ALABAMA'S

TREASURED FORESTS

A Publication of the Alabama Forestry Commission

FALL 2002

- Hardwood Management
- Pine Thinning - Part 2
- The Colors of Autumn
- Four Steps to Kill Your Pine Forest
- Fee Hunting in Alabama

~ 20th Anniversary ISSUE ~

From the State Forester

Timothy C. Boyce

This issue of Alabama's TREASURED Forests magazine represents a milestone. It marks the 20th anniversary of the publication.

Twenty years ago the Alabama Forestry Commission made the decision to publish this magazine instead of hiring a new forester. It was thought that through a magazine, practical information and do-it-yourself techniques could be provided to a larger group than one forester could reach. It was hoped that the magazine would "inspire landowners to implement needed forestry practices." The Alabama Forestry Commission also decided that as long as it could, the four issues per year subscription to the magazine would be free to anyone who wanted it.

The first issue was published in the fall of 1982 and the first mailing list included 6,000 names, mostly landowners. Two decades later the Commission is still dedicated to providing practical information and do-it-yourself techniques to Alabama landowners. Now the magazine has a mailing list of almost 13,000. Not only does it include thousands of landowners but also it is mailed to public and private libraries, schoolteachers, legislators, congressional representatives, county commissioners, and mayors. It reaches fire departments, government agencies, and private groups, and it also goes to hundreds of individuals who just enjoy reading the magazine. And, it is still free to anyone who wants to receive it. We have also made it available on our web site at www.forestry.state.al.us.

I want to restate the Commission's commitment to provide valuable information and useful techniques through the magazine. In this year's summer issue we increased the number of full color pages from 8 to 16, and we are making a greater effort in planning each issue to cover a variety of timely topics. We hope that we are providing a "user friendly" publication and our editorial staff encourages reader input and suggestions.

The Alabama Forestry Commission is proud of the Alabama's TREASURED Forests magazine and hopes that through it we are helping make Alabama a better place for people through forestry.

ALABAMA'S TREASURED FORESTS

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The Brown's TREASURE Forest: A Piece of Alabama History

By ***Don C. East***
TREASURE Forest Owner, Clay County

In late March of 1814, General Andrew Jackson and his army marched through the wilderness along what is now known as "The Chapman Road." They were en-route to Horseshoe Bend to engage the Creek Indians in the final battle of the Creek Indian War of 1813-14. This victory signaled the beginning of the end for the Creek Nation in this area of Alabama, and two decades later they would be forced west with the other Indian tribes that lived east of the Mississippi River.

As Jackson's troops passed along the route between Fort Williams on the Coosa River and Horseshoe Bend on the Tallapoosa River, they could not help but notice the potential of this picturesque land. Many of these soldiers would return after the Creek removals in 1836 to lay claim and settle here where a north/south ridge of the Southern Appalachian Mountains gives rise to numerous creeks and streams such as Little Hillabee, Harbuck,and Broken Arrow Creeks. Along the remnants of this same historical Chapman Road today, between the villages of Cleveland's Cross Roads (Elias) and Hackneyville, lies the TREASURE Forest of Jerry and Genelle Brown. Just as General Jackson's men were drawn to this paradise, so were Jerry and Genelle Brown. They bought their first 54 acres of forestland here 25 years ago, shortly after their marriage. Today, they own approximately 269 acres in beautiful Tallapoosa and Clay counties.

Both Jerry and Genelle were born and raised in the area: Jerry from Hackneyville and Genelle from Sunny Level. Following high school, Jerry entered Auburn University where he received a Bachelors of Science in Agricultural Education. After 29 years in the Marine Corps and Marine Corps Reserves (including a tour of the Asian Pacific Theater and Vietnam), he retired as a Colonel in 1992. Jerry worked with the Alabama Cooperative Extension Service for nine years, then returned to Auburn University to obtain his Masters Degree in Agricultural Education. Over the next 18 years he taught Agribusiness at Chambers County High School and Horticulture, Maintenance Technology, Cooperative Education and Conservation Careers at Tallapoosa/Alexander City Area Vocational School. He retired in 2001and since then Jerry has worked part-time as a dock and shoreline structure inspector on Lake Martin for the Alabama Power Company. He says this gives him more time to work on the TREASURE Forest that he enjoys.

Genelle went to work for Russell Mills following graduation from Benjamin Russell High School. After 25 years there, she decided it was time to spend full time taking care of the homestead and Jerry as well as to help out on the TREASURE Forest.

When Jerry and Genelle put down their roots in 1977, the property they purchased was located along the Tallapoosa-Clay County line with 49 acres and the house situated in Tallapoosa County and the other five acres in Clay County. After renovating the house, they moved in and began a lengthy program of improving the neglected and cutover timberland.

Their first projects consisted of constructing fire lanes and wildlife food plots on the property. A few years later, they conducted a pulpwood thinning operation in areas where the pines had naturally regenerated and were of excessive stand density. They also worked with the Soil Conservation Service to build and stock a one-acre fishpond on the property. In 1983 the Browns purchased an additional 120 acres of nearby timberland that had been recently clear-cut. Fortunately for them, this property

regenerated itself naturally in pines from the seeds that were in place at the time of the harvest. As usual, the downside of this free regeneration was the need to do a pre-commercial thinning a few years later. Jerry accomplished this with his handy machete and a lot of sweat labor.

At about this point, Jerry began a program of regular prescribed burns to improve the pine timber stands and to enhance the growth of grasses and herbs for the wildlife. He then formed the Hillabee Hunting Club and leased an adjacent 490 acres of forestland. The club consisted of ten families of kin or close friends and they all pitched in on weekends to help out with the wildlife food plots, construction of shooting houses, and expansion or maintenance of fire lanes and roads. Jerry and the other club members have experimented with various plantings in the numerous wildlife food plots. Over the years they have tried everything on the market including soybeans, sunflowers, clovers, peas, wheat, grain sorghum, brown top millet, chufas, BioLogic and bahia.

The club signed up with the Alabama Deer Management Assistance Program and followed this organization's recommendations on the harvesting of does and sparing the younger bucks. Deer harvested on the property are weighed, aged, and processed at a facility on the Brown home site. Since entering the Deer Management Assistance Program the property has produced a very good supply of healthy deer as well as wild turkey. Meanwhile, the club members helped Jerry and Genelle plant several varieties of wildlife support trees including Chinese chestnut, sawtooth oak, Autumn olive, crabapple, etc. Plantings of these trees have continued over the years and some of the earlier ones are now producing heavy annual mast crops for the wildlife. By selectively leaving some wildlife openings with natural vegetation, they provided food and cover for several varieties of small game such as quail, rabbit, and dove.

The next area of improvement needed was the construction of several stream crossings on the property. Because of Harbuck and Little Hillabee Creeks, along with several branches and springs meandering through the property, the crossings were necessary in order to be able to reach all areas of the property. The crossings included fords at natural sites where there was a rock stream bottom, culverts where the soil was not suited for fords, and one major cement ford built across Harbuck Creek. Also, by maintaining the Streamside Management Zones (SMZs) along the waterways, Jerry was able to cut down on the erosion and silt deposits at these stream crossings.

As the Brown timberland was improved and started to take on the look of a model property, they became interested in the Alabama TREASURE Forest program. They were nominated and certified in 1992 as TREASURE Forest #901. Their primary objective under the TREASURE Forest program was timber production and the secondary objective was wildlife habitat improvement.

Jerry Brown uses kudzu as a high-protein wildlife food for deer. In turn, the deer help control the kudzu from spreading!

In the early 90s, the Browns were able to purchase two additional parcels of timberland, consisting of 40 acres of cut-over land and 55 acres that had been high-graded (only the biggest and best were cut, leaving the remainder). This new property was adjacent to or near the original 174 acres and the 490 acres of leased property, now making a sizable block of 759 acres for Jerry and Genelle to manage. With help from the hunting club, the Browns continued to expand the number of wildlife food plots, wildlife support tree plantings, fire lanes, and roads. Today, there is a total of 24 wildlife food plots consisting of around 40 acres and 10 miles of fire lanes and forest roads. They also opened up an additional 20 acres and left it to recover into natural wildlife vegetation such as honeysuckle, briars, partridge peas, etc.

Jerry Brown showing one of his wildlife food plots.

(Continued on page 6)

This not only benefited the deer and turkey, but also the small game such as quail, rabbit and dove. Certain desirable mast trees, such as white oaks have been fertilized to improve their productivity. Jerry and the hunt club members have installed "cam tracker" cameras on various wildlife food plots and wildlife openings in order to aid in monitoring deer health and population. Genelle also says that video taping the abundant wildlife from one of the nice shooting houses is her passion.

Now that the major improvement projects are completed and the once-neglected timberland is in a healthy state, the Browns' future goal is to make the property even more diversified for small game and non-game wildlife. They feel they can do this while maintaining their primary deer and turkey habitat.

While most of us landowners are trying to exterminate kudzu, Jerry has purposely retained two patches of this obnoxious plant that he fertilizes and nourishes. He has found that if the kudzu is fertilized annually, the protein level is sufficiently high enough that the deer will browse it to the point that it can be kept under control to prevent further spreading. Under his wife's direction, Jerry also planted one and a half acres of a variety of wildflowers including sunflowers, cone flowers, bee balm, partridge peas, black eyed peas, etc. And finally, the Browns have put up birdhouses for native species such as blue birds, owls, and wood ducks.

Ironically, with all their efforts in managing for deer and a considerable amount of time hunting for them, the Browns have two pet deer that have become a part of the family. These two bucks were abandoned fawns when they acquired them in 1990 and 1996. They keep the deer legally through an Alabama Department of Conservation permit. Genelle pampers the two deer and says they love sweet potatoes, eating about 40 pounds of them every few days. Both bucks progressed to heavy racked eight-pointers before their racks began digressing with age.

Meanwhile, in 2001 the Brown family continued to make improvements in their timber investment by thinning the pines on the 120-acre tract.

After a large part of the essential work had been done to put the neglected land back into production and make it easier on the eyes, the Browns decided it was time to share their piece of paradise with others. The Alexander City Boy Scout Troop was the first group to use the property for camping, conduct hunter education courses, and take nature hikes relative to their merit badge program. Since then, the hunter education course has been expanded to include the general public and is taught four times each year. In 1998, Jerry received the Governor's Conservation Achievement Award for Hunter Education by Governor Don Siegelman. The Browns have also held a "Step Outside" program on the property. This program is designed specifically for women and its goal is to instill an interest in outside activities such as marksmanship, skeet shooting, archery, outdoor photography, nature arts and crafts, etc. The Tallapoosa County Forestry Planning Committee/County Chapter has also used the Brown TREASURE Forest to hold two general public forestry and wildlife management tours.

In the mid 1990s while Jerry was an instructor at the Area Vocational Center in Alexander City, among other courses he taught a block entitled "Conservation Careers." He decided it would help these students to have a taste of the outdoors through a three-day wilderness survival course. Having been through several military survival courses as a Marine officer, he knew that the diverse environment of his TREASURE Forest was a perfect place to hold such a course. With the assistance of a fellow TREASURE Forest landowner, Jerry held a total of six of these wilderness survival courses for his students.

The Browns are heavily involved in various groups and organizations that support good stewardship of our forestland. Jerry is on the Board of Directors and is the current President of the Tallapoosa County Chapter of the Alabama TREARURE Forest Association. Genelle is also an active member of this organization, helping to organize the various meetings and activities. Jerry also serves on the Clay and Tallapoosa County Forestry Planning Committees, since their TREASURE Forest is in both counties. In addition, the Browns belong to the Alabama Forest Landowners Association, the National Wild Turkey Federation, the Alabama Wildlife Federation, and the Alabama Forest Owner's Association.

