental stewardship programs such as Trees for America, Arbor Day, Tree City USA and Conservation Trees. New and renewing members receive 10 free seedlings each year. Additional hard-to-find tree species

are sold at reasonable prices to members. The Foundation publishes *Arbor Day Newsletter*, *Tree City USA bulletin*, *Conservation Trees* booklet and the *Celebrate Arbor Day booklet*. NADF, 100 Arbor Ave., Nebraska City, NE 68410; phone 402-474-5655.

Forest Farmers' Association is a Southeastern states' organization of private, non-industrial timberland owners seeking to give members and related interests a greater voice in matters affecting their business. FFA publishes six issues of *Forest Farmer Magazine* and a biannual *Forest Farmer Manual*; they also sponsor periodic workshops and an annual meeting for their members. FFA, P.O. Box 95385, Atlanta, GA 30347; phone 404-325-2954.

Alabama Wildlife Federation is devoted to the wise use, conservation, aesthetic appreciation and restoration of wildlife and other natural resources of the state of Alabama. The AWF promotes hunter safety and ethics, encourages good hunter/landowner relations and lobbies for private property rights and sportsmen's interests. AWF also provides group liability insurance for protection of hunting clubs, club members and landowners. *Alabama Wildlife* magazine is produced bimonthly. AWF, 46 Commerce St., Montgomery, AL 36104, phone 205-832-9453.

National Wildlife Federation is a national conservation education organization dedicated to creating and encouraging an awareness of the need for wise use and proper management of soil, air, water, forests, minerals, plant life and wildlife. Publications include *International Wildlife*, *National Wildlife*, *Ranger Rick Magazine*, *Your Big Backyard* and a *Conservation Directory* of all private, non-profit, state, federal, regional, national and international natural resource related organizations. NWF, 1400 Sixteenth St., NW, Washington, D.C. 20036-2266; phone 202-797-6800.

Alabama Forestry Association is a trade association organized to represent Alabama's forests and forestry-related industries and landowners. The primary objectives of AFA are to gather and disseminate information regarding Alabama forestry; to promote fair and reasonable legislation and to create a better public understanding of modern forest management. The AFA produces a bi-monthly

Alabama Forests magazine and weekly *Forestry Legislative Report* when the state legislature is in session. AFA, 555 Alabama Street, Montgomery, AL 36104; phone 205-265-8733.

American Forests advances scientific management and use of forests, soils, water, wildlife and all other natural resources. This national organization seeks to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. They publish *American Forests* magazine, *Resource Hotline*, *Urban Forests* and the *Global Releaf Report*. AF, 1516 P St. NW, Washington, D.C. 20005; phone 202-667-3300.

Alabama Conservancy is dedicated to the protection and preservation of Alabama's environment on all fronts: air, land, water, wildlife and natural areas. This statewide organization has regional chapters which cover most areas of the state. A bimonthly newsletter reports on personal interest/conservation oriented issues and events. The Conservancy distributes special issue oriented reports to its members on an as-needed basis. In addition to promoting recycling, the Conservancy may be able to provide assistance to private landowners in identifying management objectives and opportunities for natural areas on their property. Alabama Conservancy, 2717 7th Ave S., Suite 207, Birmingham, AL 35233; phone 205-322-3126.

Audubon Society promotes conservation of wildlife and other natural resources. This international organization has an Alabama chapter which distributes a monthly newsletter, sponsors an annual workshop in DeKalb County and organizes an annual spring tour of the Southeast. Regional chapters within the state sponsor activities such as monthly meetings and field trips, camping trips, and workshops on wildlife photography and birding (bird watching). Audubon Society, P.O.Box 314; Birmingham, AL 35201.

Cahaba River Society strives to insure high standards of water quality; preserves the flora, fauna and aesthetic values of the Cahaba River; promotes public awareness of the Cahaba through educational and recreational programs. The Society offers planning assistance to landowners and developers adjacent to the Cahaba within the river basin from St. Clair County to Dallas County. Canoe trips are sponsored

to see and enjoy the Cahaba River. They also produce the *Cahaba River Society Newsletter*. CRS, 2717 7th Ave. S, Suite 205, Birmingham, AL 35233; phone 205-322-5326.

