

Alabama's **TREASURED** Forests

FALL ISSUE 1983



STATE FORESTER'S MESSAGE

by C. W. MOODY

Since you are a recipient of this magazine, chances are good that you are one of the more than 200,000 Alabamians who own 74% of our forestland. As such, you need to continually be aware of and active in suppressing actions which might be detrimental to the productivity of your forestlands.

Federal inheritance taxes can have a direct effect on productivity as well as your ability to pass forestland on to your children. The Economic Recovery Act of 1981 (ERTA) contained a major revision of the Federal tax code which affects inheritance taxes (see the Spring 1983 issue of *Alabama's Treasured Forests*).

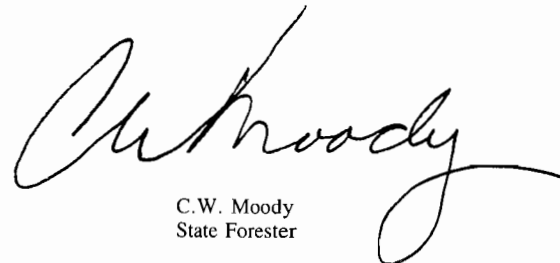
To briefly restate the major benefits of ERTA, the total value exempt from estate and lifetime cumulative gift taxes will rise from \$175,000 to \$600,000 over a six-year period, with the maximum amount becoming effective in 1987. For 1983 the amount exempted is \$275,000. Furthermore, ERTA decreased the maximum tax rate applicable to estate and gift taxes from 70% to 50%. The 50% rate will apply in 1985 and beyond; for the current year (1983) it is 60%. The tax code revision also includes other related benefits.

The increased benefits provided by ERTA are important for the continuity of good forest management as forestland is passed down to younger generations. A key requirement of TREASURE Forest management is a forest management plan which guides the efforts of the forest manager. The long-term planned development of a forest property also ensures the economic profitability of those enterprises the landowner deems to be of primary importance. Unfortunately, in the past,

estates of deceased landowners faced large tax levies requiring the liquidation of much, if not all, the standing timber. The long term forest management plans would thus be nullified for the short term requirements necessary just for the land to be retained by the designated heirs. It is conceivable that the previous \$175,000 exemption would cover less than 200 acres of forestland with relatively high quality timber.

The increased exemption to \$600,000 for estates and gifts is thus needed for the continuity of forest management especially considering the short durations of most ownerships (two to three decades) before being passed down to younger generations.

The provisions of ERTA providing this tax relief have recently been threatened to some extent. Some congressmen have advocated the freezing of the increased exemption to estates and gifts from Federal taxes at the current level of \$275,000. One committee of the U. S. House of Representatives had a hearing tentatively scheduled concerning the matter, but it was not held. Freezing the increased exemptions at the current level is one possible measure to reduce the budget deficit, according to these congressmen. At the present time, however, no bill has been introduced to actually accomplish such a freeze. Although the matter appears to be dormant at this time, landowners need to be on the alert for possible revocation of the increased benefits of ERTA. Let your congressmen and senators know of your attitude regarding this matter so that they may know of your concerns in case this again becomes an active issue in the Congress.



C. W. Moody
State Forester

Alabama's TREASURED Forests

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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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COVER: Alabama's forests turn into a scenic TREASURE in the autumn.

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"Gordon" signs make this forestland easily distinguishable.

Brian & Harris Gordon share a real treasure

GORDON & SON—A FAMILY TREASURE

“Luck” played his hand in the young couple’s decision to come home not only to raise their children, but to grow trees and happiness

by CYNTHIA K. PAGE, Editor

An ownership map of Shelby County hangs on the wall at the local Alabama Forestry Commission office in Columbiana. Amidst the other colors indicating the various owners (mostly industry) splashes of blue appear randomly much like the freckles on a fair haired country lass. Much hard work went into attaining the “blue” status on that map — work directed at much more than just growing trees. As H. M. Gordon puts it, “We’re growing happiness.”

You see, Mr. Gordon is a private landowner who makes a living out of his land, along with much support from his son Brian and the rest of the family. “My wife and I raised three boys and a girl here, and we tried to instill in each one the same feeling of stewardship that has been handed down in this family.” This attitude is clearly demonstrated by the practices being carried out on the Gordon property. There are game plots, fire lanes, boundary markers, ownership signs — all evidence of the pride felt by the owners.

An Inherited Trait

This pride reaches far back in the 1920’s when Paul Luck, lawyer and timberland owner, fathered a girl child — Ruth. Young Harris Gordon, whose father was a cotton buyer and timber merchant, always had an eye for beauty and he and Ruth were married shortly after he graduated from college with a law degree.

The young couple inherited a love of the land and a belief in the American way from both sets of parents and immediately set out to purchase a little timberland. World War II, however, persuaded Harris to accept a position up in Delaware with Dupont. All the while he continued to purchase timberland through his father-in-law.

In 1955 Harris and Ruth moved back to Alabama with their family and began to manage the Luck property along with their own and even purchased another 2000 acres! Today, some 7000 acres of Gordon property are scattered all over Shelby County in approximately 65 plots.

Strategic Planning Key to Success

These various plots range from one-half acre to 800 acres and are used primarily for timber production. Brian, the youngest son, stepped in to assist his father full time in 1973. Both Gordons — Senior and Junior — have learned that to have timberland that is productive enough to make a living at it requires patience, hard work, technical expertise, and planning!

“My dad’s a master at making land produce without going to a lot of expense,” says Brian. “His imagination has played a great role in his management practices since the 1950’s. He was doing prescribed burning when everyone else was scared of controlled fire, and he was into extensive timber stand improvement (TSI) long before the professionals were pushing it. And he has the good sense to watch the total economy and take advantage of critical timing.”

This apparently has lent to their success as evidenced in Mr. Gordon’s remark, “Small landowners can’t afford the same practices as industry. Why, flexibility as to what is sold and how it’s sold has meant up to as much as 45% more profit for us in some cases.”

All but 650 acres of the Gordon property is in natural stands which has required a great deal of TSI. “It’s been tough,” says Brian, “for several reasons. It’s illegal to aerially spray in this county so we’ve had to use VELPAL L in a gun and also hypohatchets. Most of our fire lanes (50 miles) have been plowed with a farm tractor and a disk harrow. Also, we were the first landowners in the county to paint property lines back in 1968. Now we’ve got lines on 95% of our property.”

Another form of TSI is accomplished by allowing firewood cuttings. “Naturally,” says Mr. Gordon, “you need to know who you’re letting cut the trees. If left totally uncontrolled, you could be in for a shock, but it seems to work pretty well for us.”

Insofar as regeneration techniques are concerned, both Gordons are advocates of the shelterwood method. “We try to prescribe burn just before seed fall,” says Brian, “and then pray we get a couple of good rains. Then when we mechanically harvest the trees, the mineral soil is exposed and readily accepts the seed fall.”

Back in 1979-80, the southern pine beetle struck Gordon property. A 160-acre tract of mature timber had to be harvested. Again, good common sense and persistence in locating a buyer pre-



A simple farm tractor is used to maintain fire lanes as well as prepare food plots for wildlife.

vented a substantial loss. In the same year, Alabama experienced one of the worst fire seasons in ten years. Even though it was a constant battle to keep up with the wildfires, prior prescribed burning and well maintained fire lanes kept the losses from being higher.

A Favorite Place

The Gordons naturally want to make a profit from growing timber, but there's another driving force from within — that feeling of stewardship and leaving the land in better condition than one received it. "We don't do a lot of things, like bulldoze, for example, because of what it does to the land," says Brain. "And, I guess I'd have to say our favorite place is the game farm." (Mr. Gordon later revealed that Brian is not much on hunting and only does it "cause we're doing it together.")

Some 300 acres are dedicated to that game farm which has about 50 acres of planted food plots. Heavy accent is placed on game birds which are supported by brown top millet and lespedeza bicolor. Prescribed burning also encourages browse for the deer population.

Some Friendly Advice

Harris Gordon feels that "landowners have the goose that lays the golden egg, if they recognize the animal." He says that by doing the following simple things, they can make a profit.

- Paint boundary lines.
- Be certain of the condition of the Title.
- Have an inventory performed by a professional to determine what's on the property.
- Decide whether you want to manage for a single purpose or multi-purpose.
- Develop and follow a management plan.
- Always take competitive bids. (Ten is recommended)
- Have a written contract when the timber is sold. Inspect the harvest from time to time to be sure it's being accomplished according to the contract.
- Get familiar with the timetables of regeneration.
- Read and secure as much information

as possible from all available resources.

- Enjoy your land.

"By following this simple advice," says Mr. Gordon, "a landowner will not only be a good steward, but will actually have his land working for him."

The Family That Works Together

Mr. Gordon and Brian are not the only family members involved in the management of the property. Ruth Gordon is always right there to do whatever she can, whether making a phone call, running an errand, or offering moral support. Then there's Brian's wife Jan (Janice) who does almost anything her husband can do!

When all the work's done, Brian and Jan like to do a "little dirt kicking" while Mr. and Mrs. Gordon enjoy an afternoon ride around the property.

Brian expressed the essence of this family best when he said, "There's no bigger thrill than to see your work. To see the land in better shape than you found it, to work on it even though you fuss — that's the main thing." ♣

BASIC STEPS IN LAND MEASUREMENT

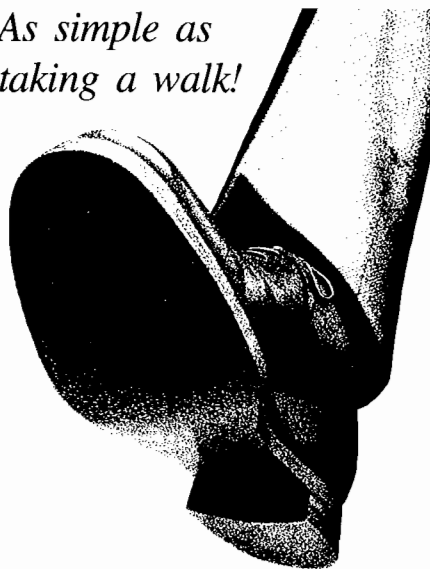
by TOMMY PATTERSON, Chief, Forest Productivity

A general knowledge of land measurement can be very important to the landowner. This knowledge will help the landowner determine how many tree seedlings to order for planting or how many cords of wood he is selling if his forest management plan contains cords per acre information. A landowner can be reasonably assured that he is paying for 25 acres of forestry services rather than for 15 acres of work if he is able to measure the area himself. The following information will not train the reader to the point of acquiring a surveyor's license, but should provide a working knowledge of acreage measurement.

Units of Measure

Forestland in Alabama is almost always measured in *acres*. An acre consists of 43,560 square feet. To be able to determine acreages in the field with rea-

As simple as taking a walk!



sonable accuracy, you must be able to measure linear distances, and determine acres of varied shapes.

If you owned one square acre, each side of that square would be 208.71 feet

long. However, acres are certainly not always square and feet are difficult to measure over long distances without expensive equipment, but there is another way.

Acres can accurately be determined by measuring in *chains*. Areas expressed in square chains can be immediately converted to acres by dividing by 10. Thus, a field that measured 20 by 20 chains would equal 40 acres (20 chains x 20 chains = 400 square chains ÷ 10 = 40 acres). A chain is equal to 66 feet. Distances on all U. S. Government Land Surveys are measured in chains. A land surveyor uses a metal tape equal to one chain to make accurate measurements.

Measuring with a chain or tape is very time consuming which makes pacing an easier method of measurement for landowners. With practice, distances can be paced very accurately. A *pace* is two steps. To check your pace, lay off a measured chain (66 ft) on level, open

round. Now, beginning at one end of the chain, step out with your right foot and walk to the opposite end counting each time your left foot touches the ground. Remember to walk naturally. Pace the distance several times and determine your average number of paces per chain. Adult men usually have a pace of around 12 or 13 per chain. Should your pace prove to be 13, then to measure distance in chains, you simply record every time you count to 13. You may wish to record the count on a notepad. Every count through 13 would equal one chain. Your pace has been calculated for open level ground and may be adjusted when pacing in forest conditions. You naturally take shorter steps going up or down hill. On moderate slopes you may count every tenth pace twice. On steeper slopes you may need to double count every fifth and tenth pace. When brush, rocks or gullies prevent you from pacing in a straight line, estimate by eye the number of paces ahead to some recognizable point, and detour around the obstacle without pacing. Because a person's length of step varies from time to time, your pace should be checked daily when measuring distances.

Taking the Measurement

Now that you know your pace, we can move on to measuring area. Most field or forest stands that you wish to measure can be placed in a standard category of shape making for easy measurement, or large or irregularly shaped fields can be divided into standard shapes. Suppose you want to determine how many acres are in a long, narrow field as illustrated in Fig. 1. The field has two long sides and two shorter sides which essentially describes a rectangle. The formula for the area of a rectangle is $A = L \times W$, where A = area, L = length, and W = width. To measure this field begin at one corner and pace the length of the long side. (Note: To be more accurate you may pace both long sides and determine average length). Then pace the width or shorter side and multiply the length by the width and divide the total by 10. Thus, the field in Fig. 1, with a length of 10 chains and a width of 5 chains, contains 5 acres ($10 \text{ chains} \times 5 \text{ chains} = 50 \text{ sq. chains} \div 10 = 5 \text{ acres}$).

Of course most areas you wish to measure will not be in perfect shapes. You can however, average distances to give reasonable accuracy. Suppose your field looks more like Fig. 2 where the shorter sides are not close to equal. Let's assume the lengths are equal again at 10 chains.

Determine an average width in order to determine area. To do this, measure the width of the field at both ends and at the mid-point. To average, add these three figures and divide by three. The average field width in Fig. 2 is 3.3 chains ($3 + 5 + 2 = 10 \div 3 = 3.3$). Now, just like before, multiply length times width and divide by 10. The field shown in Fig. 2 contains 3.3 acres ($10 \text{ chains} \times 3.3 \text{ chains} = 33 \text{ sq. chains} \div 10 = 3.3 \text{ acres}$).

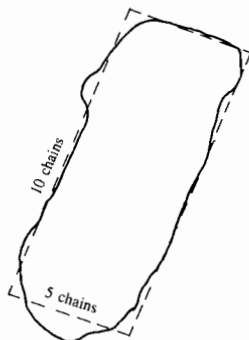


Figure 1

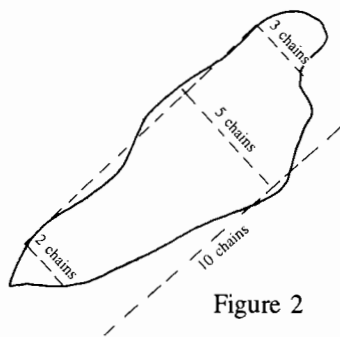


Figure 2

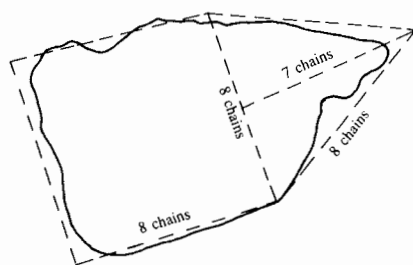


Figure 3

Other common shapes and their area formula are:

A square - The formula for area of a square is $A = S^2$, where A = area and S = length of a side. Thus a square with 10 chain sides contains 10 acres ($10 \text{ chains} \times 10 \text{ chains} = 100 \text{ sq. chains} \div 10 = 10 \text{ acres}$).

A circle - The formula for area of a circle is $A = \pi r^2$ where A = area, $\pi = 3.14$ and r = radius. The distance

from one edge of a circle through the exact center to the other edge is called the diameter. Radius is always one-half of the diameter. Thus, the area of a circle which is 10 chains in diameter (or 5 chains radius) is 7.85 acres ($A = 3.14 \times 5^2 \text{ chains} = 3.14 \times 25 \text{ sq. chains} = 78.5 \div 10 = 7.85 \text{ acres}$).

A triangle - The formula for the area of a triangle is $A = 1/2 B \times H$ where A = area, B = length of the base and H = length of height. Base can be any side, but height must be the distance from the apex of the angle above the base to a point on the base where it forms a right angle. The area of a triangle with three equal sides of 4 chains each would be 0.7 acres. The height is determined to be 3.5 chains. Thus $A = 1/2 \times 4 \times 3.5 = 7 \text{ sq. chains} \div 10 = 0.7 \text{ acres}$.

