

Alabama's TREASURED Forests

An Alabama Forestry Commission Publication

Summer 2009



A MESSAGE FROM THE STATE FORESTER

Alabama is at a critical junction in protecting its natural resources for the future. At this point, cogongrass, one of the world's most aggressive non-native invasive species, has been identified in 32 of our 67 counties, but it is very likely that this noxious weed or its seed exists throughout the state. The extent of the current infestation is truly epidemic in the southwest part of the state and rapid advancement north is not conjecture, but reality. Given the fact that cogongrass has no natural or significant biological control agents to deter spread, the plant's ability to expand beyond the state's boundaries and the propensity of the plant to overwhelm and eliminate other native vegetation, drastic measures are justified in order to prevent ecological and economic disaster.

On another front, because of the diverse values of longleaf pine forest, its restoration has become an important point of focus for the forest conservation community. Longleaf pine forests once covered a vast range from Texas to Virginia. Since that time, this forest has been reduced to three percent of historical acreage due to conversion to other land uses and forest types. Longleaf pine forests are highly valued for their resistance to damage by insects, diseases, wildfire, and storms, and for their yield of high quality wood products, biological diversity, and beauty. In addition, research suggests that longleaf pine forests may be highly adaptive to anticipated effects of climate change, as well as being capable of sequestering higher amounts of carbon than alternative forest types.

In May 2009, the Alabama Forestry Commission (AFC) received word that the agency was receiving two grants addressing both of the above issues. These grants were funded by the American Recovery and Reinvestment Act (ARRA). To be consistent with the purpose of the ARRA, the vision of job creation and economic stimulus was of paramount concern as programs were developed for both grants.

In one of the single largest grants awarded in the Southeast, the AFC was allocated \$6.281 million to begin the task of controlling cogongrass. This grant will be administered by the AFC, working in cooperation with the Alabama Task Force on Cogongrass within the context of the 2008 Cogongrass Memorandum of Understanding. The focus of the entire program will be to benefit landowners and citizens of Alabama by implementing various strategies utilizing qualified Alabamians equipped with American-made tools and products. To be as efficient as possible while generating the most possible jobs, a balance between utilizing hand labor and heavy machinery was considered a viable and reasonable option in the development of an operational plan. As cogongrass infestations vary in scope across Alabama, the strategy for control of the plant will vary as well.

A second grant in the amount of \$1.757 million was awarded for the Regional Longleaf Pine Restoration Initiative.

Development of work priorities under this grant also included consideration of job creation and retention. Under this program, state forestry agencies in Alabama, Georgia, Florida, South Carolina, and North Carolina are putting Americans to work restoring these valuable forests. Activities include restoring longleaf pine on state owned and private lands (including Geneva, Choccolocco, Little River and Baldwin State Forests, as well as Barbour County WMA); increasing production capacity of longleaf pine seed, seedlings, and native understory plants; coordinating efforts across broad partnerships; and providing educational materials and training to the public and staff. This work is helping to restore a great American ecosystem while creating jobs for contractors and laborers involved in tree planting and forest improvement work, nursery workers, conservation planners and coordinators, media specialists, and educators. Because needs in each state far exceeded available funding, total funding was divided equally among the five states after regional needs were funded off the top.

It is generally recognized that seed and seedlings are and will remain a bottleneck to the overall effort to restore the longleaf ecosystem. By utilizing a significant amount of the grant on State Forests managed by the Alabama Forestry Commission, the agency has the opportunity to increase significantly areas where native longleaf cones can be commercially collected. Additional benefits include enhancing esthetics, access, wildlife habitat, threatened and endangered (T&E) habitat and public recreation on these State Forest lands. In addition to the focus on cone production, the AFC will regenerate significant acreage to longleaf on public lands also being managed for multiple use including timber management, recreation, wildlife habitat and forest health. Other projects will include assistance to landowners interested in longleaf restoration and educational workshops targeted for landowners and consultants.