Stewards of Family Farms, Ranches and Forests was created in Alabama to promote good stewardship of the land, protect the constitutional rights of good stewards, and educate all citizens of the contributions that environmentally healthy and economically sound family farms, ranches and forests make to our nation. Members and cooperating partners receive a newsletter covering current issues and are provided with facts and materials for use locally as appropriate. SFFRF, P.O. Box 70482, Montgomery, AL 36107; phone 205-264-4237.

Eagle Council was created to accurately inform Alabamians about the benefits of multiple-use management of Alabama's forests. The membership is comprised primarily of foresters, loggers and landowners. Council sponsored activities include field tours as well as equipment shows. Members receive *The Eagle's Nest*, a quarterly newsletter. EC, P.O. Box 92, Haleyville, AL 35565; phone 205-486-9064.

Sierra Club on the national level is committed to explore, enjoy and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. Local chapters within Alabama sponsor outings to enjoy outdoor recreational activities and to study conservation projects. Membership entitles one to local and state SC newsletters and the national Sierra Club magazine. SC, 1330 21st Way South, Birmingham, AL 35205; phone 933-9269.

People Against A Littered State (PALS) tries to conquer the state's litter problem through increased public awareness in each county. Local involvement projects include Adopt-A-Mile, Adopt-A-Stream, community clean-up projects, public awareness campaigns for public and private lands, all using volunteer helpers. PALS publishes quarterly newsletters for both the Adopt-A-Mile and the Adopt-A-Stream programs. PALS, 340 N. Hull St, Montgomery, AL 36104. Phone 205-263-7737. ♣

HELICOPTERS IN FORESTRY

by RAY C. JONES, Chief Pilot, Alabama Forestry Commission

The Vietnam War established the helicopter as a very effective aircraft for the military and also for industry where a versatile aircraft was needed. Reliability was proven during that era and the helicopter gained acceptance as a unique aircraft that could perform many tasks.

The helicopter has found its niche in industry and they fly many missions which would not be possible with other types of aircraft. Probably not even Igor Sikorsky, inventor of the first practical flying helicopter, could fathom the evolution and the widespread acceptance of this aircraft.

Third generation helicopters, with their jet engines, have transformed a marginal and very limited aircraft into a vastly superior, functional, dependable aircraft.

The helicopter can fly many different types of missions and it has proven very valuable for many companies. The major obstacle in using helicopters is that they are expensive to operate; and, for a company to be successful in using helicopters, it must be very selective in the missions to be flown.

The helicopter is used extensively in forestry and flies many missions, per-



Alabama Forestry Commission helicopter with 120-gallon bucket attached demonstrating firefighting capabilities.

forming many tasks. There are three major areas where the helicopter can profitably serve forestry: prescribed burning, wildfire suppression, and—in very specific areas—helicopters can be used in logging timber.

Prescribed Burning Using Helicopters

Prescribed burning with helicopters has become a widespread practice here in Alabama and a profitable business for several companies. Helicopter burning offers several advantages to landowners. It is faster, may be less expensive, better able to manage the smoke, less labor needed, and doesn't reduce the site index as some alternative site preparations can.

Quite often the forest manager has a very limited time in which to do the burning. Therefore, time constraints can make burning with helicopters the only way to do the job. Helicopter burning usually makes a hotter fire, which can be good in site prep burning. For other type burning, e.g., fuel reduction, pine release, etc., the burning prescriptionist should be very careful, choosing burning days carefully in order to prevent damage or to reduce damage to an acceptable level.

Between October 1991 and September 1992, 1,167,928 acres were prescribed burned in Alabama. Helicopters burned many of those acres, mostly for large companies and/or large tracts. There is every reason to believe that the number of acres burned by helicopter will

increase as more companies target the Southeast to increase their production of pulp and timber.