Figure 3 illustrates how irregularly shaped areas can be measured by combining standard shapes. This field was divided into two standard shapes—a square and a triangle. The square shaped area measured by pacing has 8 chains per side. The square area formula is $A = S^2$. Thus, the area is 6.4 acres ($A = 8 \text{ chains} \times 8 \text{ chains} = 64 \div 10 = 6.4 \text{ acres}$). The triangle shaped area measured by pacing has a base length of 8 chains and a height measuring 7 chains. The triangle area formula is $A = 1/2 B \times H$. Thus, this portion of the field is 2.8 acres ($A = 1/2 \times 8 \text{ chains} \times 7 \text{ chains} = 28 \div 10 = 2.8 \text{ acres}$). The total acreage of this field is then easily determined by adding both acreages ($6.4 \text{ acres} + 2.8 \text{ acres} = 9.2 \text{ acres}$).

Other Measurement Techniques

Pacing is certainly not the only easy method of measuring acreages. The odometer of a car or truck can make large, easy access areas easy to measure. The odometer measures in tenths of miles. One-tenth mile is 528 feet or 8 chains. Remembering these conversion numbers will allow you to quickly drive the length and width of an area to determine general acreage figures.

Maps and aerial photographs can also be used to determine acreage once you convert the scale measurements into chains.

The methods described here would certainly not be accurate enough to make land sales or at other times where a high degree of accuracy is important. However, these methods can easily be used by most landowners in planning and practicing good forest management. ♣



YOUR FORESTS THIS FALL

by LOUIS HYMAN, Chief, State Lands

One of the most glorious times in the forest is autumn when hillsides are splashed with a variety of colors and the sky clears from the haziness of summer. The deep blue of the sky with the yellows and reds of the trees play against each other in a happy harmony. Fall is also the time to watch squirrels chasing after acorns, to see a fawn with fading spots or a young spiked buck showing off with the "sureness" of a teenager. It's a time to gather all the produce of the summer and have one last fling before winter closes in.

Fall is one of the most active times for recreation. The weather has cooled and usually is dry, making outdoor recreation attractive. One thing visitors want to see is a vista of multi-colored trees. The TREASURE forest concept has aesthetics, the maintenance of beauty in the woods, as a major goal. The purpose of this article is to help you identify trees that have attractive fall colors which can add to the beauty of your woods.

The leaves of most plants are green due to the presence of *chlorophyll*, a green pigment which has the unique capability of absorbing energy from the sun. *Chlo-*

rophyll combines this energy with water and carbon dioxide from the air to manufacture sugar, the basic component of the world's food chain. This is a process which man, with all his advanced technology, has been unable to duplicate.

Fall coloration is brought about by cooler weather combined with shorter periods of daylight, resulting in a breakdown of *chlorophyll*, allowing other pigments masked by *chlorophyll* during the summer to show. The varying shades of yellow in flowers and fruits, as well as in fall leaves, are the result of the presence of *carotene* and *xanthophyll*. *Anthocyanin* results in blues and reds. Combinations of these pigments, in varying degrees, bring about the wide variety of color evident in the autumn woods. External factors also exert their influence. Sunlight, temperature, insect damage, rainfall, and soil conditions will result in a color variation of a given tree from one year to the next or even a difference in various portions of the same tree.

An autumn woodland with striking color combinations may be enhanced through selective cutting or retaining trees

Fall Colors of Common Trees	
YELLOW	ORANGE
Cucumber	Hawthorn
Magnolia	Northern Red Oak
Boxelder	Sassafras
Butternut	Hard Maple
Sweet Bay	Southern Red Oak
Persimmon	GOLD
Black Walnut	Ash
Catalpa	Chinquapin Oak
Black Oak	Buckeye
Wild Plum	Willow Oak
Swamp White Oak	Yellow Poplar
Post Oak	Osage Orange
Basswood	GREEN
Cottonwood	The Pines
Willow	The Cedars
Beech	RED
Birch	Ironwood
Elm	Chestnut Oak
Hickory	Scarlet Oak
Hackberry	Red Maple
Holly	Dogwood
Pecan	Black Gum
Sycamore	Sumacs
Locust	Black Cherry
Sassafras	Overcup Oak
Redbud	White Oak
	Sweet Gum
	Sourwood



with desired colors. Thinning, block cutting, removing species with dull or unwanted colors, retaining those with contrasting colors, and keeping pines to break the grays and browns of winter are techniques you may use to tailor the coloration of your woodlands to satisfy personal aesthetic tastes.

In the interest of economics, such practices probably should be carried out only in areas of high visibility, such as highway frontages or the view from your living room window. To assist in making your selections, a list is included on this page of the dominant fall colors you may expect to find in your area and the tree species in which these colors are normally found. ♣

By planning fall colors, you can "paint" a similar picture on your land.

STUMPED?

ASK US ABOUT IT!



A FESTIVAL
BY ANY OTHER NAME

Q. *What is the difference between a prescribed burn and a controlled burn?*

A. A prescribed burn is when fire is used in the forest to achieve a specific management objective. Specific burning techniques are used under certain weather conditions so that the intensity of the fire will accomplish the objective (such as reduction of hazardous fuel or improving wildlife habitat) without causing damage to the other forest resources. A prescription plan (written in advance) is generally used to state the conditions under which the fire will be allowed to burn.

On the other hand, a controlled burn is used in very simple situations when the only consideration is that the fire will not escape. It is generally used where no overstory is present or the land is not being managed intensely. A controlled burn is more likely to cause damage to some aspect of the forest or environment due to less planning and a more intensive fire.

Q. *When selective thinning pine plantations, how much of a penalty should you charge a logging company for cutting unmarked trees?*

A. Every landowner is different, but on Alabama Forestry Commission State Forests and in Alabama's State Parks there are stiff penalties for cutting or damaging unmarked trees. We would suggest including clauses similar to these in your next timber sale contract. "If any unmarked trees of merchantable size are cut by the purchaser, such tree shall be paid for at a rate of \$75 per tree." (This is roughly 2-3 times the average sized saw-timber tree). "If any unmarked living tree below the merchantable diameter limit of 7 inches at the stump are cut by purchaser, they will be paid for at the rate of \$5 per tree. If any unmarked tree receives excessive damage, defined as the removal of more than two square feet of bark from a single tree, the purchaser shall be penalized by a fine of \$25 per damaged tree." This maximum acceptable damage size can be figured as the area that is two feet high across one-half of the circumference of the average sized tree.

Q. *What kinds of trees make good Christmas trees and where can I buy them to grow on my land?*

A. There are several species of conifers used for Christmas trees in Alabama. Some of these are Arizona cypress, red cedar, Scotch pine, Virginia pine and white pine. The Virginia pine seems to be more suited for most sites in Alabama, and for that reason is probably more widely used. However, the landowner should investigate local conditions and select the species best suited for his/her area. Virginia pine seedlings for Christmas tree production are available from Alabama Forestry Commission's nurseries.

Q. *How much forestland is owned by forest industry in Alabama?*

A. According to the 1982 Forest Survey of Alabama, forest industry owns a total of 4,458,000 acres in the state. This area amounts to almost 21 percent of the total 21.66 million acres of commercial forestland in Alabama.

Q. *I am interested in the TREASURE Forest Program and would like to learn more about it. Who do I contact locally for information?*

A. The TREASURE Forest program recognizes and honors Alabama landowners who manage their forests for multiple benefits. These include recreation, timber, watershed, aesthetics, forage, environmental protection and wildlife. The program is sponsored by the Alabama Forestry Planning Committee (AFPC) which consists of the heads of those state and federal agencies that have forestry responsibilities in Alabama. Anyone wanting information on the TREASURE Forest Program should contact any of the AFPC representatives in their county. These agencies are listed on the "Table of Contents" page of this issue. ♣

Have you got a question on trees or do you have any tips of interest to other forest landowners? If so, we want to hear from you. Write in care of STUMPED?, Alabama Forestry Commission, 513 Madison Avenue, Montgomery, AL 36130

Brewton has its Blueberry Festival, Opp has its Rattlesnake Rodeo and other cities have festivals built around things that are common to their locale, so that's why we've decided to have a big celebration centered around wood products and wildlife," Bob Lowe, co-chairman of the Southwest Alabama Forestry and Wildlife Festival, said.

The first of what is planned to be annual festivals will be Saturday, November 5 in Jackson, Alabama.

"Forestry and wildlife are really what our area is all about," festival co-chairman, Clarke County Probate Judge Fred Huggins said. "Ninety percent of our total land area is covered with pine and hardwood trees. Combined with the abundant water from the Tombigbee and Alabama rivers, we also have a very large deer and turkey population."

Sponsored by the Jackson Chamber of Commerce, the festival starts Saturday morning with the 10,000 meter Pine City Classic run, now in its fourth year. The Jackson Arts and Crafts Association will open its annual show and sale at 9 a.m. Saturday and will conclude late Sunday.

Forestry equipment dealers will have the latest in wood harvesting and transportation equipment on display.

Pioneer Saws will sponsor a chain saw contest featuring cash prizes. Winners will earn points that go toward national championships. Crosscut saw contests, pole climbing and tobacco spitting contests will also be on the agenda.

"Kids will really enjoy the day with free games, sponsored by wood product manufacturers, like wood bingo, pine cone toss, wood ball golf, sack races and finding nickels in wood shavings," Huggins said. "Prizes made of wood will be given to winners."

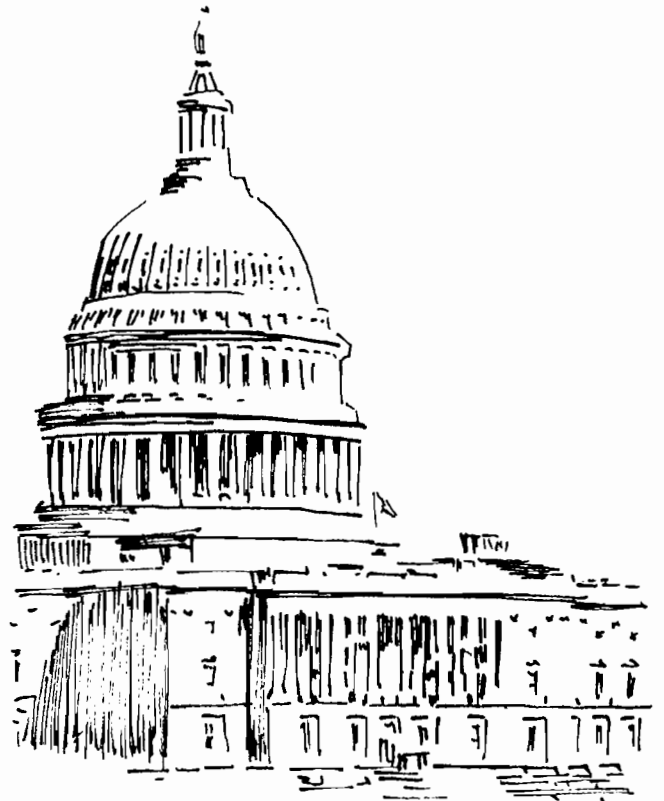
Wildlife displays, taxidermists, wildlife photographers and artists will have their productions displayed.

A firefighter's contest between volunteer fire departments will be another activity.

After a day of fun, good food and fellowship, those attending will be treated to an antique car "Gaslight Parade."

For further information concerning the Southwest Alabama Forestry and Wildlife Festival, write: Mrs. Dottie Outlaw, Executive Secretary, Jackson Chamber of Commerce, 215 E. Church St., Jackson, Al. 36545 or call 205/245-3251.

LANDOWNERS' LEGISLATIVE ALERT



STATE by FRANK SEGO, Legislative Liaison, Alabama Forestry Commission

The House lights are down. The Senate microphones are silent. The curtain has fallen on yet another regular session of the Alabama Legislature. For some of the members, it was only a one-year term as a three-judge federal panel decreed that new elections will be federally mandated to conform to a redistricting plan by December 31, 1983. The general election for all legislative seats is November 8.

Whatever the outcome of the November election, one thing is certain—the spring and summer of '83 brought about one of the most unique sessions of all time. Just when you thought the last session was full of surprises, along comes one to upstage the former.

What was different about this legislature? After months of haggling, a new constitution was hammered out for ratification by the voters this fall. It marked the first successful attempt by any legisla-

tive body since the present constitution was ratified in 1901.

The strangest turn of all was the August 1 (final day) filibuster staged by Senator Donald Harrison of Montgomery to hold off a vote on horse racing in Jefferson County. The filibuster consumed enough time on the 30th day to ensure the demise of nearly 250 bills including a number of the governor's measures. Several bills of interest to the forestry sector also died on the Special Order Calendars. Unusual, too, was the fact that the clock was not stopped at midnight.

Once again, the legislature went to the wire before adopting a \$4 million plus general fund budget to operate departments and agencies of state government during fiscal '83-'84.

The Forestry Commission was successful in gaining passage of a package of bills enabling counties to assist the Commission with its forest protection program

within the specified county. The measures call for an acreage assessment, or finance charge, not to exceed 10¢ per acre on the forestlands within each of the counties.

ACT No. 83-545 by McMillan and Penry: Authorizes the **BALDWIN** County Commission to provide for the protection of forests from fire, insects, disease, beavers and other pests within the county by levying a finance charge of 10¢ per acre to be paid by owners of forestland in the county.

ACT No. 83-549 by Minus: Provides for a finance charge not to exceed 10¢ per acre on forestlands in **CHOCTAW** County.

ACT No. 83-505 by Turnham: Enables **LEE** County to levy a finance charge of not more than 10¢ per acre on forestlands.

ACT No. 83-709 by Coleman and Rains: Allows **MARSHALL** County to place a charge not to exceed 10¢ per acre on forestlands in that county.

ACT No. 83-555 by Reed: Increases the finance charge on forestlands in **BULLOCK** County from five to ten cents per acre.

ACT No. 83-706 by Poole and Mitchell: Provides for the governing body of **PICKENS** County to call a referendum for 10¢ per acre on forestlands. This measure will appear on the ballot at the November 8 election.

ACT No. 83-711 by Poole: Authorizes the governing body of **HALE** County to set a referendum for a similar finance charge on forestlands within that county. This proposed constitutional amendment will also appear on the November 8 ballot.

If a majority of the qualified voters in Pickens and Hale Counties vote for the approval of the acreage assessment, it will then be levied and collected. The funds will be allocated for the Forestry

Commission's forest protection program in each of those counties. Over 30 counties now have the acreage assessment law.

An editorial note—The total forest program is currently making a greater contribution to Alabama than any other single manufacturing industry. Our state ranks in the top 10% of all the 50 states for value added in wood-based industries. Extensive studies indicate that the expansion of forest industries would add still more jobs, more business activity and consequently more income than any other comparable industry.

Furthermore, private non-industrial landowners own 75% of our state's total forest acreage. One of the most important benefits to the small forest landowner is that his product is renewable and provides an excellent opportunity to attract returns on his investment. Not only that, but his

forestland provides numerous forms of recreation including fishing, hiking, camping and hunting. Contributions to a cleaner, fresher environment are immeasurable.

Alabama's forestland owners have a solid base, but they need the total resources of the Alabama Forestry Commission to protect and enhance the future growth and development of their investment. They need and deserve an attentive ear from their elected legislators to assure that the Forestry Commission gets an adequate budget for this purpose. Every man and woman who assumes the oath of office in 1984 should be reminded of forestry's rightful place in this state before taking their seat on Capitol Hill.

The forestry program in Alabama asks for and deserves no less. ♣

NATIONAL by J. KENNETH MYERS, Legislative Affairs Staff, Forest Service, USDA

Congress did not complete work on several pending legislative matters before adjourning on August 4 for the summer recess. Senators and representatives returned September 12. Legislation is still being considered that provides funds for the Department of Agriculture for fiscal year 1984 to carry out the programs and activities of the Forest Service, including those cooperative Federal-State Programs that provide cost-sharing grants to the State of Alabama for forest protection and landowner assistance. The legislation has passed the House and has cleared the Senate committees; it awaits final action by the full Senate. Action to date has restored most of the funds to last year's level, although the Senate amounts are below the House amounts. Completion by the Senate and the required Conference Committee action was to take place in September. Appropriations for the Forestry Incentives Program also await final action by Congress, although the Senate and House versions both provide \$12.5 million for the 1984 program.