Because of their hard work the Browns were honored with the Alabama Forestry Planning Committee's 2001 Helene Mosley Memorial Award for the state's Northeast Region.

With the property in top shape, the Browns now have more time to enjoy the fruits of their labor. Both Jerry and Genelle feel a great sense of accomplishment when they look at the hard work that has gone into reclaiming and improving their property. Now is the time for them to sit back and enjoy the beauty of their TREASURE.

Jerry and Genelle Brown at home in Tallapoosa County.

New TREASURE Forest Certifications

Congratulations to the 34 landowners who were awarded TREASURE Forest certification at the October meeting of the TREASURE Forest sub-committee for the year 2002. With these landowners, 15,132 acres were added to the TREASURE Forest program in Alabama. At this same meeting, 57 landowners received re-certification.

This brings Alabama to 1,814 certified TREASURE Forests with a total of 1,759,702 acres of forestland being managed under the guidelines of the TREASURE Forest program.

Landowner	Location of Property	Region
Mike Blakenship	Henry	SE
Robert D. Brown	Dekalb	NE
Charles Caldwell	Mobile	SW
Rick Cornhill	Morgan	NW
Norman Downey	Clarke	SW
David and Judy Ezell	Choctaw	SW
"Red Bud Ridge" Lee and Beth Goodson	Pickens	NW
Wayne Haggard	Lauderdale	NW
Robert & Joy Herring	Mobile	SW
Melvin Johnson	Jackson	NE
"Anna Acres" John Knox	Pickens	NW
Paul J. Langford	Covington	SE
Bill Lee & Mike Blankenship	Henry	SE
Investment Advisory & Management Corporation Jim Mangham	Dallas	SW
WSM Partners Willard S. McDonald	Choctaw	SW
Rayford and Marzola McNiel	Monroe	SW
Ronald McNiel	Monroe	SW

Landowner	Location of Property	Region
Ed Moore	Lauderdale	NW
J. T. Phillips Jr. DVM	Pickens	NW
Donnie W. Pierce	Bullock	SE
Ricky Rivers	Colbert	NW
"Beaver Creek Preserve, LLC" Lauren Savage	St Clair	NE
Lee Scott, Jr.	Tuscaloosa	NW
"Palamar Hunting Club" Riley, Tammy & Mary Frances Smith	Washington	SW
Donald and Linda Strickland	Dale	SE
"Miller Bottom" Lowell Tillis	Henry	SE
Turtle Point Environmental Science Center	Escambia	SW
"Triple B Farms" Bruce Wagner	Dallas	SW
James O. Walker	Talladega	NE
Dennis Wallace	Geneva	SE
John Will Waters,, Sr.	Bullock	SE
Weeks Bay National Estuarine Research Reserve	Baldwin	SW
Roy Williams, Jr.	Cleburne	NE
George & Ramona Wright	Dale	SE

Management Options for HARDWOODS

Under The Current Cost-Share Programs

By ***Tim Albritton***
Forest Operations Specialist,
Alabama Forestry Commission

and

Tom Lang
Dallas County Manager,
Alabama Forestry Commission

The vast majority of tree planting performed by landowners across the state is with pine seedlings. However, the current economic downturn in the pine pulpwood market may have some landowners wondering if planting hardwoods is a viable option. Planting hardwoods on suitable hardwood sites has always been a good practice. Continued management of existing hardwood stands on hardwood sites is smart forest management.

A previous article published in the Winter 2001 issue of Alabama's TREASURED Forest magazine described practical ways to produce hardwoods using natural regeneration. You can find this and other articles on the Alabama Forestry Commission (AFC) website at: http://forestry.state.al.us/publication/hardwoods_articles_index.htm.

This article however focuses on artificially regenerating hardwoods on open lands or cleared lands and the many options available to increase success and reduce capital expenses. Successful hardwood plantations do not happen by accident. They require planning and a commitment of time and resources. The first three or four years are important to the success of the plantation and require more commitment than with pine plantations. For successful artificial regeneration to occur, several tasks are recommended such as: treating competing vegetation with herbicides, scalping, in-row subsoiling, prescribed burning, bush hogging, and disking. Failure to complete the needed tasks most often leads to plantation failure.

American sycamore planted in January 1991 on a 7x10-foot spacing. Soil type is Kipling loam. Current dbh range is 4-8 inches and heights are 35-40 feet.

PURPOSE OF PLANTING HARDWOODS

Landowners may have a wide array of objectives and purposes for planting hardwoods. The federal and state agencies' purposes in providing cost-share programs for hardwood plantings include:

Soil protection - Trees provide an excellent means of protecting the soil from erosion and protecting water quality by filtering runoff.

Timber production - Timber production is important to our economy and provides wood products that we use everyday.

Enhancement of the environment - Hardwood forests enhance the environment by providing shade, beauty, food, color, and much more.

Wildlife habitat improvement - Many game and non-game species depend on hardwood forests for food, cover, nesting, and shelter.

AVAILABLE COST-SHARE PROGRAMS

Currently, one state and three federal cost-share programs are available for landowners, all having different sign-up periods. The best way to stay informed is to get on the mailing list of your local Farm Service Agency (FSA) newsletter.

Dallas County Manager Tom Lang standing in front of a 20-foot tall Shumard oak. This is a 113-acre Conservation Reserve Program (CRP) field planted in Shumard oak, cherrybark oak, southern red oak, and white oak. Soil type is Kipling loam - a somewhat poorly drained Blackland Prairie soil. Trees were machine planted in December 1994 on a 10x12-foot spacing. Survival rate is 75%. Current tree heights are 10-25 feet.

These plantations of green ash (left) and Nuttall oak (right) were planted in January 1995. Heights for the green ash are 20-30 feet and 10-25 feet for the Nuttall. Soil is Leeper silty clay.

The current programs participating in cost-share hardwood planting are:

- •Conservation Reserve Program (CRP)
- •Alabama Agricultural & Conservation Development Commission (AA&CDC)
- •Environmental Quality Incentives Program (EQIP)
- •Wildlife Habitat Incentives Program (WHIP)

SPECIES SELECTION

If you are planting under a cost-share program you may use a variety of hardwood species. It is important to know your soil type before selecting the hardwood species to plant - matching hardwood species with suitable soils is crucial. Considerations such as slope position, soil texture, and soil moisture can also be key factors in determining species to plant. The publication Considerations for Forest Management On Alabama Soils provides a list of hardwood species and a corresponding site index for each species and soil type.

TREE SPACING

Tree spacing should vary depending on the objectives of the landowner and the species selected to plant. The spacing has a direct effect on the growth of the trees. Denser, tightly packed plantations will produce more wood volume and require less pruning; however, wider spacing promotes branching which will improve fruit production. Open field plantings for timber production should have spacing between 6 and 12 feet. The current recommendation for hardwood plantations is to plant a denser stand using spacing of 8-x-8 feet. This will result not only in a higher probability of a fully-stocked plantation and reduced maintenance, but will also produce better formed trees. Wildlife plantings should be spaced wider than 12 by 12 feet.

Spacing (feet)	Trees per acre
8 x 8	680
10 x 6	726
10 x 7	622
10 x 8	544
10 x 10	438
12 x 12	303

SITE PREPARATION

The importance of a good site preparation cannot be stressed enough. For newly planted hardwood seedlings to grow and survive, they must compete for limited soil nutrients, available ground moisture, and sunlight. The amount of site preparation needed depends on the amount of pre-existing vegetation present and soil conditions. As a general rule, remove all perennial weed competition the summer or fall before planting. This can be accomplished either mechanically or chemically. Research has demonstrated that disking, or plowing and disking, eliminates perennial weed competition, loosens the soil, and releases nutrients stored in the organic matter. The nutrients and increased soil moisture enhance seedling survival and

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Dallas County Forestry Specialist Daniel Jordan standing in a 15-acre Stewardship Incentives Program (SIP) green ash plantation. Soil type is Leeper silty clay, another poorly drained Blackland Prairie soil. Trees were machine planted in January 1995 on an 8x10-foot spacing. Survival rate is 95%. Current tree heights are 20-30 feet.

(Continued from page 16)

growth during the first growing season. First year herbaceous weed control, either mechanical or chemical, will be much easier after the perennial competition has been removed.

Another site preparation treatment often used before planting hardwoods is in-row subsoiling. Subsoiling can produce more favorable hardwood root development conditions by ripping through compacted soil with a shank pulled by a tractor or dozer. Another benefit of subsoiling provides straighter rows and more even spacing.

Many of these site preparation practices are cost-sharable. However, they must be included in the approved cost-share plan prepared by the designated technician. In most cases the Alabama Forestry Commission provides technical assistance to the various cost-share programs.

PLANTING SEASON

Planting hardwood seedlings at the proper time of the year will help guarantee a successful plantation. It is best to plant tree seedlings in late winter or early spring when the seedlings are dormant. In Alabama, this period is between December and March. Soil moisture and temperature at this time of the year are ideal for high survival and vigorous tree growth. Depending upon the weather, tree planting can be extended later in the spring if adequate soil moisture is present.

SEEDLING QUALITY & PLANTING TECHNIQUES

The Alabama Forestry Commission's tree planting standards require a minimum of a seedling that is 18 inches tall and 3/8 inch in root collar diameter. Seedlings should be planted with the root collar slightly below ground level. The hole must be deep and wide enough so that the taproot can be placed straight down without bending and the lateral roots spread out. Plant seedlings in an upright position and press moist topsoil firmly around the roots. Do not plant in extremely dry soil. Only vigorous seedlings should be selected for planting. Only dormant stock should be planted and it should be planted as soon as possible after it is received.

SEEDLING CARE/HANDLING BEFORE PLANTING

Planting trees that will live starts with transportation and storage of seedlings between the nursery and planting site. Just like apples, oranges, and milk, **seedlings are perishable!** If they are mishandled during transportation and storage, THEY WILL SPOIL AND DIE! Follow the recommendations below to help ensure that your seedlings are at their best when planted.

For more information on seedling transportation, storage, quality, planting techniques, or standards, log on to the Commission's web page and read "Seedling Care and Reforestation" at http://forestry.state.al.us/afc_library.htm.

POST-PLANTING CARE

Young hardwood plantations must be protected from livestock grazing and over-stocked deer herd depredation. An important silvicultural treatment during the first growing season is herbaceous weed control. Herbaceous weed control will greatly increase seedling survival and improve growth.

Herbicides used for herbaceous weed control are site specific; each herbicide is best suited for a particular purpose on a given site. Factors influencing the suitability of an herbicide to the site are:

- type of vegetation to be controlled
- species of tree to be over-sprayed
- soil type
- time of year
- proximity to a stream
- age of the seedlings to over-spray
- sensitivity of surrounding areas to damage from herbicides
- cost

With all these factors to consider, it is imperative that herbicides be carefully and knowledgeably applied. It is best to always use a certified applicator (licensed according to state law). Tank mixes of different herbicides can be used if needed to control a wide range of weeds on a site. Some common herbaceous weed control herbicides are: Oustar, Oust, and Arsenal, or tank mixes with Oust, Escort, Accord, and Arsenal. For the proper herbicide or mix for a hardwood site consult with an herbicide applicator, chemical company representative, or a registered forester in your area. Be sure the chemical used is labeled for over-spraying your hardwood seedlings; many chemicals labeled for pine over-spraying will kill hardwood seedlings.

Bush-hogging or mowing is not considered to be adequate weed control. Mowing increases sunlight to the seedlings, but does nothing to remove competition for moisture and nutrients below the ground. In the early years of a hardwood plantation, removing this below ground competition can make the difference between success and failure.

For additional information or help, contact the county office of your local Alabama Forestry Commission. These numbers are located in your local telephone directory or you can view the AFC office directory on-line at www.forestry.state.al.us.