Logging with Helicopters

Helicopter logging is being done usually in areas that are not accessible by ground equipment. The large, heavy lift helicopters have been used in the mountainous terrain of Western states for some time. Here in Alabama, the Mobile delta is now being logged by using helicopters. There is no doubt that using helicopters to log with is an expensive operation; but, in wetland areas, this may be the most practical way to harvest timber. Helicopter logging is environmentally acceptable and does no damage to the site.

Logging by helicopter is not expected to become a normal practice, but where timber cannot be logged any other way the helicopter can be an alternative.

Fire Suppression with Helicopters

Helicopters certainly have their place in fire suppression. Again, being selective is important. The helicopter should normally not be used to replace ground equipment, but rather to support ground equipment. Helicopters offer the advantage of dumping large amounts of water or foam on fires very quickly. On large wildfires or fires in wildland/urban areas, the helicopter can be of major importance and should be used on those types of fires. For routine wildfires, suppression with ground equipment is usually adequate and should stand alone on those fires.

All helicopter operation in forestry should be directed toward very specific missions, with real achievable objectives that meet the needs of the organization. All aircraft operations must be well planned with flight safety the number one priority. Helicopters have their place in forestry and can enable companies/organizations to do a better job, but only if strict operational standards are met and adhered to. ☪

Helicopter with burner attached demonstrating technique for prescribed burning.



Status Report on Water Quality

by DON BURDETTE, Alabama Forestry Commission

Alabama Forestry Commission personnel have been monitoring general trends in use of Forestry Best Management Practices (BMPs) almost since they were first published in 1974. Active or recently completed logging operations are checked in every county each year to assess several considerations: the effectiveness of current BMP minimum standards to protect water quality; the effectiveness of educational outreach and training programs for the forestry community; and the effectiveness of Alabama's voluntary, non-regulatory approach to protecting water quality.

During the spring and summer of 1993, 267 sites were inspected throughout the state to monitor the implementation and general effectiveness of BMPs used during a wide variety of forestry activities (see Table 1). The recently revised manual, *Alabama's Best Management Practices for Forestry*, was used as a non-regulatory basis for evaluating the adequacy of any and all BMPs used to protect water quality on each site. Operations or practices which did not have a direct potential to impact water quality were not evaluated. Impacts on natural resources other than water, such as soil productivity, wildlife habitat, timber stand condition or aesthetics were also not considered in this survey.

Background Information

The majority of the inspected sites had been logged or otherwise treated during relatively dry weather and ground conditions. Most of the inspections (68 percent) were on active operations where the inspecting Commission personnel had an opportunity to discuss findings and make recommendations to either the foreman or some other crew member. The worst reports generally came from sites that had been logged during the previous extremely wet winter. Only about 5 percent of the inspections were on sites that had been temporarily stopped due to inclement weather.

The high degree of familiarity with state and federal water quality requirements is attributed to both heightened public interest and an intensive educational blitz by

the Commission at about the same time of the survey. Both events probably also account for a significant increase in pre-planning during this year over previous surveys. General areas that still show room for improvement include use of professional forestry advice and use of written timber sale contracts which contain BMP stipulations.

Overall Assessment of Water Quality Protection

Water quality was adequately protected 85.4 percent of the time when every evaluated activity from all 267 silvicultural sites is taken into consideration. This generalization does not do justice to the sites which were treated commendably well or reprehensibly badly. It also does not explain whether any sites may have needed better implementation of BMPs in order to prevent soil erosion or site degradation although state and federal water quality laws may have been fully complied with.

On every site, a series of applicable performance standards was evaluated. In each case information was recorded in a format to give the landowner and professional forestry practitioner some feedback as to how well BMPs were effectively used on the site. The following summaries give statewide evaluations for each of these areas.

Streamside Management Zones (SMZs)

Having 83.7 percent adequate SMZs, where they are needed, is a noticeable recent improvement over past years. Again, this is a statewide average of mostly adequate SMZs with an increasing number of exceptionally well managed SMZs and a few streams which received no SMZ protection. While more and more landowners are insisting on adequate shade and ground cover near a stream, timber harvesting contractors still need to work on preventing or removing logging debris in the stream channel.