No further action has occurred on the bill (S. 36) described in the last issue that would encourage farmers to divert erosion-prone cropland into long term conservation uses, including the planting of trees. That bill would have permitted payment in surplus USDA commodities (Payment-In-Kind) rather than cash. A different version of this bill has been introduced in the House by Congressman Jones of Tennessee and other members. This bill, H.R. 3457, also contains the

"conservation reserve" program to assist farmers to make changes in their cropping and land-use systems to reduce erosion. Purpose would be to retire certain erodible lands from cultivation. Payment would be in cash or in-kind commodities. The bill also would prohibit payment of certain USDA agricultural incentives to farmers who plant certain crops on highly erodible lands. House Agriculture Committee hearings on this bill were expected in late September.

Congressman Charles Whitley of North Carolina is the sponsor of a bill that would strengthen USDA's programs of forestry research and extension. The bill, H.R. 2839, would focus attention on the need for more research on the forest management problems of nonindustrial private forest landowners and an extension education program directed at these landowners to apply the research findings. Hearings have been held on the bill; further action by the House Agriculture Committee is expected in the fall.

A bill has been introduced by Congressman Weaver of Oregon to establish a program to permit volunteers, including any public or private group or organization, to plant trees on lands owned by Federal, State or local governments. Such a program would allow Alabama citizens, for example, to volunteer their time and effort to help plant tree seedlings on State forest lands or the National forests. This bill, H.R. 2838, is supported by the Secretary of Agriculture. This bill would also designate the last Friday in April of each

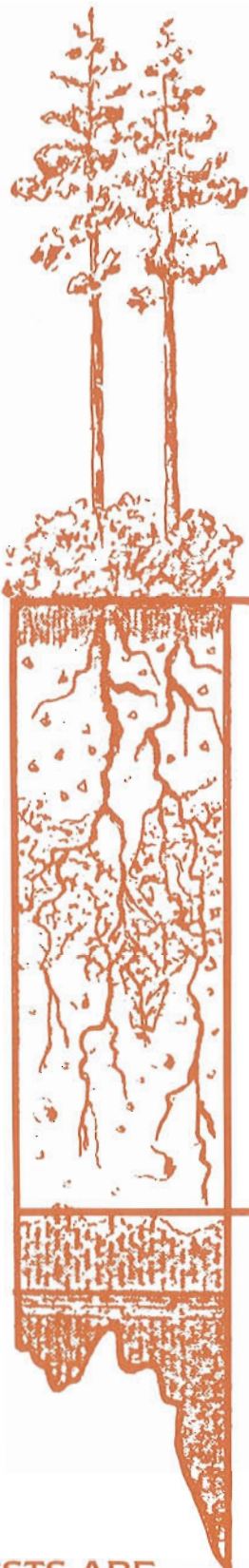
year as "National Arbor Day."

Several tax measures have been introduced that could affect private forest landowners—

- *S. 152, sponsored by Senator Jepsen of Iowa*, would provide an investment tax credit for soil and water conservation measures installed by landowners. The bill would provide a tax benefit similar to that now available to forest landowners who plant trees.
- *S. 1250, by Senator Symms and others*, would repeal that part of the Internal Revenue Code requiring the payment of estate and gift taxes.
- *S. 1719, a bill introduced by Senator Metzenbaum of Ohio* on August 1, 1983, would repeal Section 631 of the Internal Revenue Code. This section allows certain landowners and forest products companies to treat income received from the sale of timber as a capital gain and thereby reduce the amount of tax payable.

No action has occurred on these bills.

H.R. 2477, designating about 28,000 acres of the Bankhead National Forest in Alabama as an addition to the existing Sipsey Wilderness, passed the House of Representatives on June 6, 1983. Congressman Ronnie Flippo's bill is now awaiting action by the Senate. This is expected before the end of the year. ♣



FORESTS ARE
BUILT ON
STRONG FOUNDATIONS
SOIL

SOIL SURVEY

by PAUL S. FRANK, JR., Fire Staff Specialist

The soil survey is a joint effort of the Soil Conservation Service, state, and local agencies such as the Alabama Agricultural Experiment Station, the Alabama Department of Agriculture and Industries, and the Alabama Surface Mining Reclamation Commission. This effort is aimed at providing the public with information useful in land-planning programs. The information includes predictions of soil behavior under different land uses. Soil use limits and hazards together with suggested improvements necessary to overcome limitations are included as well as the environmental impact of selected land

uses. Soil surveys are designed to be used by farmers, ranchers, foresters, agronomists, planners, community officials, engineers, developers, builders, home buyers, conservationists, teachers, students and specialists in wildlife management, waste disposal, and pollution control.

Foresters and forestland owners would be particularly interested in the tables found in each soil survey showing which soils would be best suited for forestry activities. One of the tables describes woodland management concerns and potential productivity. This table describes

SOIL AND LITTLELEAF

by BOB KUCERA, Pest Management Specialist

Many potential TREASURE Forest owners have an added problem to manage on their land—littleleaf disease. When this disease is present the forest manager will want to be especially resourceful in evaluating the stand and site conditions and skillfully applying sound silvicultural management.

Littleleaf disease causes growth loss of shortleaf and loblolly pines. It is especially severe on shortleaf pine creating little interest in regenerating this species. Loblolly pine is affected about one-third or one-fourth as much. There is an area across the Piedmont of Alabama known

as Alabama's Littleleaf Belt. (Figure 1.) In some areas shortleaf pine is even called "Littleleaf Pine." Outside of the range of commercial shortleaf pine, shortleaf can be found scattered most anywhere in Alabama. Littleleaf has been reported accordingly in Escambia, Barbour, and Jackson Counties.

Recognizing the Disease

The first records of littleleaf disease date back to observations in Walker and Tuscaloosa Counties in 1934. In 1935 it

SOIL pH IN FORESTRY

by RAY COVIN, Tree Improvement Specialist

Soil pH is often overlooked when decisions are made concerning reforestation programs. Failure to recognize the importance of soil pH to survival and growth of planted trees may lead to planting a species that soon dies or planting a species that survives the initial planting but grows slowly.

Certain planting sites have a greater probability of incurring pH related problems. Strip mine spoil banks may have either extremely low or high pH values depending upon the composition of the spoil bank. The prairie soils found in the

black belt region of Alabama usually, but not always, have a high pH value that may create planting problems especially if you intend to plant one of the southern pines.

Soil pH by definition is the logarithm of the reciprocal of the hydrogen ion (H+) concentration. Simply stated, it refers to whether a soil is acidic or alkaline or the relative proportion of hydrogen (acid) and hydroxide (alkaline) ions. A soil that is balanced has equal concentrations of the two and has a pH of 7.0. A soil with a greater number of hydrogen

the erosion hazard, equipment limitations, seedling mortality, the wind throw hazard, the site index of common trees, and trees suitable to a particular soil. Another table provides soil suitability for recreational development. Items such as camping areas, picnic areas, playgrounds, and trails are included. Wildlife habitat, a concern of many forest landowners, is the subject of a third table describing soil potential for habitat components and for types of habitat. Information concerning water management features on different soils is included in yet another table.

With the soil survey, a land manager can tailor activities on the lands to be compatible with the soils. For example, on Nauvoo fine sandy loam, which in Jefferson County occurs on eight to fifteen percent slopes on seven percent of

the land area, a small soil loss can be expected on well managed woodland. Equipment use is not limited by the soil to a particular kind of equipment or time of year. Less than 25 percent seedling mortality would be expected due to soil constraints, if seedlings are properly planted. Normal winds can be expected to blow down a few trees. Trees to plant on Nauvoo fine sandy loam with eight to fifteen percent slopes are loblolly pine, Virginia pine and eastern white pine for Christmas trees, yellow poplar, and sweet gum. The two hardwoods have site indexes over 90 on this soil. Another bit of information concerning our example soil is that due to the slope there are unfavorable soil limitations for playgrounds, if one is desired. Costly soil reclamation, special design, intensive maintenance, limited use or a combination of these measures would be

required to keep a playground in place on Nauvoo soil with eight to fifteen percent slopes. There is a wealth of additional information in the soil survey concerning the Nauvoo soil. All one has to do to obtain this information is pick up a copy of the soil survey from the Soil Conservation Service Office in the county in which the land is located.

At this time, not all counties have published modern soil surveys (Figure 1). Modern surveys are completed in 37 counties. Mapping has been completed, with the survey awaiting publication, in two counties. Soil mapping is underway in 13 counties. Work on a modern soil survey has not begun in 15 counties. Even if the soil survey has not yet been published for your county, the County Soil Conservation Office can provide a wealth

was reported in Tallapoosa County. The disease had probably been present for many years in Alabama. Forest Service surveys from 1936 through 1940 determined that the disease was actually widespread in Alabama, Georgia, and South Carolina.

Landowners may recognize littleleaf disease when the needles of shortleaf or loblolly pine trees begin to turn yellowish-green. Diameter and twig length growth slows down. The slow twig growth is noticeable as the needles will bunch up at the branch tips which have stopped growing. These needles are also shorter than normal. An abundant crop of cones, known as stress cones, is a characteristic disease symptom. These symptoms may be seen in various stages and combinations on different trees. Each tree

seems to be affected individually, and it is common to see healthy looking trees adjacent to and interspersed with diseased trees. Trees which have died from littleleaf disease usually have a great number of stress cones which remain on the tree and can be easily seen after the needles have fallen. A tree may die a year or two after it first shows symptoms or it may last as long as 10 or 12 years. On the average a tree is expected to live for seven years after it first shows disease symptoms.

Stands with littleleaf disease problems are considered to be probable habitats for low populations of southern pine beetles (SPB) in between outbreaks. These areas often are the first to develop large populations when an SPB epidemic begins, and the amount of damage during an epidemic

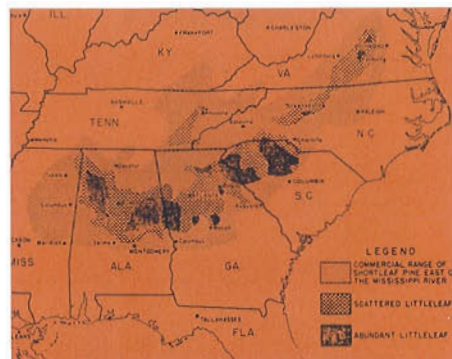


Figure 1

is severe. The low site quality and stress of disease surely contribute to this situation.

As the extent of the littleleaf disease problem became known around 1940, in-

ions will be acidic and have a pH of less than 7.0. A soil with more alkaline ions will be alkaline and have a pH of more than 7.0.

It is important to remember that pH values are expressed on a logarithmic scale so difference between whole numbers are geometric and not arithmetic. A change between whole numbers of pH are in fact ten (10) fold changes. That is, a pH value of 6.0 is ten times more acidic than a pH value of 7.0 and a pH value of 5.0 is one hundred times more acidic than a value of 7.0.

The pH level of a soil influences plant growth because of its effects on solubility of plant nutrients and the activities of microorganisms living in the soil. An acid soil offers greater nutrient mobility but reduced microbial activity, while an alkaline soil produces more beneficial micro-

organisms but has less nutrient mobility.

Best tree growth is usually obtained on soils with a pH level that provides the best mix of nutrient availability and microbial activity. The proper mix for most tree species is obtained on soils with a pH value between 5.0 to 6.5. At pH values below 5.0 some nutrients such as iron and manganese may become so soluble that they are in excess supply. These excess nutrients may become toxic, causing severe injury or even death to the tree. At pH levels above 6.5 to 7.0, nutrients such as iron and zinc may become immobile and unavailable to the tree. Iron and zinc in small amounts are essential elements for proper tree growth and their unavailability at high pH values may cause death or poor growth of the tree.

The different tree species, however, are not all alike in their soil pH require-

ments. (See Table 1 - Soil pH range for southern tree species.) As shown in Table 1 some tree species such as loblolly pine prefers an acid soil with a pH between 4.5 and 6.0. Catalpa prefers a more alkaline soil with a pH between 6.0 and 8.0 Green ash is less restricted in its pH requirements and makes fairly good growth on a soil with a wide range of pH between 3.6 and 7.5. Since the various tree species have different soil pH requirements, Table 1 can be utilized to help select the species best adapted to the soil pH of a particular planting site.

Soil pH values for a particular planting site can be obtained by means of a soil test. Soil tests are available from Auburn University for a nominal charge of \$3.00 per test. Any county office of the Alabama Cooperative Extension Service will

SOIL SURVEY

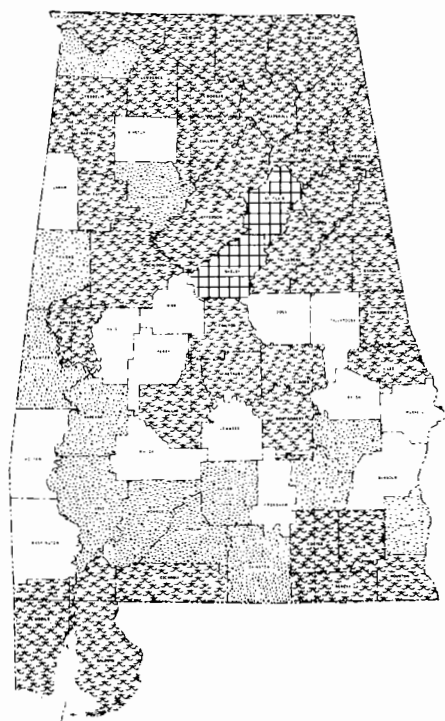
of information for the landowner.

Multiple-use is a goal of many forest landowners. A study of the soils which support your forest could provide valuable information on which to base future plans. As illustrated in preceding paragraphs, there is a wealth of information in the soil survey. From that information the landowner can decide which species of tree to favor, where to put a pond, which wildlife habitat would be best on various sections of the property, where to locate the house and other buildings, and where to locate recreational facilities. The soil survey can be your friend. Why not look up your county soil survey sometime soon?



ALABAMA

STATUS OF SOIL SURVEYS



LEGEND





-  Modern Published Soil Survey (37)
-  Mapping Complete-Awaiting Publication (2)
-  Soil Survey in Progress (13)
-  Soil Survey by Individual Request (15)

Figure 1.

References:

Spivey, Jr., L. D. 1982. Soil Survey of Jefferson County, Alabama. USDA SCS.

SOIL AND LITTLELEAF

tensive research was begun to determine the cause and solutions. Climatic conditions, soil types, soil chemistry, fungi, and viruses were investigated. Eventually it was determined that a fungus, *Phytophthora cinnamomi*, was the causal organism in association with poorly drained and eroded soils.

All disease situations are the result of an imbalance in the relationship between the host tree, a causal organism (usually a fungus), and the environment. In this case it turns out that *Phytophthora cinnamomi*, the agent causing the disease, is favored by poorly drained soils. The fungus has a swimming spore stage which infects fine root hairs. The swimming stage is able to move and infect roots when the soil remains wet for a long time either by holding water or by a high standing water table. The clay soils of the Alabama Piedmont hold water for a long time. These soils are also very erodible and have lost their top soil along with its nutrients. Shortleaf pine, the host, is unable to resist the disease and loses many of its root hairs. The lack of a good root system to absorb nutrients, combined with the low fertility of these soils, prevents the trees from getting the nutrients they need for good growth. Depending on the individual tree's genetic ability to resist and grow new roots and the actual soil conditions, the tree begins to show symptoms and eventually will die. The disease typically is expressed after the tree is 18 years old or older when it has reached a size to be more demanding for nutrients and water from the site.