Linda Casey,
State Forester

Linda Casey

Alabama's TREASURED Forests

Vol. XXVIII, No. 2

Summer 2009

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On the Cover: Spectacular whitetop pitcherplants (*Sarracenia leucophylla*) and grasspink orchids (*Calopogon tuberosus*) among the longleaf pines at Splinter Hill Bog in North Baldwin County. For a related story on pitcher plant bogs, see page 19. *Cover Photo by Fred Nation*

Background this Page: Luscious ripe blackberries grow at an Alabama TREASURE Forest. See story on page 26. *Photo by Colin McRae*

Alabama's TREASURED Forests (ISSN 0894-9654) is published three times each year by the Alabama Forestry Commission, 513 Madison Avenue, Montgomery, AL 36130. Telephone (334) 240-9355. Bulk rate postage paid at Montgomery, Alabama. POSTMASTER: Send address changes to: Alabama's TREASURED Forests, P.O. Box 302550, Montgomery, AL 36130-2550. Website: www.forestry.alabama.gov

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RECLAIMED TREASURE: A JOINT VENTURE

*By Joel D. Glover, Certified Wildlife Biologist
Alabama Wildlife Federation*

The Banks Lodge property in Walker County has a long and varied history. The conversion from row crops to coal mines to a thriving TREASURE Forest has been a joint venture between landowners and agency personnel. The result has been a true success story as well as benefit to many in Walker County.

Brothers Frank, Henry, and Neal Banks grew up working the fields on the family farm in the Pleasant Grove community. Cotton, corn, hay, and various vegetables were tended using horses in the fertile bottoms along Lost Creek. "It was a good place to grow up," said Frank Banks. Not only did the hard work in the fields cultivate a rich work ethic, but firm family values were rooted there as well. Reaching the

age when young men leave home to carve out their own lives, the brothers each left the farm in search of vocations. Henry found a career with Alabama Power Company, Neal was

employed with the Chevron P&M Coal Company, while Frank worked with the Alabama Department of Public Health. Although their careers took them physically away from the farm, their hearts never really left. As Ulysses and Jewel Banks grew older, farming the fields was no longer an option and the decision was made to sell the property to a mining company. Soon the property was strip mined.

After being away for many years, the Banks brothers decided to exercise a buy back option, purchase the property from the company, and begin the reclama-



Brothers Neal, Frank, and Henry Banks receiving their TREASURE Forest sign from then-Walker County Forester, Dan Jackson.



Frank Banks with an 11-point buck taken on the property, which the brothers planted mostly in pine timber following the reclamation. They also planted red clover and chufa, so plenty of deer and wild turkey roam the land.

tion process. With no background in land reclamation or natural resource management, they realized they would need assistance. The stage was set for a true joint venture.

Obviously the first step toward restoration would be to begin the reclamation of the mined areas. The brothers were fortunate that the project would be handled by one of the best reclamation scientist in the country, Jim Kitson, a field supervisor for the Walker County Soil and Water Conservation Reclamation Department. Having overseen the reclamation of thousands of acres and taking pride in a successful project, Jim directed the task on this property which was completed in phases.

For more specific natural resource management information, the family turned to the state for assistance. Frank Banks said his first meeting with ADCNR Wildlife and Freshwater Fisheries Division Wildlife Biologist Kevin Pugh lasted for four hours with him taking notes the entire time. He said he thought this was a tremendous amount of information until he received his voluminous timber management plan from then Walker County AFC Forester, Dan Jackson. Armed with the recommendations from these two professionals, the Banks property was now on the path to TREASURE Forest.

Although the brothers selected timber and wildlife as the primary and secondary objectives for their property, they soon realized – as many landowners do – their objectives were expanding to include recreation and education as well. To meet these objectives, they contacted Alabama Extension System County Coordinator Danny Cain to assist with a fishpond and other aspects of the property. Later, NRCS District Conservationist Amber Johnson was contacted to provide guidance on the prop-

(Continued on page 6)

Jim Junkin, staff forester with the Alabama Forestry Commission, discusses prescribed burning at one of the various stops along the 2009 Walker County Land Management Tour on the Banks TREASURE Forest.