HARDWOOD REFORESTATION CHECKLIST FOR LANDOWNERS

- ✔The months of December to February are usually the best time to plant.
- ✔Select the best species and seed source for your site.
- ✔Determine the number of trees per acre.
- ✔Order your seedlings as early as possible.
- ✔Read about seedling quality and nursery conditioning.
- ✔Decide how, when, and where you will pick up the seedlings.
- ✔Decide on the best site preparation method.
- ✔Develop a herbaceous weed control plan.

"HANDLE WITH CARE!"

How to Treat Your Seedlings

By ***Coleen Vansant***, Information Manager, Alabama Forestry Commission

There is an old saying that you don't win or lose a baseball game in the first inning, it takes playing all nine. Not so with planting trees. You can "win or lose" your future forest before you ever get the trees in the ground if you don't take some very important precautions in the first inning. Proper care of your seedlings during transportation and storage prior to planting is one of the most important factors in ensuring seeding survival.

Seedlings are PERISHABLE. That is worth repeating. Seedlings are PERISHABLE. Just like the eggs, milk, or meat you bring home from the grocery store, seedlings must be maintained in a controlled environment to stay fresh until planting. If mishandled during transportation and storage they can spoil and die.

In Alabama, planting season for bareroot seedlings begins in December and lasts through March. This is when trees are in their dormant state. Dormancy is when the growth of the seedling slows down and the bud of the seedling is hardened. Seedlings can handle the process of transplanting from the nursery to the forest since there is very little growth activity. Although seedlings are in an inactive growth state, precautions still need to be taken to ensure their survival.

Below are a few important rules to follow when transporting seedlings:

1. Order your seedlings from a nursery within 1-2 hours of the planting site or from a nursery that can provide refrigerated delivery to a point within 1-2 hours of the planting site. The Alabama Forestry Commission (AFC) transports seedlings in a refrigerated truck to satellite coolers across the state where they are stored until picked up by landowners.

2. Arrange for your seedlings to be delivered as close as possible to the date planting will actually begin.

3. Inspect all seedling packages for holes or tears and repair them immediately to keep air from entering the packaging and drying out the seedlings.

4. Use a consultant/vendor who has refrigerated transportation and storage abilities.

If you are forced to deal with unrefrigerated transportation and storage, remember these important points:

- When hauling seedlings in an open bed truck, use a tarpaulin to cover them. Sufficient air space should be left between the top of the seedlings and the tarpaulin so that air can circulate and reduce heat buildup.
- Never transport trees in a vehicle that contains fertilizer, chemicals, or other fuel residues. Make sure the exhaust system of the vehicle is working properly and is not discharging heat onto the seedlings.
- Seedlings should be kept in the shade to limit sun exposure and reduce the chance of heat buildup.
- Unload and properly store seedlings as soon as the destination is reached.
- Seedlings should be stored in a protected area such as a shed to avoid freezing, wind, and heat buildup. The area should not be subject to overheating or direct sunlight.
- Never stack seedlings more than two bundles high and use spacers to provide sufficient air space between stacks of bundles to reduce heat buildup.
- Periodically roll bundles containing seedlings whose roots have been coated with moisture retentive material to allow gel to redistribute evenly among seedling roots.
- Seedlings should be planted as soon as possible; within 2-3 weeks if storage temperatures range from 38-50 degrees F; or within 3-5 days if storage temperatures range from 50-70 degrees F.

Aside from handling, other important factors to consider include purchasing genetically improved seedlings from a reputable nursery. The AFC's Hauss Nursery in Atmore has been growing genetically improved seedlings for many years. When purchasing trees, the location of the planting site must also be considered. A professional forester can give you valuable information on site conditions and proper tree selection. The Commission grows bareroot pine seedlings for both piedmont and coastal areas.

Whether planting four acres or four hundred, planting trees can be an investment of your money and your time. You might purchase the best nursery stock available, but unless the seedlings are handled properly before planting you could lose your investment today, as well as your returns years from now.

For more information on tree planting and tree care or for any other question you may have about forestry, contact your local Alabama Forestry Commission County office.

If you would like to read additional articles about proper tree planting, you may want to refer to the following articles in previous *Alabama's TREASURED Forests*: Fall 1996 - page 26, Winter 1994 - page 8, Fall 1989 – page 27, or Winter 1988 - page 21.

Never plant seedlings that:

- Have a sour smell. This is due to heat buildup and fermentation.
- Have yellow needles.
- Are warm to the touch.
- The bark slips off easily, especially on the roots.
- The cambium layer is yellow to brown.
- Are molded.

HIDDEN TREASURES

Mrs. Belk and Her Land - Both Treasures in Marion County

By ***James Jennings***
Outreach Forester, Alabama Forestry Commission, Northwest Region

Mrs. Eguel Belk of Marion County is a very busy person. She is a volunteer with both the cooperative extension service and the local hospital, an active member of the Community Resource Development Committee, and chair of the Marion County Health Council. Not surprisingly, she is also the recipient of the Volunteer of the Year Award!

Yet, she still finds time to work on her property and has earned the distinction of being the first minority landowner ever nominated for the TREASURE Forest award in Marion County. She has lived on the farm in the Shottsville community since 1942 where she and her husband raised cattle and grew corn until he passed away in 1989.

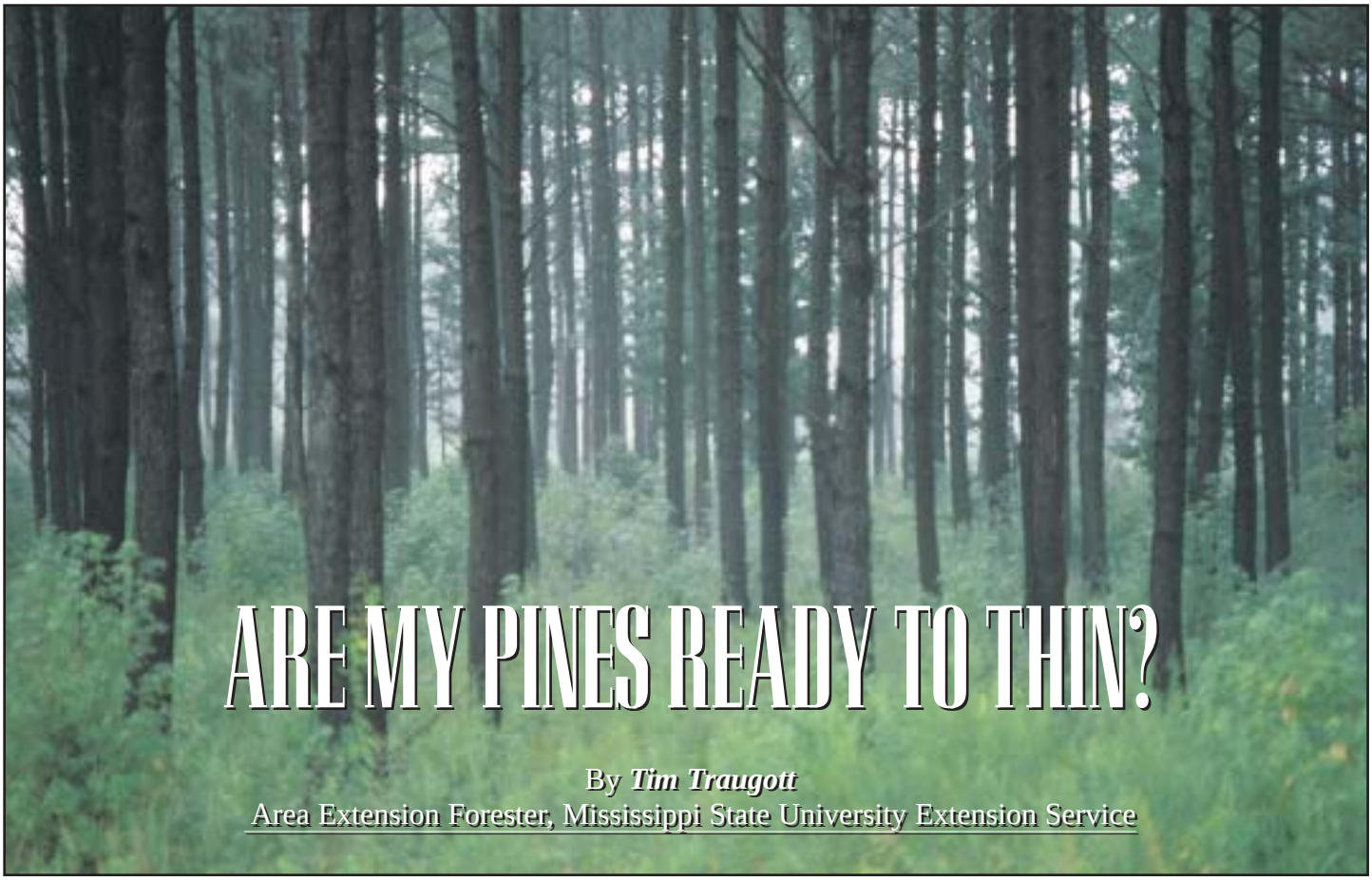
Mrs. Eguel Belk keeps busy on her farm in the Shottsville Community.

A letter from the Natural Resource Conservation Service announcing cost-share funds for tree planting and site prep prompted her to look into converting the fallow land into productive land. She continued reading and talking with local Alabama Forestry Commission associates until she decided that this was a wonderful opportunity to make her 36 acres productive once more.

Her first step was to subsoil, plant superior loblolly pines, and band-spray herbicide to control herbaceous weeds under the Forestry Incentive Program (FIP) cost-share program. She then conducted a timber sale to harvest a low-quality upland mixed stand that she plans to convert into a more productive pine stand. There are also 9 acres of naturally-regenerated pines.

Two acres of wildlife openings have been developed to complement her forest management plan. Different age classes of trees around the property provide excellent nesting and cover for both game and non-game species. She retained soft mast-producing trees along the edges of the planted pasture to offer a nutritional supplement to the many deer, turkey, and squirrels that make their homes on the farm.

It has been said that if you want something done, ask a busy person to do it. It seems that busy people often have the energy and desire to achieve and to encourage others to do the same. Mrs. Belk sees forest management as an opportunity to make her farm productive again and to make a sound investment in her financial future. Her insight and her willingness to share it with others make her a true Hidden TREASURE for Marion County and for Alabama.



ARE MY PINES READY TO THIN?

By *Tim Traugott*
Area Extension Forester, Mississippi State University Extension Service

Editors Note: This is part two of an article adapted from ***Are My Pine Trees Ready to Thin?*** *a publication of Mississippi State University Extension Service. It is re-printed with permission from the author.*

Determining the appropriate time to thin a pine stand can be difficult. There is no definitive answer as to when a pine stand should be thinned. However, consideration of five criteria – tree diameter, stand density, tree heights, natural pruning, and growth rates – can help landowners and foresters make this crucial decision.

Tree Diameter

Diameter at breast height (DBH) is the diameter of the tree stem 4-1/4 feet above the ground. This measurement can be taken with a tree scale stick *(see Figure 1.)* or with a diameter measuring tape.

DBH is important because trees must be at least 5 inches DBH to be sold for pulpwood. Trees smaller than 5 inches DBH are not "merchantable" and typically will not be cut. Consequently, thinning your stand before the majority of the trees are 5 inches DBH or larger may result in "high grading." This occurs when the only trees harvested are the larger, faster-growing trees. Rather than harvesting these dominant trees, you should leave them as "crop trees." When your trees are all 4 inches DBH or larger, you can harvest the slower-growing, smaller, less vigorous trees and provide your crop trees more room to grow.