Another factor indicated by research conducted by the Alabama Forestry Commission (AFC) in the 1950's, is the relationship between wildfire and littleleaf disease. Shortleaf pine is unique among Alabama's pines because of its capacity to consistently sprout from the base when the main stem on a young tree is damaged. This occurs as the seedling bends over, or crooks, when it is about two or three inches tall. When it resumes vertical growth, the part on the ground, with buds, gets covered with soil and litter. If the area is burned and the top is killed, some of the buds, protected from fire by the soil, will sprout and one will become the dominant stem. In the absence of fire these buds remain dormant and the tree will lose its ability to sprout when it is about six to eight inches in diameter or about ten to eighteen years old. The implications of the AFC research are that a shortleaf tree which has developed from sprout origin is less vigorous and more

susceptible to littleleaf disease. It is also suggested that the different incidence of littleleaf on loblolly and shortleaf pine is not a result of different susceptibility but rather of their different capacity to sprout.

Prevention and Control of Littleleaf Disease

Alabama landowners have options to minimize losses to littleleaf disease. A close evaluation of affected stands is the first step. Good forest management requires knowledge of site index or site quality, what species are present, size distribution, insect and disease conditions, markets, and landowner's objectives. Different options exist based on this information. The following prevention strategies are based on recommendations from research as applied to common combinations of landowners' situations in Alabama.

1) *Usually littleleaf disease is found on highly eroded soils with a site index at age fifty of 50 to 65 feet.* This is a very low site index which indicates that the site will not produce even an average amount of marketable products. These sites probably will not justify the expense of artificial regeneration. If there are enough healthy trees of all species, they should be favored to remain as the cull and diseased trees are salvaged and thinned out. Every effort should be made to maintain stocking and to regenerate through natural means, even if this means seed tree regeneration with a component of shortleaf pine in the next generation. The littleleaf threat should be recognized and this species should be thinned or removed in the next rotation before it reaches age twenty.

2) *On a very poor site with a low density of shortleaf and other quality trees for natural regeneration it may be best to salvage anything of value and abandon intensive management altogether.* Over a long period of time the soil conditions will improve. These lands could be targeted for deer and turkey management, recreation, and non-game wildlife.

3) *On a typical littleleaf site of highly eroded, low fertility clay, with a large component of shortleaf and an adequate combined stocking of all species the stand may be managed as follows:*

- In stands having few diseased trees, harvesting may be light and timed at ten year intervals.
- In stands with 10-25 percent of the trees diseased, remove all diseased trees on a six-year cutting cycle.
- In stands with more than 25 percent

of the trees diseased, cut all shortleaf pine as soon as merchantable.

- Where littleleaf is causing important losses on shortleaf, cutting operations should be planned to favor loblolly or other more resistant species.

4) *On reasonably good sites, site index over 70, it is common to clearcut and artificially regenerate a species less susceptible to littleleaf disease, usually loblolly.* In this situation the forest manager may choose his species and even have the option of using improved trees. He has control over spacing and timing of regeneration and would expect to get good survival and a well stocked stand. These advantages are achieved at a higher price than natural regeneration which should always be evaluated. Natural regeneration is expected to be less expensive, utilizes the best local trees as a seed source, and probably is the least damaging to the site in terms of soil erosion, compaction, and water quality.

5) *Take extra precautions on clay soils to prevent wildfire in plantations and young stands.* Evidence points to fire damage and subsequent sprouting as a

cause of littleleaf disease.

6) *On all clay sites, soil compaction and gullyng can be a problem with a definite effect on future productivity.* Skidding should be avoided on wet clay. When it is necessary to work on wet clay soils, if traffic is repeated on a few trails, these trails will become compacted but overall compaction will be minimized. On dry clay soils, dispersed skid trails will minimize compaction so no one trail will become compacted. Clay is also susceptible to gullyng. Where water moves in a concentrated flow, especially for long distances on clay, gullies may form. For this reason major skid trails on slopes should be treated with water diversion structures such as water bars and seeded with grasses after they have been used. Both compacted areas and gullies are higher hazards for littleleaf disease.

Littleleaf disease management, whatever recommended strategy is selected, should be coordinated with considerations of the landowner's objectives and other insect and disease considerations. This is the idea behind "integrated" forest pest management. The following reference by

Anderson and Mistretta will help in developing an integrated plan. Contact the County AFC Office or consult with a registered forester for further assistance.

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From Campbell et al, 1953.



SOIL pH IN FORESTRY

assist you in obtaining a soil test. This small investment for a soil test may be the most important investment you can make to insure the success of your reforestation program. ☞

Table 1. -Soil pH range for southern tree species

Common name	Scientific name	Range in pH
Alder, European black	<i>Alnus glutinosa</i>	4.0-7.0
Ash, green	<i>Fraxinus pennsylvanica</i>	3.6-7.5
Ash, white	<i>Fraxinus americana</i>	4.6-7.5
Baldcypress	<i>Taxodium distichum</i>	4.6-7.5
Basswood, American	<i>Tilia americana</i>	4.6-8.0
Beech, American	<i>Fagus grandifolia</i>	6.0-7.0
Birch, black	<i>Betula lenta</i>	5.0-6.0
Birch, river	<i>B. nigra</i>	4.5-6.0
Birch, yellow	<i>B. alleghaniensis</i>	5.0-7.0
Blackgum	<i>Nyssa sylvatica</i>	4.6-7.0
Buckeye	<i>Aesculus species</i>	6.0-8.0
Catalpa	<i>Catalpa species</i>	6.0-8.0
Cedar, Atlantic white	<i>Chamaecyparis thyoides</i>	3.5-5.5
Cherry, black	<i>Prunus serotina</i>	4.6-6.2
Cherry, fire	<i>P. pensylvanica</i>	5.0-6.0
Chestnut, American	<i>Castanea dentata</i>	5.0-6.0
Chinkapin	<i>C. pumila</i>	5.0-6.0
Cottonwood, eastern	<i>Populus deltoides</i>	3.6-7.5
Dogwood	<i>Cornus species</i>	6.0-8.0
Elm	<i>Ulmus species</i>	5.2-8.0
Eucalyptus	<i>Eucalyptus species</i>	6.0-8.0
Hackberry	<i>Celtis occidentalis</i>	5.0-7.5
Hemlock, eastern	<i>Tsuga canadensis</i>	5.0-6.0
Hickory	<i>Carya species</i>	4.5-5.5
Holly, American	<i>Ilex opaca</i>	5.0-6.0
Honeylocust	<i>Gleditsia triacanthos</i>	6.0-8.0
Hophornbeam, eastern	<i>Ostrya virginiana</i>	6.0-7.0
Kentucky coffeetree	<i>Cymnocladus dioica</i>	6.0-8.0
Locust, black	<i>Robinia pseudoacacia</i>	4.5-7.5
Magnolia, southern	<i>Magnolia grandiflora</i>	5.0-6.0
Maple, red	<i>Acer rubrum</i>	4.4-7.5
Mulberry	<i>Morus species</i>	6.0-8.0
Oak, bear	<i>Quercus ilicifolia</i>	4.0-5.0
Oak, black	<i>Q. velutina</i>	5.0-5.4
Oak, blackjack	<i>Q. marilandica</i>	5.0-6.0
Oak, bur	<i>Q. macrocarpa</i>	6.0-6.3
Oak, cherrybark	<i>Q. falcata</i> var. <i>pagodaefolia</i>	4.5-6.2

Oak, chestnut	<i>Q. prinus</i>	5.0-7.0
Oak, laurel	<i>Q. laurifolia</i>	3.6-5.6
Oak, live	<i>Q. virginiana</i>	6.0-7.5
Oak, northern red	<i>Q. rubra</i>	4.5-6.0
Oak, Nuttall	<i>Q. nuttallii</i>	3.6-6.8
Oak, overcup	<i>Q. lyrata</i>	3.6-5.5
Oak, pin	<i>Q. palustris</i>	6.0-7.0
Oak, post	<i>Q. stellata</i>	5.0-6.0
Oak, scarlet	<i>Q. coccinea</i>	6.0-7.0
Oak, chumard	<i>Q. shumardii</i>	4.4-6.2
Oak, southern red	<i>Q. falcata</i> var. <i>falcata</i>	5.0-6.0
Oak, swamp chestnut	<i>Q. michauxii</i>	3.6-6.2
Oak, swamp white	<i>Q. bicolor</i>	6.0-8.0
Oak, water	<i>Q. nigra</i>	3.6-6.3
Oak, white	<i>Q. alba</i>	4.5-6.2
Oak, willow	<i>Q. phellos</i>	3.6-6.3
Paulownia	<i>Paulownia tomentosa</i>	6.0-8.0
Pecan	<i>Carya illinoensis</i>	4.8-7.5
Persimmon	<i>Diospyros virginiana</i>	4.4-7.0
Pine, loblolly	<i>Pinus taeda</i>	4.5-6.0
Pine, longleaf	<i>P. palustris</i>	4.5-6.0
Pine, pitch	<i>P. rigida</i>	3.5-6.0
Pine, scotch	<i>P. sylvestris</i>	4.5-6.0
Pine, shortleaf	<i>P. echinata</i>	4.5-6.0
Pine, slash	<i>P. elliotii</i>	4.5-6.0
Pine, Virginia	<i>P. virginiana</i>	4.6-7.9
Pine, eastern white	<i>P. strobus</i>	4.5-6.0
Redcedar, eastern	<i>Juniperus virginiana</i>	6.0-7.5
Redbud, eastern	<i>Cercis canadensis</i>	6.0-8.0
Sassafras	<i>Sassafras albidum</i>	4.7-7.0
Sourwood	<i>Oxydendrum arboreum</i>	4.0-8.0
Spruce, red	<i>Picea rubens</i>	4.0-5.5
Sumac, shining	<i>Rhus copalina</i>	4.2-7.0
Sweet bay	<i>Magnolia virginiana</i>	4.0-5.0
Sweetgum	<i>Liquidambar styraciflua</i>	3.6-7.5
Sycamore, American	<i>Platanus occidentalis</i>	4.4-7.5
Tupelo, water	<i>Nyssa aquatica</i>	3.6-5.6
Walnut, black	<i>Juglans nigra</i>	5.0-7.5
Willow, black	<i>Salix nigra</i>	4.6-7.5
Yellow-poplar	<i>Liriodendron tulipifera</i>	4.5-7.0

References

- Williston, H. L., and Russell LaFayette. "Species Suitability and pH of Soils in Southern Forests," 1978, Forest Management Bulletin, U. S. Department of Agriculture.

THE TRUTH ABOUT FOREST INVESTMENTS

by BILL MCKEE, Forest Economist, Alabama Cooperative Extension Service

Travel down a rural Alabama road. What do you see—fields of cotton, corn, wheat, pastures? Once, most of Alabama was like that. At the turn of the century you could see to the horizon across much of the state. Few trees blocked the view. The boll weevil, the depression and soil erosion changed all that. Then Mother Nature covered the abandoned land with trees.

These trees have been the seed for success for Alabama's forest industry. Forest industry has developed so rapidly in recent years that it challenged the more traditional industry for economic leadership—agriculture, steel and textiles. In 1977, the combined value added by the forest industries was \$1.38 billion, exceeding both heavy metals (\$1.04 billion) and textiles (\$0.67 billion). Value added from agriculture can only be approximated since it is not routinely estimated by the U.S. Department of Agriculture. In 1977 the value added by primary agricultural production was \$0.72

billion. Adding the value added by the food processing industry (\$0.55 billion) gives a total estimated value of \$1.28 billion or about \$100 million less than forestry.

What does the future hold for Alabama

forestry? Well, it's no secret that forest industry's most important raw material, wood, makes it dependent on thousands of forest landowners in the state. Forest industry owns less land than many people believe. In Alabama, industry owns about 21% of the state's 21.7 million acres of commercial forest land, while non-industrial private owners own 74%. These figures imply that even if industry lands are managed intensively, private landowners will still supply the majority of the industry's raw material.

Unfortunately, a serious trend is developing. Over one-half of the acres annually harvested on pine sites are not being adequately regenerated to softwoods. Why is this happening? Many forest landowners have been led to believe that forestry investments have 1) low rates of return, 2) high risks, 3) long pay-back periods and 4) high initial capital requirements. Let's consider each of these in turn.

Low Rates of Return

Given reasonably active stumpage markets, timber investments offer rates of return as high as, or higher than, other investments available to the average landowner. These other investments include certificates of deposit, all-saver certificates, money markets, and stock markets.

This statement is true when it is assumed that land costs (values) are irrelevant in most timber production analyses. In most cases, this is a valid statement for many non-industrial private landowners. They own their land already and will not consider selling it and investing the money elsewhere. Land value could be included in a timber production

analysis. However, if land value appreciation

were properly recognized, the joint investment would more than likely return a greater return than the timber investment by itself.

To be reasonable and fair, comparisons between timber growing and alternative investments must be consistent. Either both returns must be determined before adjusting for inflation, or both must be computed after adjustment.

When reasonable and fair comparisons are made, timber investments generally come out the winner by a good margin. For example, an article by A. F. Ehrbar in the August 1977 issue of *Fortune* magazine (p. 89-90, 93) reported a study by Lawrence Fisher and James H. Lorie of the University of Chicago's Center for Research in Security Prices. These researchers found that over the 15 years, 1962-1976, the average rate of return from stocks on the New York Stock Exchange was seven percent. This rate took into consideration stock price (capital gain) increases and dividends, but not purchase and reinvestment commissions or inflation. After adjustment for these costs and the effect of inflation, the rate was 2.2 percent.

A hypothetical investment in southern pine over the same time period could have returned 12.4 percent. This statement assumes a site preparation and planting cost in 1962 of \$25 per acre, additional annual costs of \$0.25 per acre, a yield of 18 cords per acre, and a stumpage value of \$8.57 per cord (see *Forest Farmer Manual*, March 1980, p. 58-65). The after-inflation rate of this investment would have been

four percent, almost double that of the common stock.

For slightly above average land quality (SI at age 25 = 60), cost of \$125 per acre for site preparation and planting, pine release at age 4 of \$40 per acre, annual cost of \$1 per acre, and 1982 state average stumpage prices (Pine Pulpwood - \$16/cord, Pine Sawtimber - \$160/MBf, Scribner), a 25 year loblolly pine rotation would return 18.8 percent.* At present this is significantly higher than current yields on certificates of deposit and money markets. When consideration is given to capital gains tax treatment and the reforestation tax incentive (PL 96-451), the timber investment is even better.

* A 6% inflation rate and a sawtimber real price increase of 1.5% was assumed.

High Risks

After convincing investors that timber growing is attractive from the return on investment viewpoint, they often counter with "Yeah . . . but what about the risk involved?" Those who are convinced that forestry doesn't pay are certain that a 20 year forestry investment will have an average annual loss (risk) of 5 1/3 percent.

Fortunately, this implied assumption is grossly overstated. If this risk factor, 5 1/3 percent, was applied to the 188.4 million acres of commercial timberland in the South, annual destruction by wildfire, insects and disease would total about 10 million acres. These destructive forces currently affect slightly less than 2 million acres (many of them double counted). Furthermore, a stand is seldom totally destroyed (i.e. has no salvage value). Let's assume that 50 percent of the value can not be salvaged. Across the South this translates to a reduction in rate of return of about one-half of one percent. Even the probability of wildfire destroying seedling-aged stands is surprisingly low. During an unusually bad fire year in 1981, the South only lost some 75 thousand acres of 57.5 million acres of seedlings and saplings — a probability of less than 2 acres per 1,500 acres (0.13 percent).

In summary, the adjustment for risk over an entire rotation is seldom greater than two percentage points, and usually a great deal less.

Long Pay-back Periods

Professional foresters have been trained to determine the best time period

between planting and harvest (i.e. the rotation). In some instances these time periods are beyond the landowner's life expectancy. To supply Alabama's wood needs, professionals must recognize that the "best" rotation concept may not be what is best for a particular landowner. Landowners should be convinced to regenerate on the basis of their current situation and objectives. In many cases, landowners may choose to adopt a rotation on the basis of the earliest pay-back period that will yield a competitively acceptable return.

For instance, Figure 1 represents a typical set of financial return curves commonly found in the literature. In this example rotations for good and average sites are 31 and 37 years, respectively. If we consider the left-hand extensions of the curves, however, we will note that the returns become acceptable at much shorter rotation lengths (15 and 21 years).

Shorter rotations yield rates comparable to those from nonforestry alternatives and are within the 20 to 30 year time frames commonly associated with most Individual Retirement Accounts or Keogh plans.