The most consistent application of good SMZ management in the state can be

found on national forests and some forest industry lands. Generally speaking the greatest opportunity for continued improvement remains on private, non-industrial land holdings. Most landowners are more satisfied with their lands when SMZs are left not only to protect water quality but to retain key wildlife habitat, timber stand diversity and good aesthetics. Good SMZs are also a visible sign to the general public that forestry is considerate of their concerns about environmental quality.

Stream Crossings

This category received the lowest overall rating but not by much. The most positive finding is that, recognizing the sensitivity of stream crossings, more operators are trying to avoid problems by working around streams rather than through them whenever they have a choice. However, improvement is still needed in removing and stabilizing temporary stream crossings when they are necessary.

Temporary logging bridges are beginning to look like an economically feasible way for loggers to cross streams with less impact to either the stream or stream channel. In the long run, this method of crossing is proving less expensive than debris removal and bank stabilization on every conventional type crossing.

Forest Roads

The foresters and rangers making the BMP evaluations gave some high marks for road standards. On the positive side, forest roads for the most part were located to avoid intrusion into sensitive areas such as wetlands and SMZs. Functional road drainage was also recognized as a benefit of good road construction and maintenance. Although not given poor scores, areas which may still need some improvement statewide include: installation of more drainage devices at more frequent intervals; stabilization of exposed soil surfaces (by revegetation and/or mulching); and reshaping and stabilizing logging roads upon completion of a timber harvest operation.

(Continued on Page 31)

Table 1: Summary of 267 Statewide BMP Monitoring Reports

(Collected April 1 - September 30, 1993)

BMP MONITORING REPORT QUESTIONS	PERCENT AFFIRMATIVE RESPONSES
Water quality adequately protected during entire operation?	85.4%
Familiar with state and federal water quality requirements?.....	88.1%
Professional forestry advice used in operation?.....	79.2
BMP implementation considered during pre-planning?.....	83.4
Written timber sale contract containing BMPs used?.....	71.2
Streamside Management Zones adequate to protect water quality?	83.7%
SMZ width appropriate for the circumstances?.....	84.0
Adequate residual crown cover left?.....	86.4
Logging debris kept out of water?.....	80.4
Banks, beds and floodplains protected from erosion?.....	85.3
SMZ floor can provide filtration of upland runoff?.....	84.2
Silvicultural activities comply with BMPs?.....	87.4
Stream Crossings adequate to protect water quality?	78.7%
Unnecessary stream crossings avoided?.....	91.6
Acceptable stream crossing BMPs properly utilized?.....	77.3
Federal BMPs for stream crossings complied with?.....	78.3
Stream crossings stabilized during use?.....	72.8
Temporary crossings removed and stabilized?.....	70.5
Permanent crossings stabilized and maintained?.....	82.4
Forest Roads adequate to protect water quality?	88.7%
Unnecessary intrusion into sensitive areas avoided?.....	99.0
Located with acceptable grades on steep slopes?.....	85.5
Sufficient water control devices adequately spaced?.....	79.4
Water control devices functioning properly?.....	93.1
Outfall protection adequate to control erosion?.....	92.6
Exposed soil surfaces adequately stabilized?.....	81.0
Roads reshaped and stabilized at conclusion of use?.....	83.6
Timber Harvesting adequate to protect water quality?	89.2%
Temporary roads, skid trails and landings minimized?.....	94.4
Harvesting traffic directed away from drainages?.....	85.7
Avoids stream channel or drainages as skid trails?.....	93.5
Rutting, compaction and puddling minimized?.....	90.1
Roads, trails and landings stabilized when finished?.....	88.2
All trash and fluids properly disposed of?.....	67.4
Reforestation/Stand Management adequate to protect water?	100.0%
Mechanical site preparation properly conducted?.....	100.0
Herbicides or other pesticides properly applied?.....	100.0
Firebreaks and prescribe burning sites stabilized?.....	90.0
Machine planting conducted on the contour?.....	100.0
Forested Wetland Management adequate to protect water quality?	98.3%
Operations may involve jurisdictional wetlands?.....	73.3
Activities meet conditions for forestry exemption?.....	87.3
SMZs established and managed where appropriate?.....	86.8
Minor drainage installations properly managed?.....	79.0
Federal BMPs for wetland roads complied with?.....	87.5
Timber harvesting adjusted to protect water quality?.....	87.8
Reforestation activities comply with wetland BMPs?.....	100.0
Blockages cleared according to wetland BMPs?.....	80.7