Stand Density

Stand density is determined by both the size (DBH) of the trees and the total number of trees per acre (TPA). As the average size of the tree increases, the number of trees the site is capable of supporting decreases. For example, at the

(Continued on page 14)

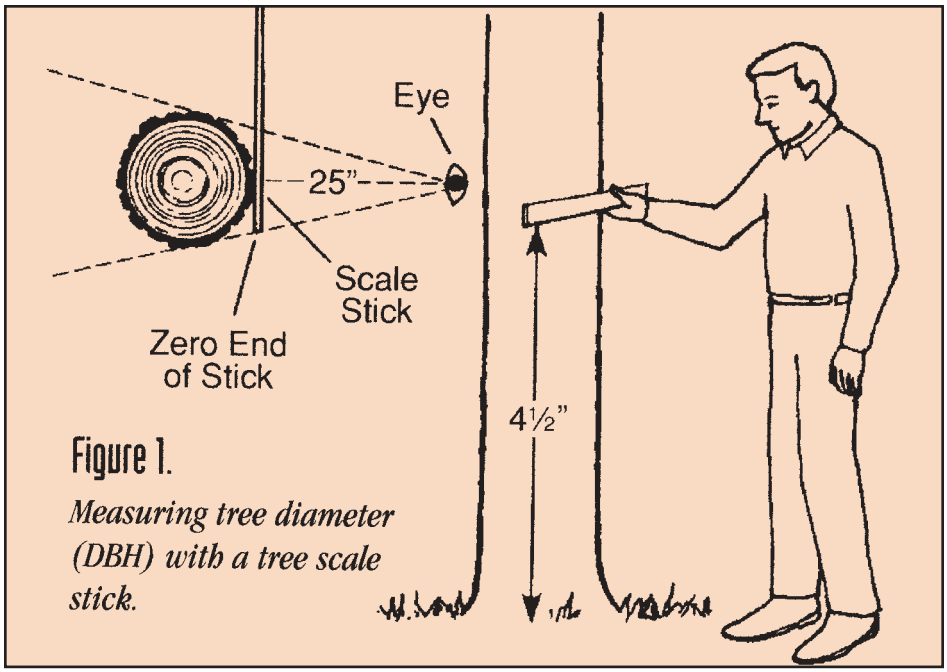


Figure 1.
Measuring tree diameter (DBH) with a tree scale stick.

ARE MY PINES READY TO THIN?

(Continued from page 13)

Plot No.	Tree DBH							Total DBH	No. of Trees
1	6	7	5	7				25	4
2	7	8	6	6	7	7		41	6
3	7	6	6	5	5	7		36	6
4	6	6	6	7	6	6	7	44	7
5	7	7	7	6	6	6	5	44	7
6	5	5	5	6	5	6		32	6
7	7	7	7	7				28	4
8	7	7	6	6	5			31	5
9	7	6	6	5	5			29	5
10	7	7	7					21	3
						TOTALS		331	53

Average Trees per acre = 53 (total # trees) x 100/10 = 530
Average DBH = 331 (total sum of DBH's) / 53 (total # trees) = 6.2"

time of tree planting, a site may easily support 600 or more tree seedlings per acre. However, as tree diameters and crowns increase in size, the amount of nutrients, soil moisture, and sunlight required for optimum growth also increases. Eventually, the stand density (TPA & DBH) becomes too high to maintain good growth rates. The goal of thinning is to reduce stand density by removing the slow growing, lower quality trees, thus maintaining rapid growth on the straight, healthy, vigorous, and evenly-spaced crop trees.

There is a simple method to determine when the stand density dictates thinning. Cut a piece of string, stick, or bamboo to a length of 11 feet, 9-5/16 inches. This is the radius of a 1/100-acre circle. Using either a tree scale stick or a tree diameter measurement tape, go through the following steps:

Step 1 - Walk through your plantation and take 10 random 1/100-acre plots evenly distributed over the plantation. Record the number of trees and the DBH of each tree on each plot. *(See chart at left and page 30.)*

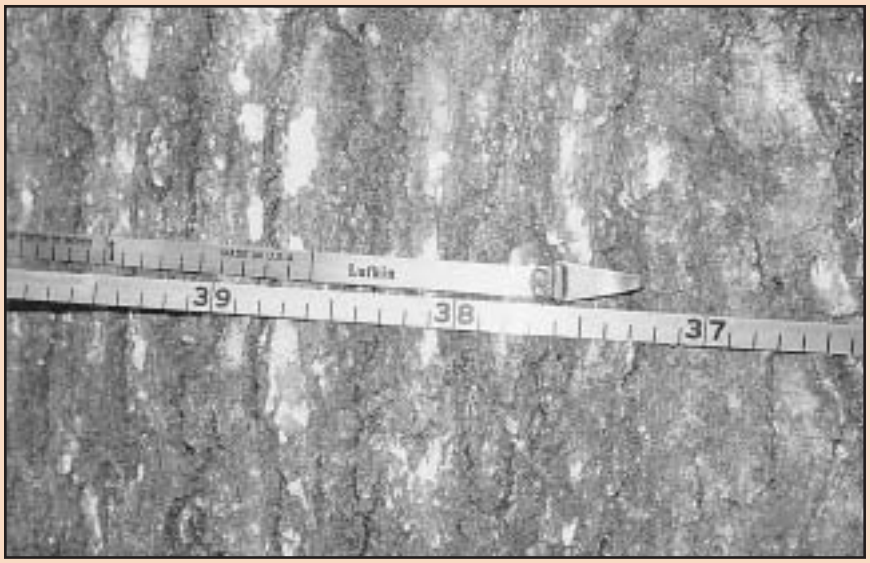
Step 2 - Take the sum of the diameters of all trees on each plot, and then take the sum of the total number of trees on each plot.

Step 3 - Add the number of trees counted on all the plots.

Step 4 - Calculate the trees per acre (TPA) as the total trees counted on all plots divided by the number of plots (10) times 100.

Step 5 - Calculate the average DBH (the sum of all DBHs divided by the number of trees.)

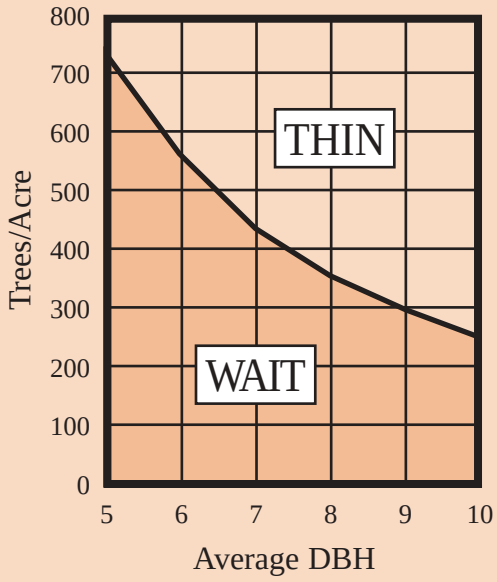
Step 6 – Locate the average TPA and the average DBH of your plantation on the Thinning Graph below.



Measuring tree diameter at breast height (DBH) with a diameter measuring tape.

THINNING GRAPH

Thin/wait decision based on stand density (TPA & DBH)



Using the example of 530 TPA and 6.2-inch DBH, the graph indicates that we should wait to thin.

Although TPA and DBH are the two primary factors that determine the need to thin, several other factors should be considered. When your stand density indicates the trees are in need of thinning, you should then evaluate tree heights, natural pruning, and growth rate factors to determine *exactly* when to thin.

Tree Heights

Trees should be at least 40 feet tall for a plantation to be economically thinned. Harvesting operations today use tree-length log trucks to haul trees from the woods to the mill. If the trees are less than 40 feet, there may be increased costs associated with hauling.

Natural Pruning

Since pines do not tolerate shade, their branches die from the ground up as trees become crowded and overtopped. These dead limbs over time will shed or fall off the trees. This is known as natural pruning and results in a tree of higher value with a clean stem and a well-developed crown.

Natural dying of the lower branches to a minimum height of 18 feet should be accomplished before a pine plantation is thinned. If there are live green limbs less than 18 feet from the ground, thinning the stand could lower tree quality.

If thinned, these green limbs will be exposed to sunlight and will continue to grow. Tree growth needs to be concentrated on the main pole of the tree, supported by a well-developed crown. Thinning too early can result in growing larger lower limbs, which eventually lowers the quality of the logs, inhibits diameter growth, and reduces the value of the tree.

The approximate age of a tree can be determined with an increment borer.

Growth Rates

The main objective of thinning a pine stand is to maintain vigor and growth rates on the best trees, known as "crop" trees. Therefore when growth rates decline, it is time to thin. The ideal situation is for the crop trees to continue growing at a steady and vigorous rate. Take a growth increment core from trees to determine growth rates of your dominant and co-dominant trees. Calculate the percent annual growth by using increment boring and several other tree measurements. This annual growth rate is the final criteria you should use to determine if your plantation is ready to thin.

For example, your plantation may have DBH, heights, natural pruning, and density levels to justify thinning. However, if trees are still growing at an annual rate of 12 percent, it may be wise to postpone thinning. Why would you want to harvest half your trees when they are still growing at 12 percent?

Landowners should decide what growth rate is acceptable to them. Growth rates will very from site to site, depending on the soil site index. Some landowners may decide that as long as the trees are growing at the prime interest rate, let them grow. Other landowners may have predetermined rates of return they expect the trees to produce. An acceptable factor could range between 5 percent and 15 percent, depending on individual landowner objectives.

Are My Pine Trees Ready to Thin?

As a landowner, you can evaluate your pine plantation by using the five criteria described above and by using the Thinning Graph. Landowners may determine criteria such as DBH, TPA, tree heights, and natural pruning, but growth rates normally require the assistance of a professional forester.

Remember, the first thinning of your pine plantation may be the most important activity conducted and will impact the future growth and economics of your pine plantation for many years. Using the services of a professional forester in evaluating your pine plantation is highly recommended.

Note: A sample "Field Worksheet" is included on page 30.

Number of Trees Per Cord

Diameter Breast High (Inches)	Trees Per Cord of 128 Cubic Ft. (Number)
5	46
6	21
7	15
8	10
9	8
10	6
11	5
12	4

Note: This is an approximate table for rough determination.

The Colors of Autumn

By ***Coleen Vansant***
Information Manager, Alabama Forestry Commission

Left: The leaves of a hickory are always yellow.
Opposite Page: Black gum is one of the first trees to change colors in the fall and one of the most beautiful.

Below: This white oak is going through the process of changing color. When complete, the entire tree will be red.

Left: This pretty maple shows off its colorful leaves.

Photos by Coleen Vansant

Below: The bright yellow leaves of a sawtooth oak.

Ask ten people and you'll get ten different answers about what makes leaves change color. Jack Frost is usually given the credit for the brilliant autumn spectacle – but then there's the dilemma of whether it is an early frost or a late frost that paints the pretty picture. Others will tell you it has everything to do with rainfall – some say a little, while others say a lot.

But in reality the secret is in the sap. The chemical composition of each tree's sap provides the palette and brush to the fall color its leaves should turn.

(Continued on page 18)

The Colors of Autumn

(Continued from page 17)

The amount of iron, magnesium, phosphorus, or sodium in the tree and the acidity of the chemicals in the leaves determines whether the tree turns amber, gold, red, orange, purple, or just fades from green to brown. For example, scarlet oaks, red maples, and sumacs have a slightly acidic sap which causes their leaves to turn bright red. Leaves of some varieties of ash, growing in areas where limestone (alkaline) is present, will turn a regal purplish-blue.