Reclaimed TREASURE: A Joint Venture

(Continued from page 5)

erty. The brothers continued to implement the recommendations of the resource professionals and soon the property was taking shape, meeting the objectives of the owners. Today the property is producing quality timber as well as outstanding recreational activities. To say the project was a success would be a gross understatement. As Jim Kitson commented during a recent landowner tour of the property, "When someone can harvest timber from a reclaimed property, it was a job well done."

Anyone would be hard-pressed to recognize that this property was strip mined less than two decades ago. Alabama Forestry Commission Forest Ranger/Technician Bartley Wyers was recently quoted as saying, "It is amazing to come here and see the difference good land management makes."

The Banks property continues to be well managed. Along with Forest Rangers Jesse McDonald and Jason Berry, Wyers and staff forester Jim Junkin recently conducted a prescribed burn on the property. As part of the landowner tour, Junkin explained how prescribed fire is one of the most economical yet beneficial practices that can take place on a pine stand. Not only does the burn return nutrients to the soil for the trees, it also scarifies seeds that germinate and provide vast amounts of forage for wildlife. Wyers explained to the group that the goal of the Alabama Forestry Commission is to protect and sustain our forest resources by using professionally applied stewardship principles and education. He went on to say that the Banks brothers are the epitome of TREASURE Forest landowners in that they not only manage the property well, but also pass on the land ethic to future generations, thereby ensuring that Alabama's forests will continue to provide abundant timber, wildlife, clean air and water, and a healthy economy for years to come.

Frank Banks said that although the reclamation of the property from strip mine all the way to TREASURE Forest had been a lot of work, it had been a labor of love, and the family was happy to be able to share it with others. This family has indeed been gracious in sharing the property by hosting many different outdoor events. The Walker County Forestry Planning Committee members have worked with the Banks family, using the property to educate and motivate others in the community. During the recent tour held on the property, Mr. Banks stated that



"This land means something to the Banks family and they're doing everything they can to take care of it," according to Jim Kitson, field supervisor with the Walker County Soil and Water Conservation Reclamation Department who directed the project. Working a land management plan such as TREASURE Forest will leave something behind to be enjoyed not only by their children and grandchildren, but future generations as well.

the family had been truly blessed and they had to give the LORD the credit for what had occurred there.

Being privileged to take part in the recent tour, I came away thinking that more than a piece of property in Walker County had been reclaimed. I saw a family rightfully filled with pride over their accomplishment, yet giving the credit to the ultimate resource manager, the LORD above. I also saw agency personnel with a sense of true accomplishment in that their recommendations had been put into practice and had produced the desired outcome. I witnessed children running and playing in a forest without another care in the world. I saw multiple agencies and organizations come together on a rainy day to provide something worthwhile to area landowners. All of these things are TREASURES worth reclaiming.

There is a true TREASURE in Walker County and other counties throughout this state. If you would like to visit a TREASURE Forest, or better yet, create one of your own, go to www.aces.edu/forestry/anrc/ and locate one of the member agencies of a forestry planning committee in your county. Tell them you want to get to work creating a TREASURE Forest. You'll be glad you did. ☮

Defensible Space Contracts Initiative

to Protect Homes from Wildfire

By Stanley Anderson, Protection Division, Alabama Forestry Commission

Myrtle Beach, South Carolina, and Santa Barbara, California, are just two cities recently in the news where wildfires have destroyed dozens of homes and businesses. Although it seems far away, in reality Alabama also has dozens of communities and cities that are classified “at risk” for damage or destruction from wildfire.

The Southern Wildfire Risk Assessment has identified areas in Alabama with a high susceptibility for wildfire. Current research indicates that 803 communities in the state are at high or very high risk from wildfire while 6,683 communities are at moderate risk.