Seeing. Scenic Alabama

Part 1

by DOUG PHILLIPS, Alabama Museum of Natural History

The renowned conservationist Aldo Leopold often rendered blunt criticism of modern society's increasing separation from the land. In his famous book, *A Sand County Almanac*, Leopold quipped that the typical person "has no vital relation to it; to him it is the space between cities on which crops grow. Turn him loose for a day on the land, and if the spot does not happen to be a golf links or a 'scenic area' he is bored stiff." This observation came to mind recently when a group of travelers arrived unannounced and knocked at my office door.

The group had driven from Florida. On the way they had dashed blithely by Alabama's remarkable gulf beaches, passed hurriedly over the moss shrouded beauty of the Mobile-Tensaw Delta, zipped on up through Alabama's rolling Red Hills Region, zoomed across the lovely prairie lands of the Black Belt, and arrive here (in Tuscaloosa) at the juncture of the rugged Appalachian Highlands, the magnificent Fall Line Hills, and the intriguing East Gulf Coastal Plain. Whereupon, their burning question was, "Where can we find Alabama's scenic places?"

My first impulse was to send them back the route they'd just travelled—and tell them to pay attention this time! But, of course, these fine folks didn't deserve such mean treatment, so I

agreed to help them in their search for Alabama's "scenic" features.

As a first step we looked at a map showing the location of Alabama's State Parks, a diverse system of 23 parks that ranks as one of the nation's best and most beautiful. We discussed the mountain-lake character of Guntersville State Park in the north, the Ridge and Valley terrain of Oak Mountain Park near Birmingham, and the pristine beaches of Gulf State Park in coastal Alabama.

Ok, the travellers agreed, Alabama's State Parks would get high priority on their list of scenic places to visit. But the parks are easily accessible public places, and my new friends were especially interested in scenic areas that are "off the beaten path."

So, next we discussed several wonderful places that are definitely not easily accessible. In the north this includes features with names like the "Walls of Jericho" and "Bear Den Cove," places so remote and wild as to be reminiscent of the days of Daniel Boone. In the South, this includes many charming subtropical rivers like the Perdido, Styx, and Escatawpa, and any number of hidden wetlands like Wolf Bay and Lillian Swamp.

But most of these places, in addition to being "not easily accessible," are also not open for public use. In other words, the lands comprising these features are privately owned. However, the



Talladega National Forest (above)

Sipsey Wilderness Area, Bankhead National Forest (left)

Little River Falls (opposite)

good news is many responsible landowners are maintaining the wild and scenic appeal of such places to insure that they are here for future generations. And, who knows, maybe someday many of these features will have greater public access.

Well, my travelling friends felt this was all nice to know but urged me to get on with telling them about “real” scenic qualities in Alabama. They didn’t realize they were dealing with an avowed naturalist-educator, primed to give a classroom lesson on the subject at the slightest nudge. And I wasted little time seizing the opportunity to do so.

Alabama is one of the most naturally diverse states in the nation. A chief reason for this is an uncommon variety of geological regions. The state contains five major provinces: Appalachians, Cumberland Plateau, Ridge and Valley, Piedmont, and Coastal Plain. Each of these contains numerous sub-regions; statewide there are a total of 37 minor geological provinces. Within each minor province are a host of variations in terrain, soils, forests, streams, wetlands, and associated plant and animal communities. Thus every formation, every habitat and niche, possesses an individual personality, a unique mix of landscape, colors, and textures that are ever changing, from dawn to dusk and season to season. The grand result is a boundless kaleidoscope of beauty.