What triggers the change? The answer lies in the shifting rhythm of day and night. As the days grow shorter and the nights longer, a chemical clock inside the trees starts up, releasing hormones which restrict the flow of sap to each leaf. As autumn progresses, the sap flow slows and chlorophyll, the chemical that gives leaves their green color in the spring and summer, disappears. The residual sap becomes more concentrated as it dries, creating the colors of fall.

The longer time leaves stay on a tree in the fall determines the quality of color. Rain showers, hot days, and dry spells during the summer dictate how long a leaf will hang onto its green, yellow, or gem tones in the fall. The longer the leaf stays attached, the brighter the color. According to one U.S. Forest Service study, weather can affect the color of leaves. The green and yellow pigments are always present in leaves and are fairly stable. Although the red pigments are found naturally in some trees such as red maple and dogwood, the red doesn't occur naturally at such great amounts in all trees. Stress, such as drought, tends to produce more red pigment in leaves than what normally occurs.

Autumn colors can be seen in many areas throughout the United States. Certain areas of the country including the Northeast corridor, the Southeast along the Appalachian mountain chain, and much of the Midwest produce the most striking and vibrant colors. The most intense fall color occurs in New England, with almost pure stands of a few types of trees, such as maples and birches, that all turn color at the same time during the short fall season. The most varied as well as the longest lasting autumn color occurs in the southern Appalachians, where a dozen or more kinds of trees may change color at slightly different times over the longer fall season.

In Alabama, fall color usually starts in September and ends in November. Frost and freezing temperatures will stop the

PRESERVING LEAVES

Although fall lasts for only a few short weeks, you can preserve that beautiful fall color by drying leaves. Below are two methods to capture autumn for the rest of the year. The most important thing is to remove the moisture from the leaf as soon as possible.

By Microwave

Lay the leaves you have selected between two paper towels. Microwave the leaves on 50 percent power for 30 to 120 seconds, depending on the dryness of the leaves (less time for drier leaves, more for those with more moisture). The heat will remove the moisture from the leaves, allowing the colors to remain as they are.

In a Book

Before you begin, make sure you choose a book you are not attached to – with this method there is a chance of staining the pages. (Large telephone books work well.) Place the leaves (don't overlap) between paper towels or blotting paper. This helps to absorb the moisture from the leaves. Allow at least 20 pages between the leaves for best results. Keep the leaves in the book for about a week, replacing the paper towels on the second day. This method not only dries the leaves, but keeps them flat as well.

Store the leaves in an airtight container between layers of paper towels. They will keep until you are ready to use them.

FACTS ABOUT FALL COLOR

- The fall leaves of a few trees including sugar maple, dogwood, sweet gum, black gum, and sourwood are usually red but may also be yellow. Leaves of some trees such as birch, tulip poplar, redbud, and hickory, are always yellow in the fall, never red.
- The change in day length that causes the chemical change in the trees leading to the bright colors of autumn starts June 21, the longest day of the year, as the sun starts to move south and the days become shorter.
- Believe it or not, leaves have just as much yellow pigment (xanthophyll) in July when they are green as they do in October when they are yellow. In July the darker green pigment (chlorophyll) masks the yellow color.
- Bright sunlight is necessary for the production of red (anthocyanin) pigment in fall leaves. Try this simple test: place a black mask on part of a leaf before it turns red. The part of the leaf under the mask will turn yellow while the exposed part will turn red.

coloration process and blacken the leaves.

In many areas of the country, the fall season is one of the biggest tourists attractions of the year. There are several web sites that monitor fall color changes across the U.S. on a week-to-week basis. If you would like to plan a cross country autumn-color vacation or just a short regional get-away, you might want to try one of the following web sites: http://www.foliagenetwork.com/ and/or http://www.fs.fed.us/news/fallcolors/.

For children there are several sites where you can download coloring and activity sheets. Find these at http://www.first-school.ws/theme/cpseasons_autumn.htm or http://abcbabysit.com/directory/color_pages/seasonal/.

Resources:

http://ncnatural.com/wildflwr/fall/fallfact.html

http://www.weather.com/activities/recreation/fallfoliage/whyleaveschange.html

http://www.foliagenetwork.com/about/leaves_change/index.html

http://www.foliagenetwork.com/about/preserving/index/.html

http://www.urbanext.uiuc.edu/fallcolor/about.html

The Secret of Fall Colors, Alabama Forestry Commission.

Whether you are planting new trees in your yard and around your property or if you are managing a mature forest, below are a few trees you may want to plant or keep that will provide vibrant and long-lasting fall color.

YELLOW

Beech
Birch
Chestnut Oak
Elm
Ginkgo
Hackberry
Hickory
Locust
Pecan
Persimmon
Sawtooth Oak
Sycamore
Willow

ORANGE

Northern Red Oak
Sassafras
Southern Red Oak

GOLD

Ash
Buckeye
Willow Oak
Yellow Poplar

RED

Black Cherry
Black Gum
Dogwood
Red Maple
Scarlet Oak
Sourwood
Sweetgum
White Oak

William M. Ciesla, Forest Health Management International (Forestryimages.org)

FOUR STEPS TO KILL YOUR PINE FOREST

Jim Hyland
Forest Health Section,
Alabama Forestry Commission

Photo 1 - Beetle bait: disaster waiting to happen.

There are many forest insects and diseases that can attack your pine forest, but there are only a few that will cause your pines to die. The leading two pests in Alabama are: southern pine beetle (SPB) and annosus root rot (ARR). Populations of southern pine beetle are cyclic in nature and will build up quickly. The increase in Alabama is usually associated with drought conditions. Where there are several months of drought conditions, especially in the spring, one can expect large populations of beetles and large dollar losses to mortality.

Annosus root rot disease is soil related. Since the disease kills the root system, the effects of ARR show up more intensely during droughts. What you do with your pine forest will affect whether or not these two pests attack, the voracity of the attack, and whether you will lose the entire stand.

Both of these pests can be prevented with a little planning and forethought; OR, you can set yourself up for disaster by following these four steps.

1. Plant a large number of seedlings per acre. When a landowner plants pines, he plants large numbers of seedlings per area ensuring that he will have plenty of trees. Some landowners have the idea that many seedlings will die during the planting and so they plant more to compensate for this loss *(Photo 1)*. Twenty years ago this may have been the case, but today with modern planting techniques and "super" trees, the planting survival rates are 90-100 percent. Modern pine planting techniques include excellent site preparation, use of herbaceous weed control, use of genetically superior seedlings, bedding, sub-soiling, and the use of certified tree planters. Research has shown that planting more than 500 trees per acre causes stands to become beetle bait. These stands will grow fast and reach high susceptibility to SPB before the trees are large enough to cut — either for thinning or when an infestation occurs. Also, the closeness of the trees to each other allows an SPB infestation to

Scott Roberts, Mississippi State University (Forestryimages.org)

Photo 2 - High SPB Hazard: pine stand before thinning, more than 450 trees per acre.

Scott Roberts, Mississippi State University (Forestryimages.org)

Photo 3 - Low SPB Hazard: a thinned pine stand with 90 trees per acre.

spread like "wildfire." To prevent SPB attacks at an early age, smart landowners plant no more than 450 trees per acre (approximately a 10 x 10 spacing).

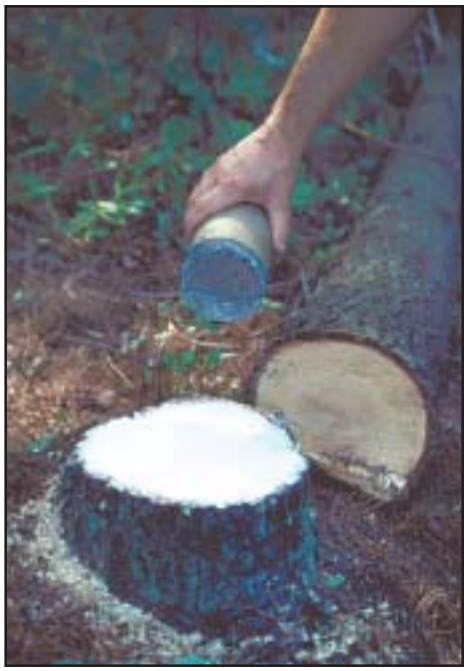
2. Never thin your pine stand. Pine plantations are not a "plant and walk away" proposition. If left alone, all forestland would eventually convert to hardwoods. To keep a forest in pine, the stands must be managed. An acre of land will support a limited amount of healthy trees; above this amount the pines themselves compete with each other. The choice of the landowner is to put this maximum wood volume on a large number of small trees OR put it on a smaller number of large trees. The value of the saw-timber-size trees can be as much as 20 times the value of pulpwood trees. As pines grow they take up more space and put stress on each other. Over time the pines weaken and are easy prey for insects and diseases. Bark beetles — especially southern pine beetles — "smell" these weak trees and attack them with vigor. As the pines grow the overall SPB hazard increases. Managing these pine stands by thinning will keep the trees growing healthy and lower the SPB hazard rating. *(See Photos 2 and 3.)*

3. Thin your pines growing on sandy soils without using annosus root rot prevention. Thinning of your pine stands will decrease the SPB hazard and be economically beneficial for the future. However, all of these benefits will be for nothing if the stand is growing on high hazard annosus root rot soils. Annosus root rot infects the root system of pines, killing feeder roots, reducing growth, and causing death to infected pines. The ARR spores occur in sandy well-drained soils. The spores are normally spread to freshly cut stumps during and immediately after a thinning. The spores land on the stumps and move from the root systems of the stumps to the live pines. The soils of Alabama have been rated for the hazard from annosus root rot. Before any cutting in a pine stand, the soil should be checked to determine the ARR rating and always treat the freshly cut stumps with a chemical called Borax *(Photo 4)*. The Borax will seal the freshly cut stumps, not allowing the ARR spores to enter the stump or the nearby standing live pines.

4. Never control an SPB infestation. "It will go away by itself." If your pine stand becomes infested with SPB, always control the spot as soon as possible to avoid killing more trees. The southern pine beetle has a life cycle of about 30 days (from egg to adult), and they can have as many as 6-7 generations per year. This allows SPB population to go from a few trees to possibly several hundred acres in a short time *(Photo 5)*. Waiting can jeopardize your entire plantation and future economic plans. Always cut the infested pines and a buffer of green pines around the dying trees to ensure complete control of the infestation.

The main ingredient to enjoying a healthy pine forest is planning. If you do not have a written Forest Stewardship Management Plan on your property, acquire one as soon as possible. Any registered forester, a forestry consultant, a forest industry landowner assistance forester, or the Alabama Forestry Commission (AFC) can produce written forest management plans. The best place to begin is by calling your local county AFC office and asking them for assistance. They can either produce the plan themselves or refer you to a consultant in your area.

In summary, get a Forest Stewardship Management Plan for your property, think before you plant large numbers of pines per acre, hazard rate your forest for southern pine beetle and annosus root rot, and thin the pine stands using Borax to reduce the impacts of southern pine beetle and annosus root rot. Pines are an excellent investment but you must protect this investment by using proper forest management techniques.



Robert L. Anderson, USFS (Forestryimages.org)

Photo 4 - Application of Borax as a stump treatment.

Ron Billings, Texas Forest Service (Forestryimages.org)

Photo 5 - Waiting too late to control SPB infestation in a pine plantation.

Fee Hunting in Alabama

By ***John Dickson***
Wildlife Biologist, Alabama Forestry Commission

As summer draws to a close each year, many hunters begin making preparations for the upcoming season. Their number one concern is usually where they are going to hunt. Approximately 95 percent of timberland in Alabama is owned by private landowners and because of the recent slump in timber prices, many landowners are looking for other ways to increase economic returns from their property. By leasing access to their land, landowners can receive a dependable yearly income. Although the hunter has access to the property, the wildlife resource is ultimately owned by the state.