From 2004 through 2008, Alabama experienced over 17,700 wildfires burning more than 247,000 acres. Unfortunately trees were not the only victims. During the past five years, 212 homes have been damaged or destroyed from wildfire in the state. Another 736 other structures, as well as 806 vehicles burned as a result of wildfire during this time frame. State Forester Linda Casey recently commented, “We believe homes damaged or destroyed by wildfire are simply unacceptable, especially if such tragedy can be prevented.”

The Alabama Forestry Commission has embarked on an initiative to encourage homeowners living in the wildland urban interface (WUI) to increase their home’s defensible space. The initial release of 300 defensible space contracts to the field WUI Specialists took place on March 31, 2009. These cost-share con-

tracts will provide up to \$1,000 to individual homeowners to help cover their costs in mitigating vegetative hazards around their homes.

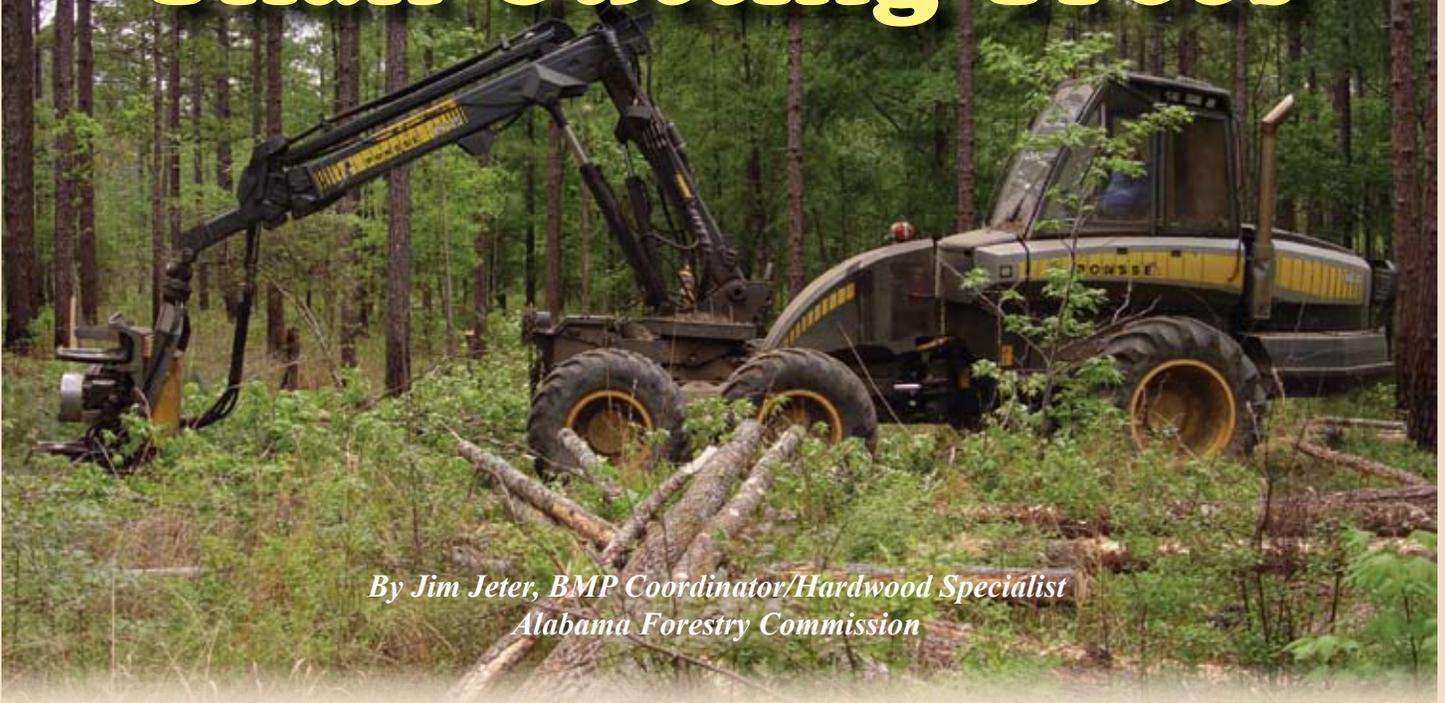
With more and more people moving and living in the rural areas of our state, the AFC and local fire departments are facing new and difficult issues in providing adequate fire protection. The threat from wildfire is very real and there are no guarantees that there is the capability to protect all homes, particularly during periods of high fire occurrence and extreme weather conditions. However, by taking the personal responsibility for reducing hazards around their property, homeowners may substantially reduce the risks from damages to their homes caused by wildfire.