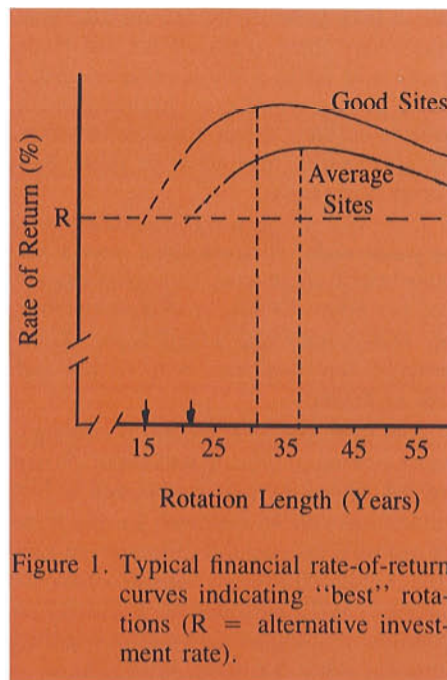


Figure 1. Typical financial rate-of-return curves indicating "best" rotations (R = alternative investment rate).

High Initial Capital Requirements

Capital required for forestry investments is a significant barrier to the non-industrial private forest landowner. Funds are needed for site preparation, planting or seeding, and other management expenses.

Investment does not have to be in the \$100-\$200 per acre range. Adequate re-

generation planning before harvest can reduce the cost substantially. Seed-tree or shelterwood cuts are natural regeneration methods which do not require excessively high capital outlays. Site preparation and planting immediately after a clearcut often requires high capital outlays with costs ranging from \$100-\$200 per acre. The owner is better positioned financially to invest in regeneration at the time harvest revenues are received. Regeneration requires forethought . . . planning! And planning is the primary duty of foresters.

The forestry community—landowners and professionals—is zeroing in on the high capital barrier. Federal income tax changes (tax credits and cost amortization), cost-share programs (ASCS administered FIP), and research in low-cost regeneration techniques are all aimed toward reducing capital outlay.

Conclusion

Encouraging the private non-industrial forest landowner to practice better forest management presents a challenge. These landowners have diverse objectives, widely different characteristics and attitudes and a varying willingness and capacity to make investments in forest management. Low rates of returns, high risks and long pay-back periods are not valid reasons for not investing in forestry. Consider the evidence:

1. Forestry does pay . . . from 3 to 6 percentage points above inflation, or from 12 to 18 percent or more in terms of today's investment markets (and this is after a reasonable adjustment for risk). These earnings are favored by long-term capital gains tax treatments.
2. Competitive rates are earned after as little as 15 to 20 years, comparable to the time spans of individual retirement plans.

Motivating initial investment capital, which is the only significant problem, can and has been partly resolved with regeneration planning and reforestation tax incentives (10% investment tax credit and 7-year amortization deductions of reforestation costs). Other assistance is available from cost-share programs, and additional solutions will most certainly be conceived and proposed. Convincing landowners to view forestry as a valid, rational, and profitable investment may resolve the investment capital problem. ♣

Portions of this article were developed from a paper presented by Bennett Foster, U.S. Forest Service, Atlanta, Georgia.

Whether you do-it-yourself or hire someone else to do it . . .

FIREBREAKS FIREBREAKS PROTECT FOREST LANDS

by TOM COUNTS, Soil Conservation Service, Wilcox County
PAUL WINGARD, Alabama Forestry Commission, Wilcox County

Alabama's TREASURE Forest landowners are benefiting from a low cost forest management tool called prescribed burning. These landowners know that a prescribed burn should not be started without careful planning. One part of that planning is how to confine the fire. Firebreaks are the one essential item needed to confine a fire. Also, firebreaks determine the size of the tract being burned, provide access to areas otherwise hard to reach, serve as protection from wildfires and are used as food plots for wildlife.

When firebreaks are installed the landowner has a choice of whether to construct annual firebreaks or permanent firebreaks or firelanes. There are some very distinct differences between the benefits of the two. A landowner should compare the two closely to see which one best fits his needs and objectives.

Annual Firebreaks

Annual [lasting one season] firebreaks are usually constructed mechanically with a commercially built fire plow mounted on a crawler tractor. This fire plow creates a furrow which exposes the mineral soil and severs roots. The width of the furrow varies with the size of the plow and the soil conditions, but usually is not wider than six feet. The fire plow makes a sufficiently safe firebreak for normal burning conditions.

Although most landowners hire someone to construct the firebreaks for them, some landowners have access to a fire plow and plow their own. Others, where the terrain allows, use farm plows, disks, and harrows to construct a firebreak.

Usually when a farm implement is used it takes several passes over the same ground to make the firebreak adequate.

Since annual firebreaks are good for only one season they have to be installed periodically depending on the landowner's burning program. If a landowner burns a tract on a three year cycle, he would then plow firebreaks on that tract once every three years. If he had three tracts and burned them in alternating years, then he would plow firebreaks each year on different tracts. Landowners with larger acreages may have to plow firebreaks quite often.

The cost of plowing firebreaks will vary statewide. If constructed with a fire plow the average cost is approximately \$40 per hour. Average construction time per mile is one and a half hours. Construction time will vary with terrain and size of dozier.

Any time that bare ground is exposed, some amount of erosion will occur. When annual firebreaks are constructed a few basic rules can be followed to minimize erosion and prevent the formation of gullies: 1) On grades over six percent, the contour should be followed as closely as possible; 2) Turnouts should be installed to divert water out of the plowed line; 3) Firebreaks should not be plowed directly into a stream, but should parallel the stream before connection is made, 4) Highly erodible slopes should be seeded to an annual or a permanent vegetation.

Permanent Firebreaks

Permanent firebreaks, as the name implies, are a one time installation. Permanent firebreaks can be constructed by

plowing several parallel lines with a fireplow, harrowing, disking, and/or burning. However, most are constructed with a bulldozer. A permanent firebreak should be as straight as possible, clear of flammable material, and at least ten feet wide. It should be clear of any obstacles such as trees and stumps to allow for movement of maintenance equipment.

Firebreaks can be flagged out ahead of time and any merchantable trees removed. If stumps are going to be removed harvesting and construction may be coincided to facilitate the pushing of stumps. A standing tree is usually easier for the dozier to push than just a short stump. If this is not possible then leaving a higher stump [4-5 ft.] would aid the dozier in pushing. If stumps are not to be pushed, they should be cut as close to ground level as possible.

A bulldozer constructing a permanent firebreak can average one mile every three hours and will cost an average of \$50 per hour. Construction costs will vary statewide with contractors, terrain, and vegetation.

Most landowners contract the construction of their permanent firebreaks, however, many of them do their own maintenance. Periodic maintenance is required to control natural revegetation. Maintenance entails bush hogging, cutting back low hanging limbs, and preparing for the next burn. To prepare firebreaks for a burn, a light disking will usually provide adequate safety. A deeper disking may be required on certain soils and cover vegetation. Several miles of firebreaks can be easily maintained in one to three work days with a chain saw and farm tractor with implements.

Waterbreaks

The concentrated flow of water on a newly constructed permanent firebreak can develop into a severe gullying problem. To prevent a firebreak from eroding and possibly causing a gully situation several things can be done during and after construction of the firebreak.

The first item to consider is installation of waterbreaks or water bars. A waterbreak is a mound of dirt constructed so as to turn runoff water out of the firebreak and into the undisturbed forest cover. By doing this, the flow of rainwater is prevented from running down a sloping part of the firebreak and is diverted aside to the well established forest floor. Placed on sloping sections of the firebreak, the waterbreaks can be made deep or shallow. The deep type [24"-30" above original ground surface] are usually put on areas having little vehicular traffic and they can handle a larger volume of runoff water. The shallow type [8"-12" above original ground surface] can be easily driven over with a pickup truck and will take care of the runoff water in most instances.

The number and spacing of waterbreaks is determined by the length and the grade of the slope. For instance, if the slope is 350 feet long and has a grade of 10 percent, four waterbreaks should be constructed at intervals of 80 feet. If the grade were 20 percent on this same area, waterbreaks should be installed every 50 feet. The general rule to apply here is the steeper the grade the closer the waterbreaks are spaced; the flatter the grade the farther apart the waterbreaks are spaced.

Construction of waterbreaks can be done with a farm tractor with a blade or a bulldozer. Whatever kind of machinery is used, the waterbreak needs to be constructed so that the finished product is smooth, well compacted and free of roots or vegetation. Topsoil can be pushed back at the beginning of construction and later spread back over the waterbreak to help facilitate the establishment of permanent vegetation.

Vegetation Cover

The type of cover that is planted and when it is to be planted will vary, depending on what part of the state that you live. For example, bahia grass mixed with common bermuda grass can be planted from March 15 to July 1 in central Ala-

bama and from March 1 to July 15 in southern Alabama. This mixture is not recommended for northern Alabama because bahia grass is not well suited for the slightly cooler section of the state. Although this seeding mixture will provide good erosion protection, it will burn quite readily during the winter. This liability can be overcome by lightly disking the established sod and overseeding with winter annuals and small grains. A seeding mixture that is good for the northern three-fourths of the state is fescue and white clover. This will stay green through the winter, unlike the bahia and bermuda grass. Seeding dates for fescue and white clover are August 1 to November 15 in central Alabama and August 15 to November 1 in northern Alabama.

It should be stressed that ground preparation and proper fertilization is necessary to get a stand of these permanent grasses. After construction the firebreak is often nothing more than hard subsoil with very low fertility, so the seedbed needs to be deep but firm and fertilized by soil test. In the absence of a soil test a heavy rate of fertilizer should be used, such as 750 pounds per acre of 13-13-13 or 1250 pounds per acre of 8-8-8. A double seeding rate should always be used for all permanent grasses such as 30 pounds of bahia along with 5 pounds per acre of common bermuda [hulled], and if using the fescue/white clover mixture, plant 30 pounds of fescue with 4 pounds of clover per acre. If planting the fescue/clover mixture, be sure to add the correct inoculant for the clover.

It should be noted that heavy vehicular traffic is not recommended on firebreaks, especially under wet conditions. Traffic can cause rutting and completely ruin waterbreaks and cover vegetation. Remember that firebreaks are not roads and should be protected and traveled only when conditions are ideal. However, many access roads built specifically for travel may serve a dual role as firebreaks.

Wildlife Considerations

A permanent firebreak can be a very beneficial area for wildlife if certain practices are used. The opening created by the firebreak makes a more diverse habitat for wildlife. By planting the opening created by the firebreak there can be a certain amount of selection for one particular species over another, although many game species and nongame species will

benefit. For instance, fescue will produce a lush green growth that deer will browse if it is clipped close in the fall and then fertilized with 200 pounds of ammonium nitrate per acre. Without the cutting and fertilizer, deer will seldom browse the fescue. Bahia grass, which is not fed upon by deer, makes an attractive feeding area for turkey which feed on the seed heads and the insects which are found in the grass. When a bahia grassed firebreak is overseeded in the fall with winter annuals such as wheat and rye, this makes an area that is used by both deer and turkey. Another plant that benefits several game species is the chufa. These can be planted in plots of one-fourth to one-half acre, preferably on a sandy type of soil and level area. These plots can be rotated as needed when weeds become a problem.

Permanent firebreaks can enhance hunting on areas when planted to attract game. The green vegetation of winter annuals or fall fertilized fescue provide something different for wildlife than what is available in the woods at that time of the year; thus it attracts many kinds of wildlife during the hunting season. The permanent vegetative cover also provides food and cover throughout the year for many birds and small mammals as well as deer and turkey.

The firebreak a landowner uses will depend mostly upon the landowner's desires. Some landowners want more from a firebreak besides a stop barrier for prescribed burns. Dr. H. I. Matthews, a Wilcox County TREASURE Forest landowner, constructed permanent firebreaks to divide his woodland into 10 - 20 acre manageable tracts. He likes the way this network of firebreaks makes burning easier and safer while providing excellent access for wildlife protection, hunting, and family recreation. Dr. Matthews also takes special pride in being able to maintain the firebreaks with his own equipment—a farm tractor, disk, bush hog, and chain saw.

For landowners who own small acreage, do not have access to maintenance equipment, or conduct prescribe burns at long intervals, an annual firebreak may be best.

The establishment of either type of firebreak, permanent or annual is a decision for each individual landowner. What works well for one person may not for another. As a landowner you should install the type firebreaks that best meet your plans and objectives. ♣

FALL CALENDAR*

*Any member agency of the Alabama Forestry Planning Committee can be contacted about events listed in this section.

October 5-7—Society of American Foresters meeting in Huntsville. Theme is "Taxes, the Silent Partner." For more information, contact Colin Bagwell, 536-6583.

October 6—Wilcox County, 9:00 a.m., Reforestation and Weed Control tour on MacMillan Bloedel land and tour of recent mill addition. Contact Bill Hardy, 682-4289.

October 11—Montgomery, 11:00 a.m., Hardwood Management. Contact Tonee Thomas, 832-6580.

October 11—Jefferson County, 7:30 p.m., Alabama Forest Owners Association meeting, First National Bank of Hoover. Estate Planning. Contact Lee Lacchelt, 798-3227.

October 16-20—Portland, Oregon, National Society of American Foresters Annual Meeting. New Forests for a Changing World. Contact Ed Robie, (301)897-8720.

October 18-20—Tuscaloosa County, Southern Energy Biomass Research Conference. Call Dr. Hollub (800)452-5971.

October 20—Prescribed Burning Training, Cullman County. Contact Darrell Johns, 739-3530. ♣

ACTIVITIES

DISTRICT

1

Marshall County Ranger **Larry Parker** cooperated with the County Extension Service to hold a field day on September 14.

District Forester Sam Gravel, Jackson County Supervisor Mike Banzhoff, and Urban Forester Chuck Weber attended an "Investments" seminar in Cullman on August 15.

County Supervisor Mike Banzhoff coordinated an interview with **Floyd Clemons**, landowner in Jackson County, to be used in a new AFC Treasure Forest slide-tape program.

DISTRICT

3

The first **Junior TREASURE FOREST Award** in the state was presented to **Barry Hughes**, 17, of Tuscaloosa County on June 17, 1983. The presentation was made by **Neil Letson**, TREASURE FOREST Coordinator, to recognize Barry's work on 210 acres owned by his father, **Floyd Hughes**. Presentation of the award was covered by WCFT-TV, Tuscaloosa, and the **Tuscaloosa News**.

Landre Tomlinson, Hale County forester, and **Mark F. Beeler**, Tombigbee RC&D forester, assisted the Utilization Section in surveying all primary wood-using industries in District 3. Information collected will be used to develop a statewide directory of wood-using industries.

Philip DuBois, beaver coordinator, attended a one day training session on beaver management at Mississippi State University.

At the July meeting of the **Tuscaloosa County Fire Protection Association**, **Ray Tucker**, State Coordinator RCFP program, explained the proposed county wide communication system. This system, when installed, will enable cooperat-

ing fire departments to communicate directly with both the District 3 operation center and other fire departments.

The first meeting of the **Sumter County Association of Volunteer Fire Fighters** was held July 21, 1983. **Wesley Cain**, Morgan County AVFF, **Don Wedgeworth**, Sumter County supervisor, and **Kenneth Elmore**, District 3 RCFP coordinator assisted in organizing the association. Eight fire departments, one rescue squad and the Alabama Forestry Commission make up the membership of the association.

DISTRICT

5

Two new **Tree City Commissions** were organized in the City of **Prattville**, **Autauga County** and one in **Linden**, **Marengo County**.

Recent TREASURE Forest certification recipients were **Don Barnes** and **Linda Holland**, Perry County; **McDuffie Stallworth**, Wilcox County; and **W. H. Thomas Estate**, Bibb County. **Dr. Park Chittom's** property became the first TREASURE Forest certified in **Autauga County**.

Four new **Champion Trees** have received certification, a **Cherrybark Oak** in Bibb County owned by **Joe Elliott, Sr.**; a **Crepe Myrtle** in Demopolis owned by the **Marengo County Historical Society**; an **Olive** in Demopolis owned by the **Alabama Historical Commission**; and a **Red Mulberry** in Dallas County owned by **J. M. Gilmer**.