The first question that many landowners often ask is, "How much can I make by leasing the hunting rights on my property?" There are a variety of factors affecting lease values including: location, total acreage, proximity to urban areas, availability of public hunting land in the vicinity, stand diversity, permanent openings, and adequate roads on the property. Housing and access to water, such as riverfront or ponds, may also increase lease prices.

Types of Fee Hunting

The two primary types of fee hunting on private property are leases and day hunting operations. Leases may be annual leases, multiple year leases, or seasonal leases such as spring turkey hunting. Short-term leases can sometimes lead to problems because the hunters do not have a vested interest in the property and may seek to maximize harvest of particular game species or otherwise exploit the resource. Hunters who know that they will be able to keep the lease for several years have a tendency to improve the property and not over-harvest game.

Day hunting is another option available to landowners, but the disadvantages usually outweigh the advantages. The disadvantages of day hunting are that the landowner may not know the persons on the property very well, and the high turnover rate makes it difficult to hold individuals accountable for gates left open, litter, and irresponsible harvests. Day hunting can also require substantial expenditures for advertising.

Lease Prices

Lease prices in Alabama are primarily determined by the quality of bucks taken in a particular region, although higher deer densities may also drive prices upward. The leases that fetch the highest prices are tracts that have a combination of pine plantations, mature hardwoods, multiple food plots, and are close to an urban area.

Prices also increase when several species can be hunted on the property. White-tailed deer and turkeys are the primary species of interest to hunters, but lease prices can increase if additional opportunities exist to hunt ducks, quail, doves, squirrels, rabbits or hogs. Riverfront properties and tracts with ponds on them provide year-round opportunities for fishing which may help to increase revenue generated by the lease. Lodging on the property may increase the lease price up to five dollars per acre. On properties leased by non-resident hunters, some landowners will plant all of the food plots and add this into the cost of the lease.

Historically, lease prices have risen with the abundance of deer populations and deer hunters. This increasing demand for a limited resource has led to a gradual increase in lease fees over the years. The pricing of leases is usually determined on a per-acre basis and varies with where in the state the land is located. Lease prices are lowest in northern and southeastern Alabama and highest in the Blackbelt Region of west-central Alabama. Leases in north Alabama generally range from one to four dollars per acre, and from three to four dollars per acre in the southernmost portions of the state. The Blackbelt Region consistently produces the largest bucks and subsequently, lease prices can bring $20-25 per acre on the best properties although $8-12 per acre is more common.

Liability

Landowners have many concerns when leasing out their land. Loss of land control and game over-harvest are two major reasons that property owners choose not to lease their land, but accident liability is probably the greatest concern they face. Landowners have a certain degree of responsibility for anyone on their property, whether they are invited or not. However, they can reduce liability risks by identifying hazards and taking steps to get rid of them, or by alerting hunters on the property of the hazards' existence. Single-cable gates have often been the cause of injury to people riding all-terrain vehicles (ATVs). These gates should be marked with signs for easy observation or enclosed in PVC pipe. The boundaries of the property should be posted, and any hazards to children, such as old refrigerators or open wells, should be removed or covered.

In Alabama, hunters are required to have written authorization from the landowner regardless of whether they are leasing the land or are invited to hunt on the property as friends and family. Landowners may also require hunting clubs to purchase liability insurance coverage and list themselves as co-insured.

Ways to Improve the Quality of Your Property for Leasing

There are several ways for a landowner to improve the property to provide a more enjoyable hunting experience and increase revenue. The first step is to manage the habitat properly through prescribed burning and thinning of pine plantations when mature enough. Next, provide enough permanent openings and food plots to help sustain healthy wildlife populations. Maintain mature hardwood stands and streamside management zones. Also, a good road system allows access to shooting stands located throughout the property and ultimately increases the value of the lease.

It usually helps increase the asking price for a lease if the landowner already

has shooting stands erected on the property. Also, hunters will pay more to harvest mature bucks; therefore limiting the harvest of young bucks will improve hunting in upcoming seasons. This may be accomplished through setting antler restrictions and limits on the number of bucks harvested. Reducing the number of hunters on the property can also improve the quality of the hunting experience and make it easier for the landowner to get to know the hunters.

The Alabama Forest Owners Association website provides an interface for landowners and hunters to contact one another. Landowners may post their information for a minimal charge at www.alabamaforestowners.com.

LESSEES' INSPECTION OF PROPERTY

7. LESSEES further state that they have inspected the described property and have found the premises to be in an acceptable condition and hereby waive any right to complain or to recover from LESSOR in the future relating to the condition of the lease property or any improvements located thereon.

INDEMNIFICATION

8. LESSEES agree to protect and defend indemnity and hold LESSOR blameless from any and all liability, loss, damage, personal injury (including death), claims, demands, causes of action of every kind and character, without limit and without regard to the cause or causes thereof or the negligence of any party or parties arising in connection herewith in favor of: 1) any LESSEES hereto; 2) any employees of LESSEES; 3) any business invitees of LESSEES; 4) any guests of LESSEES; and 5) any person who comes to the lease premises with the expressed or implied permission of LESSEES.

[NOTE: This liability release must be on the same page as the signatures, and it is the landowner's responsibility to ensure that each lessee has read and understood its meaning.]

IN WITNESS WHEREOF, the parties have hereunto caused this Agreement to be properly executed this _____ day of _____, 20 _____.

[NOTE: If the hunting group is not incorporated, each member should sign the lease agreement.]

LESSOR: LESSEES:

1. _____ _____
2. _____ _____
3. _____ _____
4. _____
_____
_____

2

SAMPLE SEASON HUNTING LEASE

[This form may also serve as a lease for a longer period of time.]

STATE OF ALABAMA
COUNTY OF: _____

This Hunting Lease Agreement is made by an between _____ [Landowner] hereinafter called LESSOR and _____ [Hunters or Hunting Club] hereinafter called LESSEES.

GAME TO BE HUNTED AND COMPLIANCE WITH LAW

1. LESSOR does hereby lease to LESSEES, for the purpose of hunting white-tailed deer during the season established and in accordance with the laws, rules, and regulations of the Alabama Department of Conservation and Natural Resources, Division of Game and Fish, the following described premises located in _____ County, Alabama:

[Place legal description of property here.]

TERM OF LEASE

2. The term of this lease is for the 20 _____ white-tailed deer season, which season is scheduled to begin on or about the _____ day of November and ending on or about January 31, 20 _____.

PAYMENT

3. The consideration to be paid by LESSEES to LESSOR at _____ County, Alabama, is $ _____ in cash, one-half of the total to be paid on or before _____, 20 _____ and the balance to be paid on or before _____, 20 _____. Failure to pay the second installment shall thereupon terminate and cancel the lease and the amount already paid shall be forfeited as liquidated damages for the breach of the agreement. If LESSEES default in the performance of any of the covenant or conditions hereof, then such breach shall cause an immediate termination of this lease and a forfeiture to LESSOR of all rentals prepaid. In the event that a lawsuit arises out of or in connection with this lease agreement and the rights of the parties thereof, the prevailing party may recover not only actual damages and costs but also reasonable attorney's fees expended in the matter.

FORFEITURE

4. In the event any hunter in the hunting club paying consideration for this lease fails to execute the same, then those hunter s executing the agreement shall be deemed as agents for such other hunters and responsible for all obligations hereunder imposed upon each individual member of the party. Violation of any agreement or obligation herein by any member of the hunting club shall cause the lease, at the request of the LESSOR, thereupon to cease and terminate as to the entire group, and all rights granted hereunder will be forfeited.

LESSOR'S USE OF THE PREMISES

5. LESSEES understand and agree that the premises is not leased for agricultural and grazing purposes. LESSOR reserves the right in himself/herself, his/her Agents, Contractors, Employees, Licensees, Assigns, Invitees, or Designees to enter upon any or all of the land at any time for any purpose of cruising, marking, cutting, or removing trees and timber or conducting any other acts relating thereto, and no such use by LESSOR shall constitute a violation of this lease. LESSEES and LESSOR further agree to cooperate so that the respective activities of one will not unduly interfere with the other.

LESSEES' LIABILITY

6. LESSEES shall take proper care of the lease property, the dwellings, and all other improvements located thereon, and shall be liable to LESSOR for any damage caused to domestic livestock, fences, roads, or other property of LESSOR due to the activities of LESSEES or their guests exercising privileges under this lease.

Source: ANR-541. Reprinted July 1994. By H. Lee Stribling, Extension Wildlife Scientist and Associate Professor, Zoology and Wildlife Science, Auburn University.

THREATENED & ENDANGERED SPECIES

Alabama Department of Conservation and Natural Resources

State parks offer opportunity to observe the bald eagle, our magnificent national symbol, during weekends in January.

Alabama's Bald Eagle Restoration:

A Success Story

The numbers tell the story. In the past 15 years since bald eagles began re-nesting in Alabama, there have been 209 nesting attempts with 214 young eagles successfully "fledging" or leaving these nests. This recovery of the bald eagle in Alabama, and indeed nationally, has been one of the most remarkable success stories in wildlife management.

Amazingly, prior to 1987 there were no known bald eagle nests in Alabama. None. Alabama lost its nesting bald eagles when they declined sharply nationwide in the 1950s and 60s. As eagle numbers recovered, a few would over-winter in our state, but these birds migrated north to nest each spring. They were not "imprinted" upon Alabama for their nesting behavior. Bald eagles have a strong tendency to return to the vicinity where they learned to fly when they are ready to mate and raise their own young. This occurs when they are four or five years old.

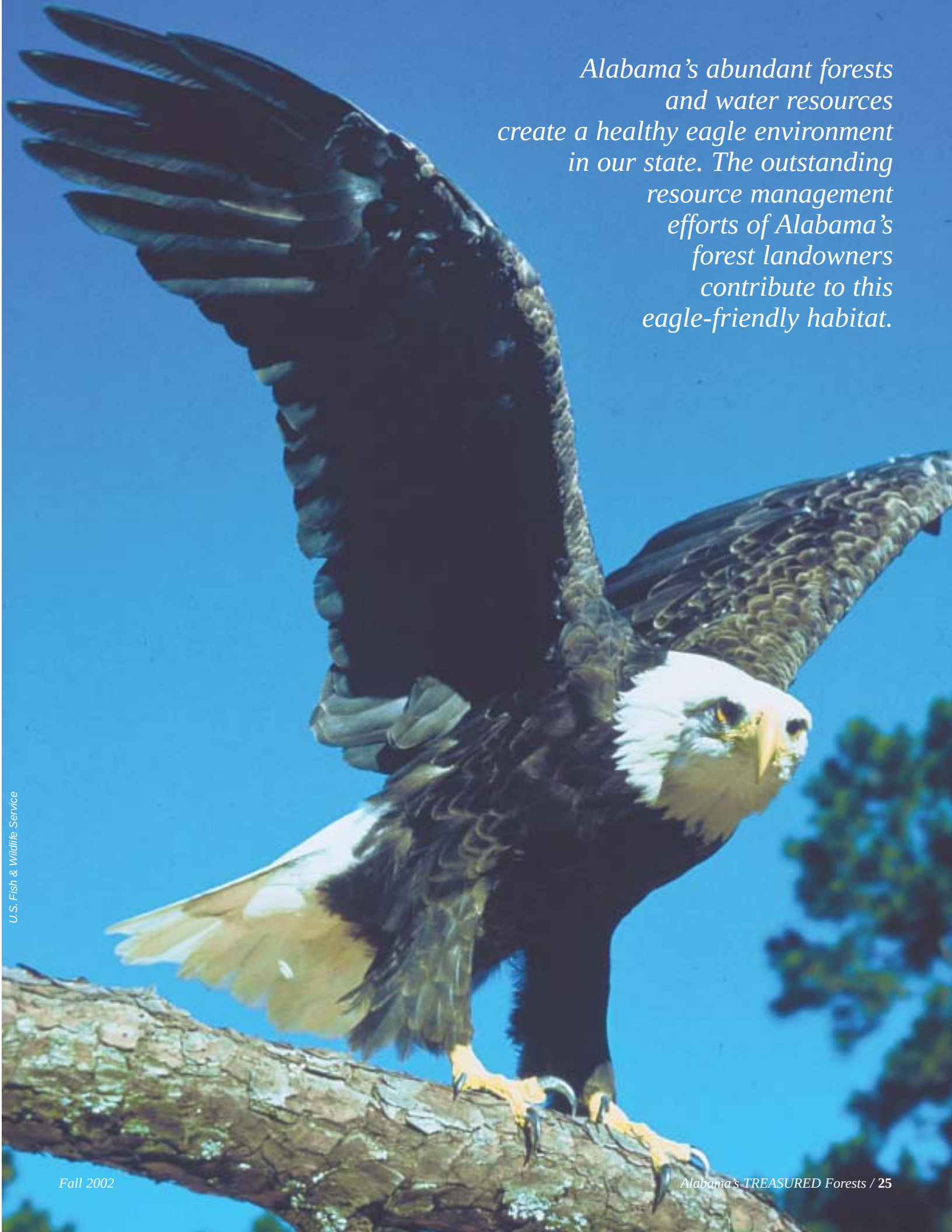
In an effort to restore a nesting population of eagles in the state, a total of 91 young eaglets were "hacked" and released each spring from 1985 through 1991 through the Alabama Non-game Wildlife Program. Hacking is a process that simulates natural nest conditions and provides releases with a minimum of human exposure.