Where possible, the AFC will provide cost-share programs to help with the expenses related to hazardous fuel reduction in wildfire prone communities and other priority areas covered under community wildfire protection plans.

Professionals with the Alabama Forestry Commission have the training and experience to guide homeowners through the process of hazard reduction on their property. Additional information can be found by going to the Commission’s website, www.forestry.alabama.gov and clicking on the link, “Homes, Communities in the Forest,” or contacting your county AFC office. ☝



Timber Harvests: More Than Cutting Trees



*By Jim Jeter, BMP Coordinator/Hardwood Specialist
Alabama Forestry Commission*

Getting the most money shouldn't be the only objective of a timber sale. Future productivity of the land and protection of sensitive areas such as streams, young timber stands, and erodible soils should be equally important to the landowner.

The forest landowner not only has an ethical responsibility to be a good steward of the land, but bears a legal responsibility to protect the environment. At present, the landowner shares the liability of protecting water quality and endangered species with the logging contractor, the consultant forester, and other involved parties.

A timber harvest is the culmination of many years of growth and should be held in high regard. If the harvest is done properly, with an eye to the future, the landowner can profit from the sale and equally important, the site will be protected for the next reforestation effort.



Unfortunately, forest landowners are not always prepared to make a wise timber sale. Most people sell timber only once or twice in their lifetime and are unaware of the problems that can arise from a poor harvesting operation.

Each year many forest landowners receive a healthy check for their timber, yet are angry with the resulting condition of their property after harvest. They find the land damaged to the degree that they are not only upset with its appearance, but also face a major investment to reclaim it into productive, healthy forestland.

Often adjacent landowners are affected by a poor harvesting job, too. Downed fences, opened gates, road damage, and litter are the most common complaints of neighboring landowners when the harvesting operation is not carefully planned.

Most logging contractors do a good job of harvesting trees with a minimum impact on the environment. However, special attention to detail takes time, so the contractor giving you the highest price is not always the one who will do the best job.

Generally, there are two ways a landowner receives payment for harvested timber: lump sum and per unit basis.

A lump sum payment is when the landowner receives one large payment before the timber is harvested. This method is usually associated with a closed bid system where all bids are opened at one time and the highest bidder is awarded the sale. Landowner refusal rights should be included with the request for bids.

The lump sum payment method usually yields the highest dollar value for the timber and eliminates the landowner's concerns about how the timber is to be merchandized.

Merchandizing refers to the sorting of the timber into pulpwood and sawtimber categories while in the forest.

In a unit basis payment method, the landowner receives a set sum of money for each cord (or ton) of pulpwood and/or each thousand board feet (or ton) of sawtimber as the timber is harvested and delivered. Payments are usually made on a weekly basis. Merchandizing of the timber plays a very important role in this system.

The best practice for all parties is to put the timber sale agreement in writing. A simple contract would include identification of the seller and buyer, location and description of the timber being harvested, the value of the timber, and the method of payment.