On February 15 a ceremony was held in Demopolis at the historical Gaineswood house to replant the famous **Pushmataha Post Oak**.

In June, District Five hosted the **TREASURE Forest Certification Committee** meeting in Selma. A tour of the TREASURE Forest of **Bruce Owens**, recipient of the 1983 Helene Mosley Award, was held the day following the meeting.

Congratulations to **Bibb County Area Vocational School's Forestry Team** for

placing 3rd in the FFA State finals.

District Five employees participated in marking timber for a timber sale at **Paul Grist State Park** in Dallas County.

Autauga County rangers helped several Boy Scouts earn their Forestry Merit Badges during June 13-17 at **Boy Scout Camp Tuckabatchee**.

DISTRICT

6

Houston County Forest Landowner's Association held their quarterly meeting May 17, 1983 in Dothan with **Hardwood Specialist Tom Cambre** the guest speaker. Tom showed the new hardwood slide show and fielded questions from the crowd of 25 landowners. Earlier in the day Tom, accompanied by **Houston County AFC personnel Tracy Lawrence** and Supervisor **Franklin McAliley**, gave some in-the-woods management advice to an area landowner.

Coffee County was host to District 6's first TREASURE Forest Field day held on the **Dr. and Mrs. Robert Wise** farm south of Elba on June 10. Over 110 people attended the day's events which included a bus tour of various points of interest, exhibits on display and a barbecue lunch at a scenic spot along the Pea River.

Mike Stinson of Pike County out-shot the other 12 law enforcement officers in District Six's annual firearms qualification held June 15 in Coffee County. Mike scored 99 out of 100 and won the district trophy for the second time in four years. The district average was 93.82.

A first-aid course was conducted for 15 district employees on July 12, 1983. Safety Officer, **Walker Modlin**, coordinated the program which was presented by **Sgt. John Evans** and **Cpl. Jack Weekly** of the Department of Public Safety.

Representatives of **SCS, U.S.F.S., Extension Service, AFC** and the **Wiregrass RC&D** program met at the district office July 25, 1983 to discuss the economics of managing marginal cropland. **Bob Terry**, regional RC&D coordinator

for the Forest Service, is working on a program designed to compare investment opportunities for marginal cropland and to show that pines will out perform soybeans, corn, peanuts and other agricultural crops.

Four District 6 landowners were certified at the Selma meeting of the Treasure Forest committee on June 7th. They were **Henry Gray**-Barbour County, **Elanor Gordy**-Houston County, **Charles McNair**-Houston County, **Dr. & Mrs. Hoyt Childs**-Geneva County.

DISTRICT 8 Fire Specialist **Lynn Booth** and Baldwin County Supervisor **Robert Dismukes** met June 18 with the officers and board of directors of the **Baldwin County Fire Chief's Association** to discuss the formation of a fire prevention committee for Baldwin County and to discuss goals of the Association for the coming year.

On May 18, **Chester Billie**, wildlife specialist for the Forestry Commission, attended a beaver management training session at Mississippi State University in Starkville.

Patrick Waldrop, Mobile County forester, is working with the **Mobile Tree Commission** on a project to rejuvenate the famous Government Street live oaks in Mobile.

Patrick Waldrop also participated in a ceremony with the **Mobile Tree Commission**, the **Junior Miss Pageant Committee** and the **University of South Alabama** where a tree was planted in honor of the 1983 Junior Miss. The planting was made in the "Junior Miss Grove".

Fire Specialist **Lynn Booth** and Washington County Supervisor **Otis Evans** met July 18 with fire chiefs in Washington County to discuss starting a Fire Chief's Association in Washington County.

The **Baldwin County Fire Chief's Association** held their regular monthly meeting August 4, 1983. The meeting was hosted by the **Alabama Forestry Commission** and **Crossroad Volunteer Fire Department**. Location for the meeting was the Alabama Forestry Commission District Office. Supper was served.

Staff Forester **Larry Grable**, Wildlife Specialist **Chester Billie** and Clarke County Supervisor **Mike Hinson** attended a kudzu management tour in Monroeville July 19.

Chester Billie, **Larry Grable** and **Mike Hinson** attended a forestry investment symposium held, August 9 at Greenville. The Symposium is being presented by the **Cooperative Extension Service**.

A Treasure Forest field day was held September 21, on **Mr. J. R. Crosby's** property in North Baldwin County. There was a tour of Mr. Crosby's property with lunch served afterwards.

DISTRICT 9 The **Marion County CRD and Forest Planning Committee** sponsored a **TREASURE FOREST TOUR** for interested landowners on July 14. The property of **Mr. Dorsey Taylor** (Helene Mosley Award recipient), and **Mr. Thurston Nix** were the locations for the tour. Mr. Nix, who is Marion County's newest **TREASURE FOREST** recipient, talked about the benefits of his Treasure Forest in a soon to be released slide tape package on Alabama's Treasured Forest. Both farms are also demonstration farms.

The **Garden Clubs of Alabama** have been awarded **FIRST PLACE** in national competition for their Energy/Conservation Camp held at the **Bear Creek Educational Center**. The camp is co-sponsored by the **District 9 AFC** and funded by the **W. Kelly Mosley Environmental Awards**.

TREASURE FOREST presentations were made to two **Lauderdale County** landowners. **Steve McEachron**, County Forester, presented the awards to **Hollie Allen** and **Rogert Glenn, Sr.** The presentation programs were attended by the R. D. Committee members.

Louise Bone, District 9 I & E Coordinator was honored by the **Garden Clubs of Alabama** at their state convention held in Sheffield. She was presented a certificate of appreciation for her work in the field of conservation and made An Honorary Life Member of the Garden Clubs of Alabama.

District 9 AFC employees are cooperating with the **City of Florence-Recreation Department** to establish a nature trail on property adjacent to the District 9 office. This is part of a long-term plan to include an authentic wildflower trail and natural landscaping to be done by the **Florence Garden Club**.

Steve McEachron, County Forester, Lauderdale County, is working with the **Florence YMCA** in establishing a nature trail on Camp Westmoreland property.

The **Lauderdale County Volunteer Fireman's Association** held the **Tennessee Valley RCFP competition** at the Regency Square Mall in Florence on August 13. In conjunction with the competition, the annual truck and equipment display was held inside the Mall on August 11,12,13. The theme for this year's display was "The Things We Protect are Priceless." Prizes were awarded for the

best display.

County Supervisors **Larry Lee** and **Howard Swanner** attended the 4-H Club Wildlife Shortcourse held at **Camp NEY-A-TI** in Guntersville. Larry and Howard served as instructors for a forestry shortcourse. One hundred students from Morgan and Limestone counties were involved in the three-day camp where they were taught gun safety, professional trapping and tree identification. The camp is sponsored by the **Farm Bureau** and the **Decatur Kiwanis Club**.

The **Alabama Forestry Commission** and the **Lauderdale County Forestry Planning Committee** held a field day and logging equipment demonstration on July 29-30. Invitations were extended to landowners, loggers, paper company officials, TVA officials, etc. The demonstration was held on property of **Mrs. Bernice Bennett** who is following **TREASURE FOREST** guidelines in managing her property.

The 1983 "Nature Awareness Camp" was a great success. The days were spent in very intense study. We had time for fun things, but concentrated on seeking our new experiences by sharpening our five senses of sight, hearing, smell, touch and taste. Dr. T. F. Hall lead the students on a two-hour exploration of the wooded areas surrounding the Center. The nature trail was divided into eight study stations. At each station we concentrated on different categories of learning. Each student had a hands-on learning experience.

DISTRICT 10 **Bruce Johnson**, Montgomery County supervisor, has been elected treasurer of **Keep Montgomery Beautiful, Inc.** This is a civic organization interested in urban forestry.

Montgomery County scheduled a presentation of the new slide/tape program on hardwoods to the **Farm Bureau Forestry Committee** on August 15, 1983. The **Rural Development Committee** will see the same program on October 11.

On July 18 **District 10 personnel** took part in a cooperative effort, with the **Alabama Bureau of Investigation**, to locate a young woman believed to be in a remote area of South Alabama.

Fire control cooperators will meet at District 10 headquarters sometime in October to plan for the coming fire season.

RANGER'S REPORT, a newsletter just developed by District 10, was published for the first time this summer. It contains brief items that should be of interest to **TREASURE** landowners or good forest managers who are **TREASURE** prospects.

Objectives Make All the Difference

October							1
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9	10	11	12	13	14	15	
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23	24	25	26	27	28	29	
30	31						

PLAN NOW!

FOR WINTER BURNING

by HUGH E. MOBLEY, Chief, Fire Prevention and Control

If you have not already done so, now is the time to look at your forestlands to determine if you need to plan for any prescribed burning this winter. Most prescribed burns are done during the winter under a stand of timber. Areas clear-cut for regeneration can be burned during the summer or fall. Planning now will mean that when the right day comes along to prescribe burn your area, you'll be ready. Firebreaks can be plowed anytime after the leaves fall.

Trained people are available at the Alabama Forestry Commission (AFC) to help you with your prescribed burning. They can determine if prescribed burning would be beneficial in any of your stands, help with the planning and layout, constructing the firebreaks, and actually doing the burning for you. There is a reasonable charge for plowing firebreaks and performing the burn.

There are many ways prescribed burning can be beneficial. One of the more prevalent uses is the reduction of hazardous buildup of fuel in the stand. This fuel is made up mostly of needles, leaves, cones, limbs, grass, and various types of brush. Reduction of this fuel reduces the chance of wildfires. As a result, the wildfires that do occur burn less intensely and cause little damage. However, do not burn all of the lower layers and completely expose the soil. The bottom part of the litter should be moist enough not to burn. Large amounts of fuel will mean a more intense fire; consequently, the overstory will need to be taller so that only a small percent of the needles are scorched. Some scorch (generally up to 30%) is not harmful to the southern pines.

Another major use is the improvement of wildlife habitat by creating openings, bugging areas, eliminating the high brush

that restricts movement, and encouraging more annuals and sprouts that are preferred food for deer, quail, and turkey. Most other wildlife prefer similar habitat.

Poor quality, weed type tree species such as scrub oaks will encroach onto pine stands at an early age. They are more shade tolerant than the pines and will compete for moisture and nutrients. If not controlled, they will take over the stand. To regenerate the stand, expensive equipment has to be used which also tends to reduce the site quality and cause erosion. The use of periodic prescribed burns on a three to five year basis (depending on soil type and condition of stand) is cheaper and much less damaging to the site. The prescribed burn should be started before most of the hardwoods exceed one inch in diameter. Prescribed fire can kill hardwoods up to four inches, but in most cases, a fire intense enough to kill them cannot be used without damage to the overstory. Consequently, many of the larger ones will escape and will have to be eliminated later by chemical or mechanical means. To kill the rootstock, summer burns are used after the initial prescribed burn which reduces the fuel buildup since the stand was established.

Prescribed burning has multiple benefits. Burning for one reason will also benefit other resources. The cost is very reasonable, only averaging a few dollars per acre. There are no adverse effects when planned and conducted properly.

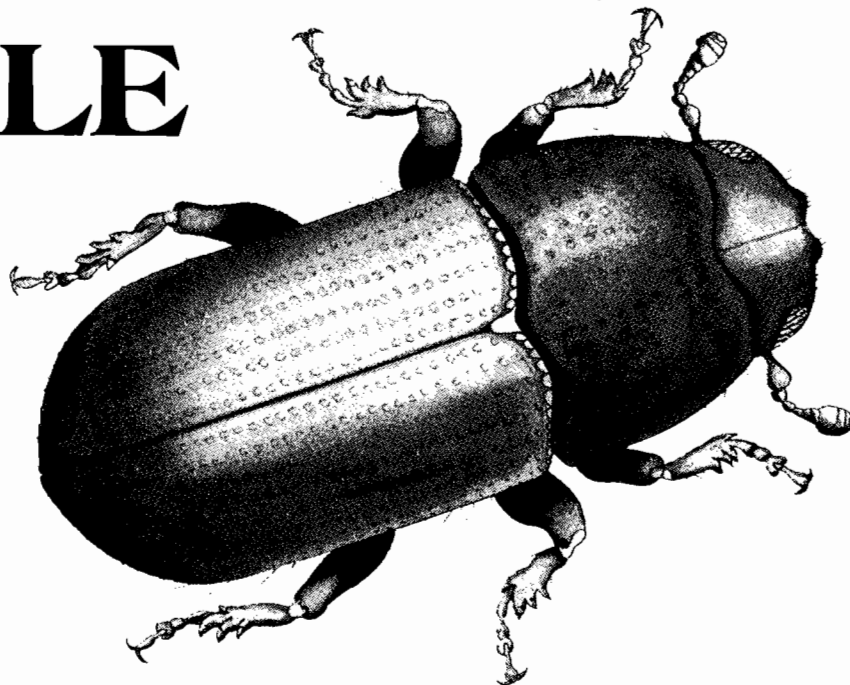
There are, however, some disadvantages. It is a complex technique requiring qualified people to use it properly. Suitable days are also limited and will vary by the size and condition of the stand. Smoke can also be a problem if weather conditions are not right or the smoke is allowed to drift across a highway.

Because of the complexity and limitations of prescribed burning, prior planning is needed to ensure that it is done at the proper time and in a way that accomplishes your objectives. Major factors must be considered.

- Amount, type, and condition of fuel
- Type and size of overstory
- Management (owner's) objectives
- Various weather factors
- Burning techniques to use
- Time of day
- Smoke dispersion

By following these suggestions, a landowner can make use of one of the most inexpensive and beneficial tools available. Before burning, however, he should contact his local Alabama Forestry Commission for technical advice. ♣

CONTROL THE SOUTHERN PINE BEETLE



by JAMES R. HYLAND, Chief, Forest Pest Management

One of the responsibilities of being a TREASURE Forest landowner is to be a good steward by protecting his forest from pests. The southern pine beetle (SPB) is the most destructive insect pest of pine forests in the South. This is a well-worn statement, but nonetheless richly deserved and quite accurate. The beetle ideally represents the definition of its genus - killer of trees.

The trees are killed singly, in small groups, or in large numbers over hundreds of acres. Outbreaks commonly originate in poorly managed or overstocked stands. Once underway, an outbreak may last for several years and can spread rapidly into managed stands - including urban areas.

SPB-caused timber losses can be reduced through application of one or more recommended control tactics. These include direct control methods for treating individual trees and infestations (spots) and indirect methods involving the proper management of potentially susceptible forests.

Treatment Priorities

Southern pine beetle spots must be located before they can be treated. Normally, most SPB spots can be detected from the air, particularly during the summer months. Aerial observers use foliage

color (red and fading) and the number of dying trees to assign a priority for ground checking to each spot. Field crews then ground check the spots to confirm the cause of tree mortality and to determine the need for treatment. Higher priority spots are treated first since they have a

Table 1.—Guide to southern pine beetle spot growth and control priorities

Key to spot growth	Your spot's classification	Risk-rating points
A. Fresh attacks	absent	0
	present	30
B. Number of freshly attacked trees and those with developing brood	1-10	0
	11-20	10
	21-50	20
	more than 50	40
C. Pine basal area (or stand density) at active head(s) (ft ² /acre)	less than 80 (low density)	0
	80-120 (medium density)	10
	more than 120 (high density)	20
D. Average size class of timber (in inches)	pulpwood (9 in or less)	0
	sawtimber (more than 9 in)	0

Add up the risk-rating points that apply to your spot.

Score	0- 30	Control priority	Low
	40- 60		Medium
	70-100		High

greater potential for additional tree mortality than medium- or low-priority spots. Control decisions depend not only on the priority of the spot, but also on the availability of crews and equipment, the size and number of trees or volume of timber in the spot, accessibility, and current market conditions for beetle-killed timber. The criteria presented in tables 1 and 2 should be noted when setting control priorities.

- 1) *High-priority spots* - those with the greatest number of SPB-infested trees - should be marked for treatment first. Salvage removal is the preferred treatment. Because of the dynamic nature of SPB infestations, the time lapse between marking and cutting should be as short as possible. The longer the time, the greater the chance that additional trees will be attacked. If this happens, the spot will have to be re-marked. In summer, no more than four weeks should elapse between marking and treatment. If trees cannot be salvaged in the timespan, another control method should be considered.
- 2) As a general rule, *medium-priority spots* should not be marked for treatment until all high-priority spots have been treated. But when a medium-priority spot is located near a high-priority infestation, it may be desirable to treat both at the same time.