There are now 35 nests across the state. What a remarkable story! The recovery of the bald eagle will go alongside the modern wildlife management success stories of the white-tailed deer, the Eastern wild turkey, the wood duck, and the Eastern bluebird. It is a demonstration of what dedicated conservationists, with adequate resources, can accomplish.

The majestic bald eagle is a regular visitor and attraction at Lake Guntersville State Park and the Tennessee Valley. They usually begin to arrive in November and spend the winter months in and around the park soaring the skies, fishing the reservoir, and roosting in the tall pines along the mountain tops.

Lake Guntersville and Joe Wheeler State Parks will host "Eagle Awareness 2003" during weekends throughout the month of January. This annual event which is open to the public will include a field trip to view eagles leaving the roost site, field trips to view eagles during the day, and a bird seminar highlighting various birds of prey.

Eagle Awareness dates are January 10-12, 17-19, and 24-26 for Lake Guntersville and January 31-February 2 for Joe Wheeler State Park. For more information or lodging package reservations, call 1-800-548-4553 or 1-800-ALA-PARK.



Alabama's abundant forests and water resources create a healthy eagle environment in our state. The outstanding resource management efforts of Alabama's forest landowners contribute to this eagle-friendly habitat.

U.S. Fish & Wildlife Service

Attracting Wood Ducks To Your Property

"One of Alabama's most colorful waterfowl"

By ***Ben Davis***, Wildlife Biologist,
Alabama Department of Natural Resources
Division of Wildlife and Freshwater Fisheries

One of our most colorful species of waterfowl, the wood duck, can readily be found throughout the eastern portion of the United States. In the late 1800's, this species was a victim of over-harvesting and loss of habitat. The harvesting of old-growth bottomland forests, as well as tremendous harvest pressure left wood duck populations at dangerously low levels at the beginning of the 20th century.

During the 1930's and 40's, an effort to save the wood duck was launched. Hunting regulations were put into place and artificial nesting boxes were introduced. These efforts proved to be highly successful, and today the wood duck populations continue to grow.

Wood ducks nest in tree cavities, but they are not able to excavate their own cavities. They have to depend on woodpeckers and squirrels to create a suitable nesting spot. With the older cavity-rich trees becoming harder to find, natural cavities are sometimes scarce. Fortunately, wood ducks readily adapt to artificial nest boxes.

As early as February, wood ducks may begin looking for suitable nesting spots. Boxes should be placed along the edge of creeks, rivers, ponds, and lakes. Nesting boxes may be placed on a pole in water or on dry ground. If planning to place it over water, be certain that the nesting box is located above the high water mark. If plans include mounting your box over dry land, place a predator guard around the pole to prevent animals such as raccoons and snakes from destroying the nest. *(See diagram 2.)*

When constructing a box *(diagram 1)*, rot resistant woods such as cypress or cedar are recommended. The entrance/exit hole should be four inches wide and oval or circular shaped. Hardware cloth or wire mesh on the inside under the hole will assist the hatchlings in exiting the box. Wood ducks cannot carry nesting material, so it must be provided. Wood shavings can be used as nesting material. It will help insulate the eggs during incubation.

A successful nesting box program will require yearly maintenance. Boxes should be inspected each year during January and February. They should be repaired, and unsuitable nesting material can be replaced. Predator guards should be checked annually to ensure the safety of the nesting hen and eggs.

Wood ducks are wonderful creatures and will add grace and beauty to any wetland landscape. Do what you can to help continue the efforts of providing a home for these special birds.

For more information about wood ducks contact Ben Davis, Wildlife Biologist at P.O. Box 932, Citronelle, AL 36522 or call 251-866-5015.

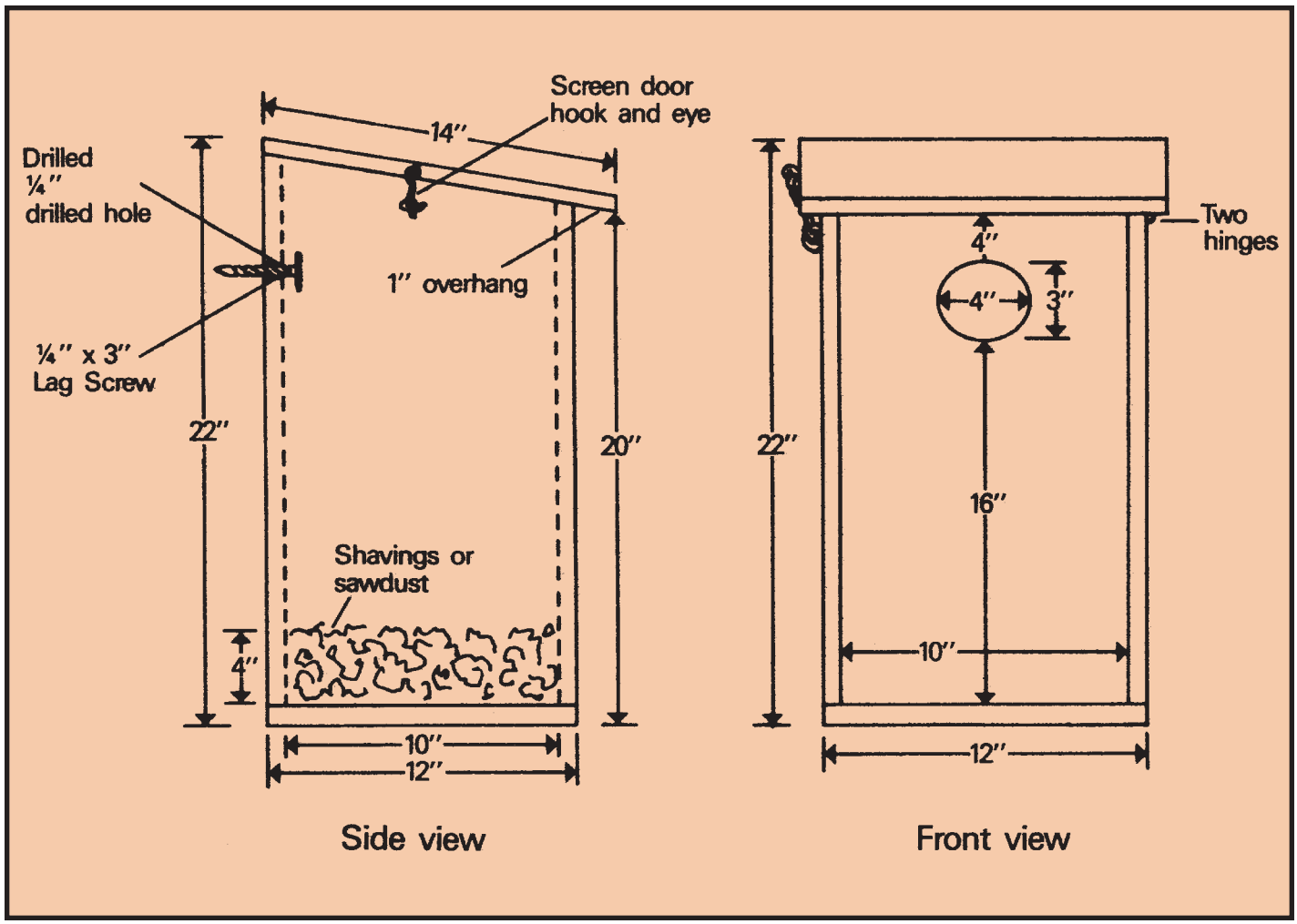


Diagram 1 *- Materials needed for constructing Wood Duck Nesting Box:*

- *1-inch x 12-inch rough cypress, redwood, or treated pine lumber (about 9-1/2 feet)*
- *3/8-inch x 3-1/2-inch hanger bolt*
- *3/8-inch wing nut and washer*
- *3-inch lag screw and flat washer (if hanger bolt is not used)*
- *2-inch screen door hook and eye*
- *Two small hinges*
- *1/4-inch hardware cloth*
- *Shavings or sawdust*

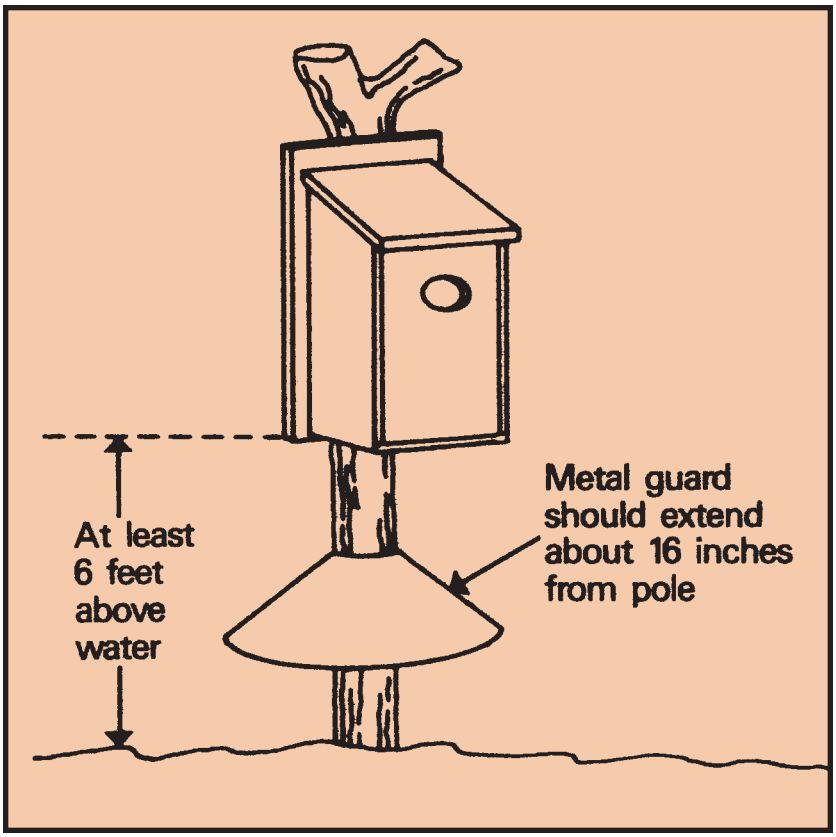


Diagram 2 *- Nesting boxes may be placed on a pole in water or on dry ground. If placing it over water, be certain the nesting box is above the high water mark. If mounting on dry land, place a predator guard around the pole.*

Buckwheat: For the BEES and the BIRDS

By ***Coleen Vansant***
Information Manager, Alabama Forestry Commission

When you talk to most landowners, they have stories to tell about their successes and failures. Some tell of experimenting with different things on their property deliberately and then some have stories of trying something new for one reason or another and *EURIKA!* . . . it became one of the best things they ever did.