Places to Visit

There is so much in Alabama to see, but no quick way to describe all of it to people in such an anxious rush. I decided to get my friends started with a few outstanding features in the northern part of the state, and hope they would return another day to learn of features in the southern part.

TALLADEGA NATIONAL FOREST/ TALLADEGA DIVISION

Containing Alabama’s highest mountain, Mt. Cheaha, this Appalachian ridge country runs across parts of several counties and offers one of the state’s best scenic highways. Hardwood-covered mountains and cascading streams intermingled with pine thickets and soft valleys provide inspirational vistas at every crest.

Cheaha State Park is situated atop Cheaha Mountain, offering a panoramic view of the surrounding countryside. The park has two campgrounds; one is situated on the top of the mountain, and the other is located three miles below at the base of the mountain near a six-acre lake. The two campgrounds have 73 campsites with full hookups and three modern bathhouses with shower facilities. A primitive camping area is also available,

but bathroom and shower facilities for this area are not complete; restrooms, however, are just a short distance away.

Park trails include one approximately a half-mile long which leads to Pulpit Rock, a formation overlooking the valley below. On clear days, you can easily see to Talladega, some 30 miles away.

Another popular trail in the park is Bald Rock Trail, also approximately one-half mile long. This section of the forest is located about 20 miles east of Anniston off Interstate 20.

THE PINHOTI TRAIL

The Talladega National Forest is also the setting for the Pinhoti Trail. This 70-mile trail (once used by Indian hunters and war parties) extends through the mountains, valleys, and ridges of the entire southernmost end of the Appalachian Mountain chain.

The Pinhoti Trail is designed specifically for backpackers. Along the trail are narrow steps, small bridges, and other structures not suited for vehicular or horse traffic. The trail winds through rugged pine and hardwood forests, frequently running along rock bluffs, into hollows, beside crystal-clear streams, or rising gently along forested hills to the crest of still another ridge. Although it traverses some rugged terrain, the trail has grades which are mostly gentle, becoming steep only in a few places for short distances.

Points of interest include the Shoal Creek Church, a rustic church more than 100 years old, constructed of hand-hewn logs; the 86-acre Sweetwater Lake, and Cole Cemetery, the final resting place of

many early settlers of the area.

The Pinhoti Trail may be reached by driving east of Heflin on U.S. 78 to the Coleman Lake Recreation Area sign. A choice section of the trail starts there and goes south to the High Rock Lake Recreation area.

LITTLE RIVER CANYON

This feature is absolutely amazing. The upper reaches of Little River contain the 16-mile DeSoto Scout Trail which follows the Upper West Fork of the Little River and continues through DeSoto State Park where it plunges over the 100-foot DeSoto Falls. At the head of the main canyon, below the merger of the East and West Forks of Little River, is Little River Falls. The lower section of the river is called the "Grand Canyon East of the Mississippi" and speaks for itself as the river winds through a 15-mile canyon with precipitous cliffs on either side.

Little River has several access points, from near Mentone, south to Ft. Payne. Detailed information about trails and camping in the Little River area can be obtained at DeSoto State Park, located along Little River about seven miles east of Ft. Payne.

SIPSEY WILDERNESS

A popular 30,000 acre area of the Bankhead National Forest in Northwest Alabama, the Sipsey Wilderness offers an extensive system of pristine gorges with some of the oldest remaining hardwood trees in the state. The surrounding national forest provides plenty of camping space, plus accessibility for a day's

hike into the Wilderness Area itself. This region is ecologically unique and more delicate than many of Alabama's other outdoor areas. Users should be ever mindful of the need to be gentle and leave no scars from human impact.

The Sipsey Wilderness Area lies in the western end of the Bankhead National Forest. The U.S. Forest Service district office at Haleyville can provide detailed information about hiking and camping both in the wilderness area and in the forest at large.