3) *Low-priority spots* seldom require treatment. Research has shown that most of them die out, particularly in summer. Spots that continue to expand should be detected during the next aerial survey and assigned a new priority for ground checking.

Suppression

Suppression should be a year-round effort. Major efforts should be made from late spring through fall to control actively spreading infestations. Winter and early spring treatment is also important because it will reduce the potential for spot growth and/or new spot development later in the spring and summer. Although infestations are concentrated in fewer trees for longer periods of time during the colder months, the spots are harder to detect from the air.

The landowner's management objectives will definitely influence the selection of one or several treatment methods. Currently recommended treatment methods include (1) salvage removal, (2) cut-and-leave, and (3) chemical control. The following paragraphs explain how to perform these techniques.

Salvage Removal

Managers and owners usually prefer salvage removal over the other control options because infested trees are removed from the forest and used, giving

the landowner some financial return. However, salvage of individual spots is not always practical because of inaccessibility, insufficient volume, poor lumber or pulpwood market, and sensitive environmental constraints. In addition, salvage removal often takes longer to implement than alternative tactics.

For salvage to be effective, SPB-infested material must be removed on a timely basis. An adequate buffer strip of uninfested green trees must also be cut around the spreading edges of the spot. Doing this ensures the removal of freshly attacked pines that were overlooked or became infested after the spot was initially ground checked and marked.

Procedures for Salvage Removal

The following procedures can guide you through an effective salvage operation.

- 1) Identify the spreading head(s) of the spot. The head(s) contains the trees that have been recently attacked. They may have green or fading foliage, fresh pitch tubes, boring dust in bark crevices or on the foliage of understorey vegetation, tight bark, and adult checkered beetles on the bark.
- 2) Mark all SPB-infested trees or a boundary around them if there are many trees.
- 3) If recently attacked trees are present, mark a horseshoe-shaped buffer strip of green uninfested trees around the head(s). The buffer should surround the recently attacked trees. A strip 40 to 70 feet wide will be needed for most active spots, while a 100-foot strip (and occasionally larger) may be needed for large, rapidly expanding spots (figure 1). As a rule, the width of the buffer should not exceed the average height of the trees of the spot. When a spot has ten or fewer infested trees, none of which are freshly attacked, it normally should not be treated.
- 4) Salvage removal of infested and buffer-strip trees should begin as soon as possible after ground checking and marking the spot. Vacated trees can be left standing (see table 2) since their removal will not contribute to beetle control. They can be salvaged if they have not deteriorated and the additional volume is needed to make the salvage removal economically feasible.

Table 2.—Symptoms associated with various stages of SPB-attacked trees

Symptom	Fresh attacks	Developing broods	Vacated trees
Foliage	Green	Green trees with larvae; fade to yellow before brood emerges	Red, needles falling
Pitch tubes	Soft white, light pink	White, hardened	Hard, yellow, crumbles easily
Checkered beetles	Adults crawling on bark	Pink or red larvae about 1/2 in long in SPB galleries	Larvae and pupae are purple; occur in pockets in the outer bark
Bark	Tight, hard to remove	Loose, peels easily	Very loose, easily removed
Color of wood surface	White, except close to new adult galleries	Light brown with blue or black sections	Dark brown to black
Exit holes	—	Few, associated with attacking adult reemergence	Numerous
Ambrosia beetle dust	—	White, localized areas around base of trees	Abundant at base of trees

Source: Michael Remion and Ken Swain. "Direct Control Methods for the Southern Pine Beetle." *The Southern Pine Beetle Handbook* #575, 1981.

Choosing which trees to salvage first depends on the season. The following priorities, in order of importance, should be followed in salvage removal:

May-October

- a) Trees in the buffer zone
- b) Trees with fresh attacks
- c) Remaining trees with living brood
- d) Vacated trees

November-April

- a) Remaining trees with living brood
 - b) Trees with fresh attacks
 - c) Trees in the buffer zone
 - d) Vacated trees
- 5) Infested trees should not be decked next to green timber because emerging beetles may attack adjacent green trees.
- 6) Check salvaged spot for breakouts during the next aerial survey. Treat breakouts as needed.

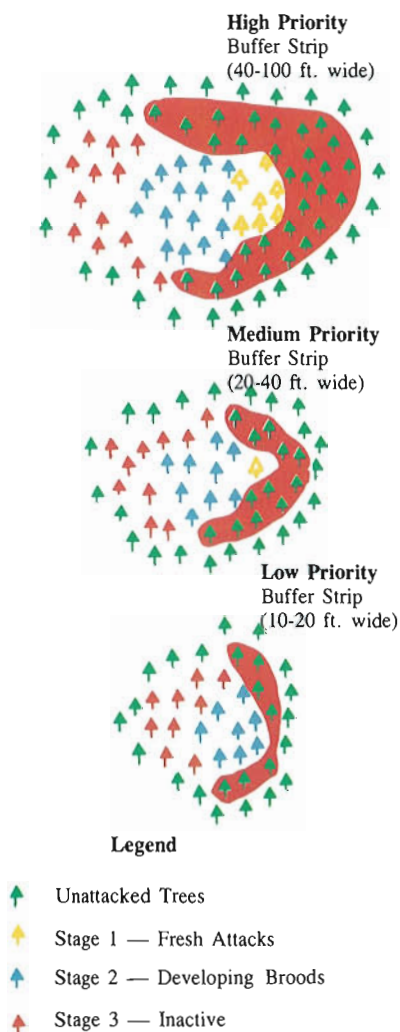
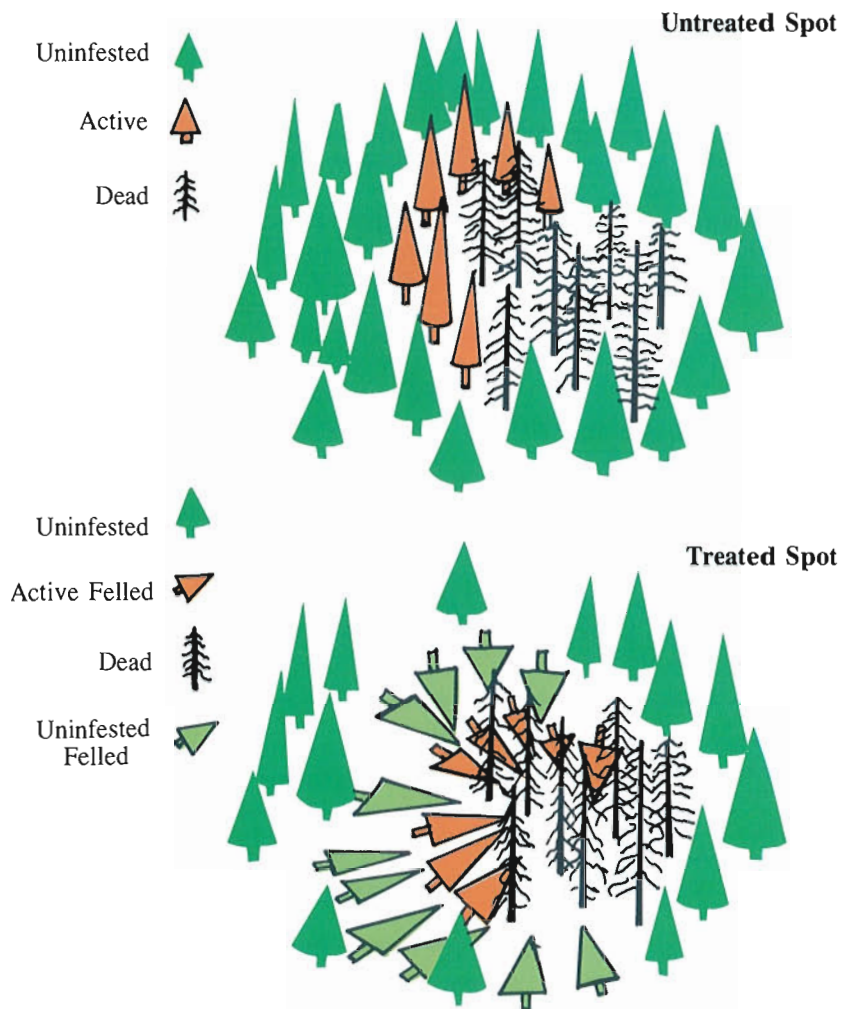


Figure 1 — Procedure for marking buffer strips for control by means of salvage.

Cut-and-Leave

The cut-and-leave method was first recommended by the Texas Forest Service for controlling small spots (10 to 50 infested trees) that could not be salvaged. This technique involves felling infested trees and a buffer of uninfested trees and leaving them in the woods. The treatment

are detected. The major disadvantage is that a buffer strip of green uninfested trees must be felled around each spot to assure that newly attacked trees, which favor spot growth, are included in the treatment (figure 2). If salvage becomes feasible at a later date, though, the felled trees can be removed. Larger spots (51 to 150 trees) can be treated using the cut-



Source: Ron Billings, "Direct Control," *The Southern Pine Beetle* #1631, 1980.

Figure 2 — Procedure for controlling southern pine beetle infestations by means of cut-and-leave.

disrupts spot growth and causes emerging adults to disperse into the surrounding forest. Cut-and-leave should be used during the period when SPB spots are expanding (approximately May to October). Spots should be treated only if they contain trees with fresh attacks. The method has been primarily used in the Gulf Coast States.

Cut-and-leave is practical, relatively inexpensive, and requires a minimum of manpower, equipment, and training. The procedure can be applied soon after spots

and-leave method if the spots will eventually be salvaged.

If you choose the cut-and-leave method, the following procedures are recommended.

- 1) Select spots with 10 to 50 infested trees. Some must have fresh attacks. Higher priority spots - those with a high proportion of newly attacked trees - should be treated first. Spots with more than 50 currently infested trees can be treated if they are to be salvaged later.

- 2) Mark and fell SPB-infested trees toward the center of the spot.
- 3) Mark and fell a horseshoe-shaped buffer strip of green uninfested trees around the trees with fresh attacks. Fell them toward the center of the spot. In small spots, the buffer may encircle the spot. However, the buffer should be no wider than the average spot.
- 4) Dead trees from which all SPB have emerged need not be felled. Leaving these trees will allow the beetle's natural enemies to complete their development and emerge. Such trees also provide den sites for certain woodpecker species.
- 5) Check cut-and-leave spots for breakouts during the next aerial survey. Treat breakouts as needed.

Chemical Control

Insecticides are effective in controlling the SPB in individual trees or small groups of trees. Registered insecticides are available for killing beetles in trees that have been attacked and for preventing attacks on green trees. Although chemical control is costly and subject to environmental constraints, it may be the best alternative in urban forests or high-

value recreational areas, and even in limited areas of commercial forests when other methods cannot be used.

The landowner may choose to protect selected high-value trees from attack by applying a preventive spray. Technically, this is not a direct control tactic, but it does prevent attacks and reduces tree mortality in special-use or high-value situations. For short trees, field crews can apply insecticidal sprays with a hydraulic sprayer. Treatment of taller trees usually requires special equipment.

Summary

Prompt salvage and utilization of infested trees is still the preferred direct control procedure for most spots. Yet, we have progressed substantially in our understanding of the insect and in our approach to direct control. For example, the SPB is no longer considered an unavoidable pest to be eliminated wherever and whenever it appears. Foresters are recognizing that preventive (silvicultural) treatment to increase host resistance is the best way to assure long-term protection from beetle problems. By applying proper silvicultural practices to those unmanaged and overstocked stands most favored by SPB, we can markedly reduce both the

occurrence and severity of infestations.

Once spots develop, however, prompt salvage or disruption by cut-and-leave assures that timber losses are kept to a minimum. In high-value situations, chemicals are available for remedial control or prevention.

Perhaps most important, we now realize that all infestations need not be treated by direct control in order to cope with the beetle. Some infestations pose more of a threat than others. By considering the initial size of the spots, prevailing stand conditions, value of the timber, and season, pest managers can set realistic detection, ground-check, and control priorities. These procedures will optimize available manpower and equipment use during outbreak periods. In this manner, we make the best of a very complex pest problem while foresters strive to correct the stand conditions that predispose our forests to SPB outbreaks. ♣

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Ron Billings, Chapter 10, Direct Control, The Southern Pine Beetle #1631, 1980.

PUBLICATION AVAILABLE ON PLANNING RECREATIONAL ACTIVITIES

The Council of Planning Librarians has announced the publication of a bibliography entitled *The Private Sector Role in Rural Outdoor Recreation in the United States* by H. Ken Cordell and Barbara Stanley-Saunders. It provides information on how and where the private sector has been involved, its successes, and issues and problems.

Concerns of the private sector such as limiting access, enterprise opportunities, financial success factors, and emerging trends are addressed along with fishing, hunting, and camping.

With increasing inflation and budget cutbacks, Government is becoming less able to provide outdoor recreation opportunities. For these reasons the private sector is more important than ever in the planning of these areas and activities.

Outdoor recreation is something we take for granted, however, without the interest and support of the private sector, these activities may become a memory instead of a reality.

If you are interested in obtaining a copy of this bibliography, write to the Council of Planning Librarians, 1313 E. 60th Street — Merriam Center, Chicago, Illinois 60637. The cost of the publication is only \$15.00. ♣

CENTENNIAL CELEBRATED

The Alabama Department of Agriculture and Industries is celebrating its 100th year of service to Alabama. The Department adopted the slogan "100 Years and 100 Ways—The Alabama Department of Agriculture and Industries Serves You" as their theme for the centennial year. To commemorate the occasion, the Department has sponsored several events throughout the year.

The centennial celebration was kicked-off on March 21 at the Agriculture Appreciation Day in Montgomery. The day featured a telephone message from President Ronald Reagan and Secretary of Agriculture John Block.

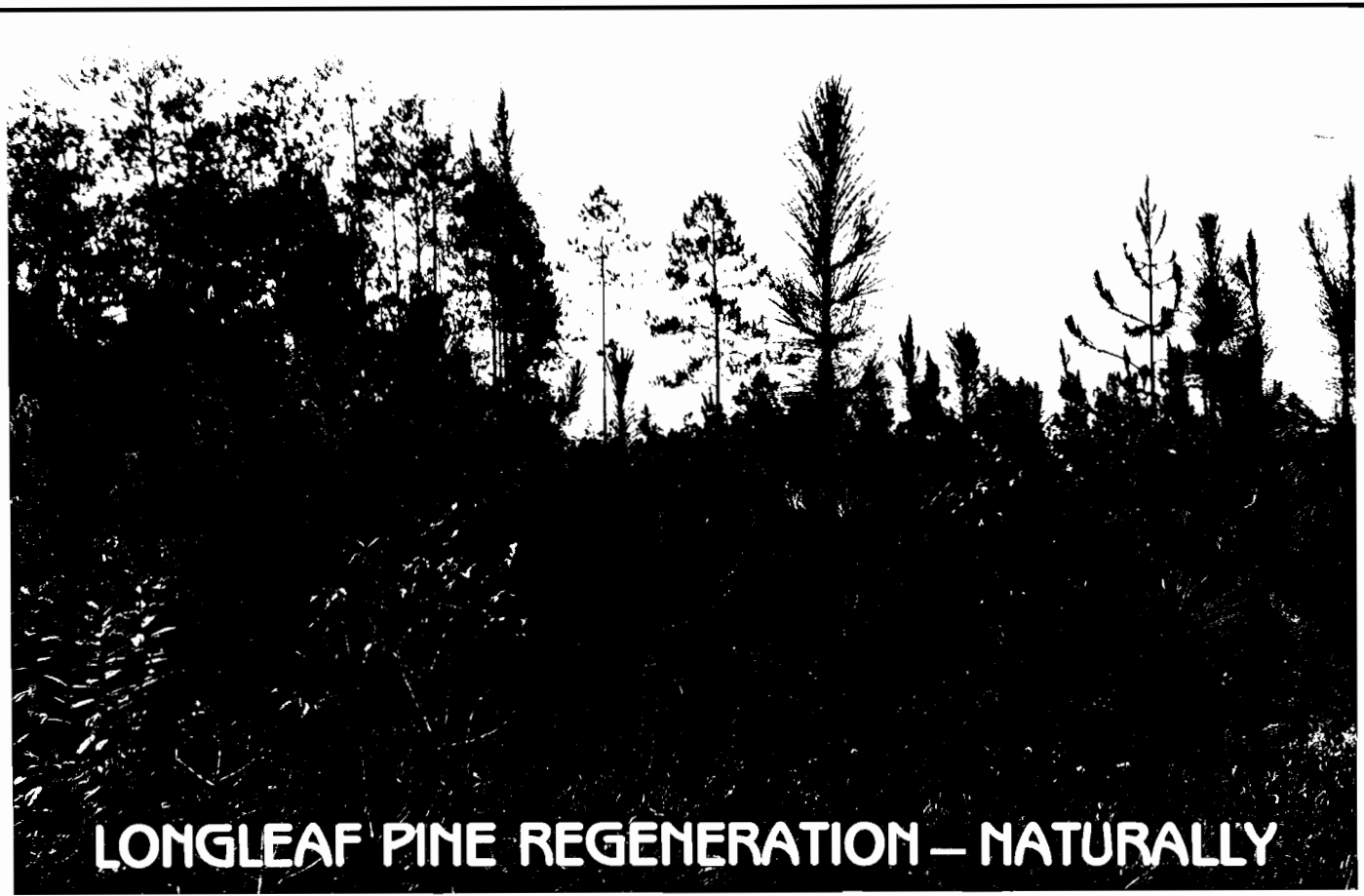
The main event was the giant "Ag 100" celebration held in Montgomery on September 1. Highlights of the birthday

celebration included honoring former Governors and Commissioners, a giant barbecue and much more.