This is what happened to Andy Webb of the Calvert Community in south Washington County when he planted buckwheat for his honeybees. Little did he know what a good thing it would "bee" for the birds.

Andy is the third generation owner of Calvert Apiaries – a company in the business of raising queen honeybees for commercial sale as well as bee-keeping supplies. Andy keeps between 1,400 and 1,500 production beehives and around 3,000 queen boxes. He planted a 7-8 acre field in buckwheat to give his bees flowers to work during the summer. Not only was the buckwheat a low maintenance crop for his bees, but it also attracted dove and quail to his field.

According to Andy, he purchased the original seed at the local co-op and planted the buckwheat by broadcast method early in the spring, shortly after the last frost. It takes 3-6 weeks for the plant to bloom (depending on the moisture) and 8-12 weeks for it to seed. After seeding he simply bush hogs the field down and starts over again. He has grown four crops this year.

Andy explains that this crop has been purely experimental and that he has learned a lot. For example, one of his problems has been weed control. He is going to try a site-prep herbicide treatment as well as fertilizing to grow more robust plants to choke out the weeds. "It's easy to maintain," he adds. "It's a good alternate source for bee keepers and farmers in attracting birds."

Photo by Coleen Vansant

Most Americans know buckwheat only from its use in buckwheat pancakes. But in reality it is a very versatile, easy-to-grow, short-season grain crop adapted to many regions. It tolerates poor soils and is often used as a soil-improving crop, a role it served for such notables as Thomas Jefferson and George Washington on their Virginia farms.

Buckwheat was one of the earliest crops to be domesticated in Asia. Its earliest use as a food crop was most likely in China five to six thousand years ago. It spread through Asia to Europe and was brought to the American colonies in the late 1600's.

At its peak in the last half of the 19th century, more than a million acres of buckwheat were grown in the U.S. Historically, the eastern and northern parts of the country, particularly New York and Pennsylvania, have grown the most buckwheat.

Photo by Coleen Vansant

Top: A bee feeding on buckwheat blooms.
Right: Andy Webb looks over field of buckwheat.

Today buckwheat is planted primarily as a cover crop, wildlife food, livestock and poultry feed, as well as a pollen source for bees. In England, it is chiefly cultivated to supply food for pheasants and poultry. Whole-grain buckwheat is about 11-12 percent protein. With the hull removed it increases to 15-17 percent protein with 3 percent fat.

Buckwheat is a broadleaf, herbaceous plant that flowers prolifically over a period of several weeks. The small, white flower clusters develop quickly into triangular brown seeds roughly the size of soybean seeds. The brown buckwheat grains consist of a true seed (groat) surrounded by a thick hull. Both the scientific name of buckwheat, *Fagopyrum sagittatum* (Gilib.), and its common name come from the seed's appearance, which is similar to the nut of the beech tree. The nut (or seed) has a dark brown tough rind enclosing the kernel and is three-sided in form, with sharp angles resembling the triangular Beechnut. The Dutch name for the plant is boek-weit, which means beech-wheat. Buckwheat is a member of the Polygonaceae family. A weed in the southern and western U.S. called wild buckwheat is of the same botanical family, but is a different genus and species.

Buckwheat is like soybeans in that it produces flowers in an indeterminate fashion, and flowering will occur often up to harvest or frost. At peak bloom, the green leaves of the crop canopy are almost hidden under masses of white

Buckwheat seed.

flowers. The flowers are self-sterile and must be cross-fertilized by insects or wind for seed set to occur.

The plant emerges quickly in warm soil conditions and reaches a height of 2-4 feet. It has a fairly small shallow rooting system and is not particularly drought tolerant. Buckwheat sometimes temporarily wilts during hot, dry afternoons. Branches form primarily in the upper canopy. The leaves are alternate and heart-shaped, usually 2-3 inches in length.

Only a few varieties of buckwheat are available in the United States. Most farm suppliers sell a type known as "common" buckwheat. This variety has not been maintained as genetically pure. Since buckwheat varieties are not hybrids, harvested seed can be successfully used for replanting the following year.

Buckwheat tolerates relatively poor, infertile soils better than most grains, but yields best on medium-textured, well-drained soils. It is reportedly tolerant of poorly drained soils, but should be avoided on heavy or droughty soils. It tolerates acid soils down to a pH of 5. Soils prone to surface crusting may not be a good choice since buckwheat can have emergence problems when crusting occurs.

The key to planting buckwheat is to achieve a solid, even stand which is mainly a matter of having good soil moisture and planting at an appropriate date. Buckwheat grown for purposes other than grain harvest can be planted at any date after the last spring frost. Most commercial growers do not fertilize buckwheat due to its relatively low value and modest fertility needs. However, for optimum yields, some fertilizer may be needed.

Currently no herbicides are registered for buckwheat in the U.S. Good field selection, pre-planting weed control, and establishing a uniform, dense crop canopy to shade out weeds is best for controlling undesirable weeds.

Recommended seeding rate is 50-55 pounds per acre of large seed or about 40 pounds per acre of small seed. Broadcast seeding is favorable if used as a cover crop or as a nectar source for honey production.

According to Andy, a ballpark figure for seed, fertilizer, planting, and mowing would be around $50 per acre. This figure is comparable to research from the University of Missouri that gives a commercial production cost of $35-80 dollars per acre. This estimate includes both transportation and drying and/or cleaning costs that would not be applicable to food plot use.

The buckwheat was originally planted for the bees - but the birds seem to love it too.

Other Uses for Buckwheat:

- Beer can be brewed from the grain and by distilling it can yield an excellent spirit.
- The blossoms may be used for dyeing a brown color.
- Husks can be used for stuffing pillows.

Sources:

Botanical.com at
http://www.botanical.com/botanical/-mgmh/b/buckwh81.html

University of Missouri Extension at
http://muextension.missouri.edu/xplor/agguides/crops/g04306.htm

Purdue University at
http://www.hort.purdue.edu/newcrop/Crops/Buckwheat.html.

ARE MY PINES READY TO THIN?

(Continued from page 15)

FIELD WORKSHEET

Plot. No.	Tree DBH							Total DBH	No. of Trees
								Totals	

Average Trees per acre = _____ (total # trees) x 100/10 = _____

Average DBH = _____ (total sum of DBH's) / _____ (total # Trees) = _____

Who Says Women Don't Belong in the Outdoors?

The outdoors is no place for a woman . . . or so some used to say. Those days are gone. Move over guys. The Becoming an Outdoors Woman (BOW) program is helping thousands of women discover Alabama's great outdoors.

The Becoming an Outdoors Woman program is a three-day adventure workshop for ladies only. Sponsored by the Alabama Department of Conservation and Natural Resources (ADCNR), the event offers beginner-level skills training for an array of activities ranging from scuba diving to deer hunting. The next BOW workshop is March 7-9, 2003, at the Alabama 4-H Conference Center near Columbiana in Shelby County. Registration is required and limited spaces are available.

BOW participants can choose from over 50 activities such as camping, backyard wildlife, camp cooking, map and compass, mountain biking, shooting sports (pistol, rifle, shotgun, muzzleloader), fishing, hunting, scuba diving, canoeing, nature photography, nature crafts, archery, All Terrain Vehicle (ATV) handling, motor boat handling, and more. Participants can also obtain their Hunter Education Certification and Boating Safety Certification during the weekend event.

The BOW workshop is open to females at least 18 years of age; however, attendance regularly includes senior adults. Jerry de Bin, Chief of Information and Education at ADCNR, says, "This event is very popular with women throughout the South. Participants travel from six to eight surrounding states to attend. They are wives, fiancées, mothers, sisters, and grandmothers. Although the average age of participants is 41, they routinely range in age from 18 to over 70. The fact that women come back and bring others with them is proof that the BOW program makes a difference. The most rewarding part is knowing we are helping families find ways to spend time together in the great outdoors."

Registration is $175 and covers all meals, lodging, program materials, and instruction. All demonstration equipment is provided. Enrollment is limited to 130 applicants. Classes fill on a first-come, first-served basis. To download event details and a registration form, visit www.dcnr.state.al.us/administrative/ie/-bow.html. For additional information, contact Sylvia Payne, Information and Education Section of the Alabama Department of Conservation and Natural Resources at 1-800-262-3151; e-mail at: spayne@dcnr.state.al.us; or visit the website at: www.dcnr.state.al.us.

For current information on the Southern Pine Beetle situation in Alabama, visit the Alabama Forestry Commission web page at: www.forestry.state.al.us

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Sourwood

Oxydendrum arboreum (L) D.C.

By ***Coleen Vansant***
Information Manager, Alabama Forestry Commission

The sourwood is an all-round favorite because of its all-season natural beauty. Also known as the Sorrel tree, Sour gum, and Lily-of-the-valley, it usually grows about 25 feet tall with a trunk of approximately 8 inches in diameter. In the wild it sometimes grows much larger, reaching 50-60 feet in height and as much as 20 inches in diameter. The trunk is usually straight, slender, and bears a narrow-topped crown.

It is usually found growing as an occasional tree in mixed hardwood stands on moist hillsides, ridges, and gentle mountain slopes. It is also used as an ornamental because of its beautiful flowers and bright fall foliage. The sourwood is a very slow grower.

Bark on the sourwood is rather thick, roughened by fissures separating rounded ridges covered with thin scales. It develops a blocky, alligator appearance similar to persimmon or flowering dogwood. The bark of old trunks is grayish tinged with red and resembles that of a black gum. Twigs are slender, first yellowish-green, later orange-colored, and then reddish-brown. Lenticels are numerous, oblong, and elevated.

The leaves are deciduous, alternate, elliptic, and pointed at both ends. They are thin, toothed, smooth, light green, 5-7 inches long, and resemble a peach leaf. In the autumn they change to a brilliant bright rich maroon, scarlet, or plum color. This tree grows in full sun to partial shade. The more sun it receives improves both fall color and flower bloom. When crushed the stem and leaf have a sour smell.

TREES OF ALABAMA

Flowers on the sourwood are white, fragrant, urn-shaped, in racemes, 6-8 inches long opening downward, one-sided, similar to the lily-of-the-valley flower. It blooms usually in mid-July. The fruit is a 5-halfed capsule, opening upward. The seeds are slender with awl-shaped appendages.

The trees are very decorative at any season with flowers, fruit, and foliage. The plume-like blossoms are attractive to bees and provide the choicest honey to be found anywhere.

The wood is hard, heavy, compact, and reddish-brown with lighter-colored sapwood. Historically the wood was used for making tool handles. The trunks of smaller trees were used for the runners of mule-drawn sleds in the Appalachians before wagon roads were built. Today it is used for pulpwood and firewood. Mountain folk make a black dye from the leaves.

The sourwood is well distributed over the entire state of Alabama, from north Florida to Louisiana, and north to Indiana and Pennsylvania.

The Alabama champion sourwood is located in Coosa County. It has a circumference of 70.5 inches, a height of 73 feet, and a crown spread of 40.7 feet for a total point value of 153.68. Amelia County in Virginia is the home of the national champion. It is 132 inches in circumference, 95 feet high with a crown of 70 feet for a total point value of 245.

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