BUCK'S POCKET STATE PARK

This feature is always a pleasant surprise to travellers who prefer scenic areas that aren't "developed" as state parks. Though Buck's Pocket is managed as an Alabama State Park, you would hardly know.

This dramatic "pocket gorge" is among the best kept secrets in the state. The area's roughly 2,000 acres of chiseled terrain rests several miles off the beaten path, and most local folks like it that way. So, this scenic feature will probably always retain a true back-country flavor. Oh, sure, it has a few developed facilities—campsites, bathrooms, and even a small camp store—but these are largely hidden from view. Thus a first visit to Buck's Pocket is like wandering upon a magic place, within reach of the modern world, but somehow having escaped its notice.

At this point, my new friends from out-of-state raced for their car, eager to get going. I suggested that they come back again when ready for another installment of Alabama scenic places. Their car had barely disappeared in the distance, when I recalled a recent trip of my own, a trip with my family to one of our favorite Alabama woodlands. It was a soft autumn afternoon and our truck was winding along a lonesome dirt road, deeper and deeper into mountainous back country. I invited everyone to enjoy the beauty of the area, as I proclaimed that were now in God's county! Quickly the bright eyes of my five-year old grew even brighter, and she asked excitedly, "Does He live out here?" I took her hand in mine, together we gazed at the surrounding scenic Alabama countryside, and I whispered, "Yes, little angel, sure as goodness, I believe he truly does." ☽

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Status Report on Water Quality

Continued from page 26

Timber Harvesting

Some may be surprised that timber harvesting received the second best evaluations for implementation of appropriate practices to adequately protect water quality. These figures reveal that concerns over water quality following timber harvesting may be more of a perception than a reality. However, also keep in mind that practices were judged solely on their actual or potential impact on water quality; not on site impacts such as soil rutting and compaction which had no definite connection to water quality.

It is encouraging to see that the three practices which had the greatest potential to adversely impact water (number of skid trails and haul roads, harvesting traffic near drainages and skidder trails directly in the stream channel) all received very favorable scores statewide. It would be safe to assume that poor judgement in these areas would be the exception rather than the rule.

The area receiving a significantly low score, removal of all trash and fluids, needs some comment about actual impact on water quality. If such substances are directly deposited into a body of water then certainly there is a violation of state and federal laws. A violation may also occur when these substances are washed off the land into surface water or leach into ground water but this may not be a very common problem. The greatest concern is that almost all landowners vehemently object to a group of visitors discarding their refuse and toxic substances onto their property. In such cases the contractor leaves the impression with most landowners that the soil or ground has been polluted and that the contractor does not have a long-term interest in the landowner or his/her property. This perception is particularly hard to shake when it appears that it would take very little effort to collect and properly dispose of these materials on a daily or periodic basis.

Reforestation/Stand Management

It would be wonderful to be able to accept 100 percent protection of water quality during reforestation and stand management at face value. Unfortunately, the number of sites visited where these

practices were significant occurrences is just too small to be very reliable. Most sites were visited primarily because of logging activities. A few older logged sites had also been treated to regenerate a new stand of trees but not enough to give a good representation of statewide performance. A larger sample in future BMP surveys is needed to produce credible results.

Forested Wetland Management

There were enough wetland sites visited (present in some form on almost 75 percent of the sites visited) to provide dependable statistical information. The results show that most operations are conducted within guidelines of Section 404 of the Clean Water Act. Table 1 shows a high degree of compliance on nearly all significant points. Again, the 100 percent adequacy of reforestation practices to protect water quality is based on an exceedingly small sample of sites and is the only wetland question that may not be reliable.

The lowest score concerned minor drainage. Although the wording of the BMP monitoring form did not yield enough additional information to determine what problems may have existed in this category, if any, it raises a red flag for something to watch out for. Any drainage of wetland can only be considered as a temporary arrangement to facilitate road construction, timber harvesting and reforestation. As soon as these practices are completed in a reasonable period of time, the drainage must be plugged to resume wetland hydrology. In the ecosystem management way of thinking, wetlands provide special uses in the landscape that may not be provided to the same extent by any other landform. Stewardship of the land entails making the best out of wetlands through good management rather than trying to convert them to dry lands.