The Department of Agriculture and Industries became operational September 1, 1883 as a two man agency responsible for regulating the sale and distribution of fertilizer. The diverse Department now employs more than 650 workers and performs over 100 services ranging from the regulation and inspection of food and petroleum products to international market development. ♣

Editor's Note

The article in the Summer, 1983, issue of *Alabama's TREASURED Forests* entitled "Arrest Kudzu" was taken almost entirely from research papers written by M. Boyd Edwards and James H. Miller ("Kudzu: Where Did It Come From and How Can We Stop It?", 1982; and "So You Want to Get Rid of Your Kudzu," 1983).



LONGLEAF PINE REGENERATION – NATURALLY

by GIB BURKE, Escambia County, Alabama Forestry Commission

For many years longleaf pine has been a source of high quality timber in the South, because it is generally straight, clear, free from defect and shows resistance to both fires and insects.

During the past two decades many acres of longleaf have been replaced by other pine species. This is due in part to the difficulty of naturally regenerating longleaf and also the trend to site prepare and plant either slash or loblolly pine.

There are many advantages to artificial regeneration of southern pines, such as control of spacing, density, ease of management and more. However, there are disadvantages, one of which is money. It requires a rather large capital outlay which must be carried through a rotation of 30 to 35 years or longer. The cost of site preparation and planting can now reach as much as \$200 per acre depending on treatments required for the particular tract. With this in mind, landowners are now beginning to look for alternative methods of regeneration for their forest land.

Extensive research done by the U.S. Forest Service at the Southern Forest Experiment Station has shown that the longleaf pine is suited to the shelterwood

method of natural regeneration. The shelterwood method has not been widely used by landowners because it requires a rather extensive knowledge of silvicultural practices. However, with the help available through various government agencies, such as the Alabama Forestry Commission, and private forestry consultants, the landowner is now able to use more extensive forest management techniques.

The first step in using the shelterwood method is to determine if the area is stocked well enough to permit use. There should be 30 to 35 square feet of basal area per acre in trees 10 inches (diameter breast height) or larger with an indication that they are good seed producers. If the area is adequately stocked then any competition from hardwoods must be controlled. This can be done by using a variety of methods such as girdling and chemical injection followed by prescribed burns to control sprouting.

When the competition from undesirable species is eliminated, the seedbed must be prepared. This can be done mechanically, with prescribed fire, or a combination of both. Due to the nature of longleaf pine seed, it must reach mineral soil to germinate and become established.

The seedlings, once established, should be protected from fire and grazing.

Once the area is adequately stocked with seedlings, the overstory of longleaf pine seed trees should be removed. If the basal area has been kept at 30 to 35 square feet per acre there should not be excessive damage due to smothering by logging slash.

This article is intended only to introduce the private landowner with the shelterwood method of longleaf pine regeneration. Proper use of this method is much more complex than has been described here and requires a high degree of technical skills in forest management. However, with the professional help available through agencies such as the Alabama Forestry Commission the shelterwood method can be effective. ♣

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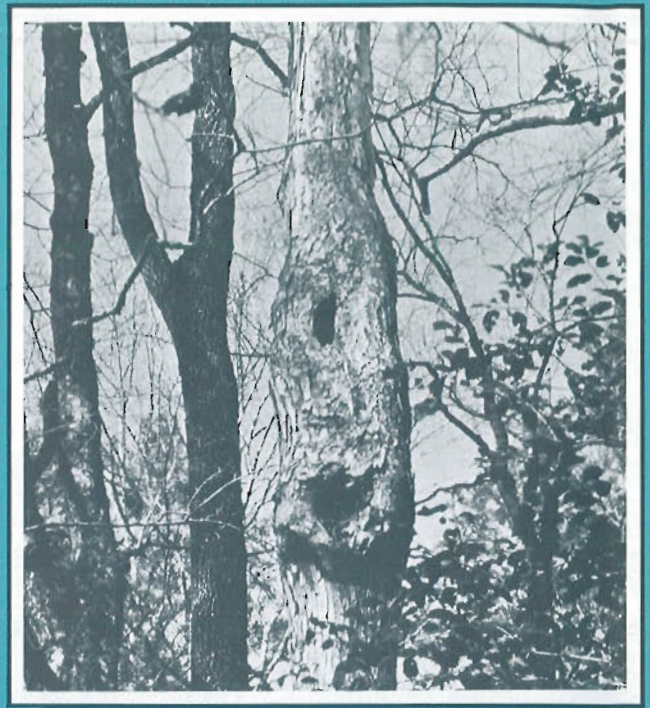
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1975, "Regenerating Longleaf Pine Naturally."

Southern Forest Experiment Station, New Orleans, Louisiana.

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They're desirable tenants and add beauty and enjoyment to our woodlands

SNAG MANAGEMENT FOR FOREST BIRDS



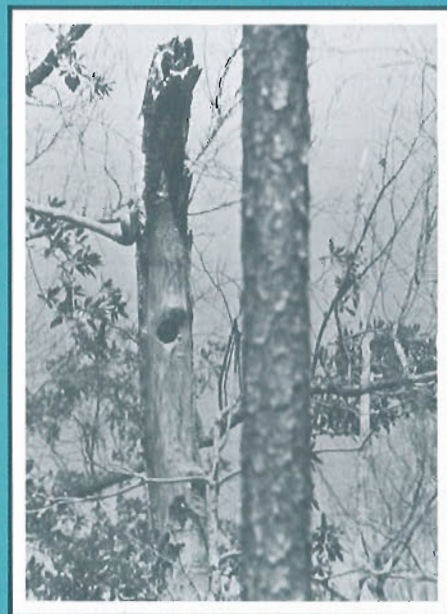
by RHETT JOHNSON, Manager, Solon Dixon Forestry Education Center

Every Alabama resident is surely familiar with bird nests. We've all seen the cleverly interwoven grass, straw, and twig structures that defy duplication even with our two hands and large brain capacity. We find them suspended from limbs, wedged in branch forks, and hidden in grassy clumps.

Less familiar and surely less easily observed are the nests of about twenty-five Alabama bird species which build in cavities of dead or dying trees. These birds can be divided into two groups, primary and secondary cavity dwellers. Primary dwellers are those which actually excavate cavities in which to nest or roost. Secondary cavity nesters are birds and animals which appropriate abandoned excavations or move into empty natural cavities.

Some of the favorite birds of Alabama are cavity nesters. Alabama's state bird, the yellow-shafted flicker, is a primary cavity excavator and user. Other Alabama woodpeckers—pileated, red-headed, red-bellied, hairy, and downy—are also cavity excavators and users. All of these birds have powerful beaks and drill through decaying wood rather easily to forage for food and to create nesting and roosting sites. The red-cockaded woodpecker, an endangered species, is unusual in that it excavates its cavities in living pines, usually those infected with a fungal heart rot disease.

Secondary cavity nesters include a surprising array of birds—swallows, purple martins, wood ducks, peregrine falcons, sparrow hawks, screech owls, chickadees, titmice, wrens, and many others. Two of the most colorful songbirds in



Large pileated woodpecker hole in top of dead sweet bay. Wood ducks often utilize abandoned pileated dens.

Alabama, the Eastern bluebird and the prothonotary warbler, are cavity nesters.

Unmanaged or old growth forest stands usually contain many dead or dying trees. Mortality is a part of nature's scheme of

things and every year lightning, fire, insects, disease, old age, and other stresses regularly take their toll in forest stands. Forest managers typically strive to minimize these losses and attempt to anticipate mortality with timely harvesting. Inferior, diseased, or over-mature trees are normally removed in selective thinnings in favor of more vigorous neighbors. Today's management leaves little room for death from old age. Intensive timber management, then, seems by definition to be detrimental to populations of forest cavity dwellers. Research and observation have proven this to be true, but exercising a few management options may soften the blow considerably.

As forests progress through changes in age and species composition, the resident wildlife populations are altered as well. Conditions that are optimal for some species at any given time are undesirable for other species. As the forest undergoes changes, the habitat conditions also change and the favored species may be entirely different.

Forest landowners and managers make the decisions that dictate which species their lands will best support when they manipulate their forest stands. Still, dead tree or "snag" management seems to conflict with most timber management schemes. On the other hand, few landowners wish to exclude the cavity nesting species from their lands. In addition to the pleasure these birds and animals provide,

many cavity nesters are extremely important natural predators on destructive insect populations in the forest environment.

Dead trees are usually removed from a forest for a number of reasons. They are not generally considered aesthetically pleasing in an otherwise healthy stand. Snags can also be a definite safety hazard to woods workers, especially in high winds. Perhaps most important, snags can serve as starting points and reservoirs for forest diseases and insect pests. However, the maintenance of snags in moderate numbers in forest stands may be practiced without undue risk to workers or the forest.

Scattered undesirable hardwoods are typically left unharvested in clear-cut logging operations. These trees might be killed by herbicides through injection or other application technique or simply girdled to provide cavity opportunities for resident birds. The dead snag presents little hazard since it is usually rotted away well before management operations would be scheduled in the young stand. It also presents little or no competition to the young pines as they grow.

More mature mixed pine and hardwood stands present many opportunities for cavity tree management. Selective killing of undesirable hardwoods by injection

creates a desirable environment for cavity nesting and foraging birds and animals. Two snags per acre is probably a sufficient number for maintenance of most species. Injection every three or four years is desirable as snags deteriorate beyond usefulness with time.

In pure hardwood stands, trees with natural cavities might be left and selective injection of less desirable species employed to bring the average den tree level to the desired two trees per acre. Again, treatment of a few trees every three or four years is recommended to maintain sufficient levels of nesting opportunities on a sustained basis.

Many cavity users prefer pine snags and the occasional lightning strike or fire killed trees in pine stands might be left to encourage those species. Brown-headed nuthatches often drill small entrances through the loose bark of pine snags and squeeze between the bark and wood to nest.

Much work has been done with artificial nesting boxes for secondary cavity nesters. Eastern bluebirds, of course, take readily to nest boxes, a fact that may have saved that species in the Southeast. Plans are obtainable from a variety of sources and groups. Scout troops and garden clubs have erected thousands of nest boxes over the past several years. Wood

ducks will also nest in artificial boxes and population increases of this beautiful game bird can be achieved through the supplementation of natural nesting cavities with man-made boxes.

Of course, nest boxes are not usually considered an aid to primary cavity dwellers, as they typically excavate a new cavity each year. Occasional use of artificial boxes by woodpeckers may occur, however. Recent research by Thomas Grubb and Alan Peterson in Ohio has indicated success in inducing several primary nesters to excavate and use cavities in artificial snags constructed of polystyrene cylinders. Secondary nesters also made use of cavities in these structures.

Since most of Alabama's cavity nesters are non-migratory, management may have a pronounced local impact on populations of those species. Some mammals also use cavities as dens, and such species as flying squirrels, grey and fox squirrels, opossums, and raccoons may be favored by retention and management of snags, den trees, and artificial cavities throughout the forest.

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Above—This pine snag was used by bluebirds and tufted titmice simultaneously.

Above right—Wood duck nest boxes and beaver ponds often go well together.

Right—Tufted titmouse exiting artificial nest box.



EDITOR'S UNDERSTORY

by CYNTHIA PAGE

Sitting in front of the fireplace, H. M. Gordon explained his success as he cast an occasional glance toward his son Brian who sat directly across from him. Communication between father and son continued even though words trailed off. This silent understanding, along with a progressive attitude and years of hard work, transformed 7000 acres of cutover timberland into the Gordon Tree Farm - TREASURE Forest. The treasure goes far beyond the timberland, though. It lies within each of those who are attached to it and to each other.

When we first arrived, a summer rain had just left its last drops clinging to the tips of leaves, slowly giving way to the weight and trickling to the ground below. The stately four-columned house conjured up thoughts of Tara and mint juleps, and once inside a gentle breeze stirred the curtain, while the sound of silver rattling against plates came from the kitchen.

As Mr. Gordon continued to explain his philosophy (especially about taxes), Mrs. Gordon entered to greet us with fresh coffee and coffee cake. Brian quickly stood to help his mother with the load she was carrying. She explained that the coffee was decaffeinated for her husband's benefit and then smiled graciously as she accepted the affectionate humor in a reference to "Sara Lee." Then she promptly returned to the kitchen to prepare a special lunch for Mr. Gordon so he could stick to his diet. We found out after lunch that she had made a peach cobbler without sugar, just so her husband could still enjoy those things he could no longer have for health reasons.

Brian accompanied our group to a local restaurant for lunch (one of those with fresh country vegetables). Even away from his father, the warmth toward the elder Gordon was apparent. "Dad's a wonderful fellow," he said in telling us

about some of his father's accomplishments. "His imagination is what has lent to his success."

After lunch, we set out to tour the property. Mr. Gordon stuck his head into the kitchen to say, "Precious, we'll be back in a little bit." Riding along, he filled our heads with all of the history of Columbiana and showed us another house similar to his which was built by the same woman. The house itself has some interesting history. Built in 1845, it had been the local haunted house for years. During the depression, it was divided into four two-roomed apartments. When they first moved into the house, little Brian asked Grandma, "Why did Mother and Daddy want to move into this old thing?" Then there was the hot pink bathroom. "Nobody ever stayed in there very long cause it was so ugly," Mr. Gordon pointed out.

These little hints of humor were strewn throughout our conversations that day. He showed us his "educated crabgrass" (millet) and his "educated beggarlice" (lespedeza), not to mention the traditional mudhole at the entrance of every road to "keep out trespassers."

He, too, is genuinely fond of his family. One son lives in Centerpoint with his wife and two children; another son (a forester) lives in Washington (state) with his wife and four children; a daughter lives in Florida with her husband and two children; and of course, Brian and Jan live next door.

The family has grown together by working together. When asked if he'd do anything differently if he had a chance, Mr. Gordon said, "Sure I would! Nobody does it all right the first time!"

When we returned to the Gordon home that afternoon, Mrs. Gordon was setting out to walk a few houses down to visit her aunt. The affection once again came through. "Why don't you drive, honey?" Mr. Gordon asked, and when she assured him that she wanted to walk, he kissed her goodbye just as if the trip was farther than just a block away!

All during the day Mr. Gordon had poked a little fun in my direction, too, with references to the first time he had met me a few years ago. "I kept wondering about that green little girl and felt sorry for you," he said. I assured him that I felt that same concern 'long about that same time period! But by the time I left that afternoon, I had lost even more of that "greenness" and had made new friends. Their knowledge of forestry impressed me and their care for each other had touched me.



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