Following Up on Water Quality Problems

As environmental awareness and sensitivity of the general population and Alabama's land ownership increases, the forestry community has begun to regard self policing as politically expedient in order to resolve problems through education and technical assistance rather than through additional state or federal regulations.

During the 1993 survey, when apparently significant violations of water quality were discovered (on about 25 percent of the sites visited), Commission personnel made an attempt to work with the landowner and other parties involved to alleviate the problem and restore water quality. The Alabama Forestry Commission is not an environmental regulatory or enforcement agency, though, and could only work as long as the parties were interested and cooperative. Ninety-eight percent of the water quality problems were resolved by this means. Only 2 percent of the problems discovered on 25 percent of the sites visited could not be resolved through cooperation and had to be referred to the Alabama Department of Environmental Management for possible enforcement action.

Future BMP Surveys

During 1994 the Alabama Forestry Commission will improve the monitoring process by using its aircraft to locate all possible sample sites. Sites for monitoring will be randomly selected before going into the field and landowners will be contacted for their permission to enter the property and make observations. Six to eight sites will be visited in each county during all seasons of a full year.

The most significant change in the monitoring program is that **BMP implementation** over the entire site will be evaluated rather than just those areas where water quality will be directly or potentially impacted. This means that practices which result in soil erosion, losses of site productivity and poor road conditions will factor more into the evaluation of performance on a particular site.

The expectation for future BMP surveys is that environmental performance on forestry operations will continue to improve. The informed and conscientious landowners will continue to insist on higher standards of soil and water conservation during and following intensive forestry operations. The profession of forestry itself will most likely continue to build upon its successes and increase accountability of its contractors for environmental as well as economic performance. The prospect is bright for sustainable forestry that is better understood and accepted as in the best interest of landowners, professional forestry practitioners and the general public. ♣

AMERICAN HORNBEAM The Unwanted Hardwood

by TOM CAMBRE, Hardwood Specialist, Alabama Forestry Commission

American hornbeam (*Carpinus caroliniana*), which is also called bluebeech, waterbeech, or ironwood, is a slow growing tree in the understory of our southern hardwood forests. The short, often crooked trunk covered with a smooth, slate-gray bark is characteristically ridged, resembling the muscles of a flexed arm. The wood is close-grained, heavy, and very hard but is little used other than for pulp since the tree is too small for sawing.

This tree occurs throughout Alabama and comprises much of the understory stand in hardwood stands that have been diameter limit cut or high graded in the past. This is due to its ability to grow in partial shade and thrive on a variety of sites from ridge tops and hilly terrain to hardwood swamps on mineral soils of mucks.

The species attains its greatest prominence in southern stands, yet remains a member of the understory. Overstory

species that frequently dominate these stands are sweetgum, water oak, willow oak, white oak, cherrybark oak, swamp chestnut oak, black tupelo, red maple, yellow-poplar, loblolly pine, and American beech. Understory trees associated with



this species are eastern hophornbeam, dogwood, mulberry, redbud, sourwood, pawpaw, holly, and sweetbay.

American hornbeam is a very shade tolerant species and capable of persisting in the understory throughout the life of the stand where it occurs. On certain southern

sites the species is so aggressive that it will replace overstory species lost through logging or catastrophe and prevent larger species from reproducing. In forests managed for commercial timber production, American hornbeam is considered a weed tree and is highly discriminated against in timber stand improvement.

The tree has very little damage from insects and disease and is resistant to frost and windthrow.

The American hornbeam is an important food for gray squirrels in Alabama's bottomland hardwood forests but is of secondary importance to other wildlife. Seed buds are eaten by some songbirds, turkeys, and quail. Reproduction is browsed by deer, but is not a preferred food. Finally, one may say that the American hornbeam is a tree that appears in many locations but is yet to serve a real purpose understood by man—but the same could be said for kudzu and fire ants! ♣



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