Several other considerations to address when writing a timber sales contract are as follows:

- A requirement that all logging be conducted in accordance with the Alabama Best Management Practices (BMPs) should also be included. A booklet on BMPs is available at no charge from your local Alabama Forestry Commission office. You can also download a copy of *Alabama's Best Management Practices for Forestry* by visiting the Alabama Forestry Commission website at www.forestry.alabama.gov/Publications/BMPs/2007_BMP_Manual.pdf. To view a video on best management practices go to <http://media.alabama.gov/Video.aspx?v=234&a=106>.
- "Performance Fund" – a substantial amount of money given to the timber owner by the buyer to ensure that the conditions of the timber sale are met. Upon successful completion of the job, the performance fund is returned to the buyer.
- Species to be cut, allowable tree size, and trees to be cut will be designated.
- Provisions for removal of litter and other waste after the harvest.
- Penalty for cutting non-designated timber and/or not cutting designated timber.
- Duration of agreement and when the logging should start and stop.
- Provision for payment of severance taxes.

Forest landowners should always consider seeking professional assistance when preparing to harvest timber. A professional forester can determine the amount and actual value of the timber. A tax accountant familiar with forestry taxes can direct timber sale income and reforestation expenditures to reduce the tax burden.

An attorney experienced in timber sale contracts can ensure that the best interests of both parties are represented. Often a professional forester can assist the attorney and/or accountant in forestry-related areas.

A successful timber harvest benefits both the landowner and the land. The landowner receives the financial and environmental rewards of responsible forest management, and the land is protected and preserved for future generations. ♻️

Suggested Items to Include in a Timber Sale Contract

1. Name and address of buyer.
2. Date contract is executed.
3. Specific description of timber to be sold and cut:
 - a. Species included and excluded.
 - b. Minimum size allowable for cutting.
 - c. How trees to be cut will be designated, if they are to be marked.
 - d. Whether timber becoming merchantable during the removal period will be cut or only that timber which is merchantable on date of sale.
4. Exact location and legal description of the timber sale area. If corners and boundaries are to be marked, state at whose expense marking will be done.
5. Declarations of the seller's ownership and right to convey. This may include a title abstract and title insurance.
6. Provision for buyer's entrance into and exit from the property. Include what timber can be used for logging purposes, such as bridge building.
7. Care required of buyer towards other property of seller.
8. Method of logging to be employed.
9. Statement that all logging should be done in accordance with Alabama's Best Management Practices.
10. Penalty for cutting non-designated timber.
11. Penalty for not cutting designated timber.
12. A provision to require one area to be completely logged before another area is begun.
13. Fire protection clause.
14. Method and place of scaling and measurement.
15. Price basis, to include method and terms of payment.
16. Duration of agreement.
17. Provision for when logging should begin and end.
18. Provision for or against renewal of contract.
19. Clause for arbitration.
20. Utilization provisions for stump height, top diameter, etc.
21. Ownership of by-products.
22. Provision for payment of severance taxes.
23. Statement of who suffers the loss if timber is destroyed or stolen after execution of contract.
24. Provision for or against assignment of the contract.
25. Signature of both parties.
26. Notarization of the contract.
27. Recording of the contract at the county courthouse.

Sources: Richard W. Brinker, Dean and Professor, School of Forestry & Wildlife Sciences, Auburn University; and Charles F. Raper, former Professor, School of Forestry & Wildlife Sciences, Auburn University.

Declining Loblolly Pine Stands: Symptoms, Causes, and Management Options

By Lori G. Eckhardt, Forest Health Dynamics Laboratory, School of Forestry and Wildlife Sciences, Auburn University; and Roger D. Menard, Forest Health Protection, U.S. Forest Service

By the early 1960s over 1.9 million acres of pine plantations had been established on private lands in the south as a result of both the Conservation Reserve Program and an increase in industrial forest management in the region. Because of its rapid growth and ease of establishment, loblolly pine (*Pinus taeda* L.) quickly became the commercial tree species of choice for southern forestry. However, as time passed, reports of declining loblolly health began to be reported throughout Alabama and the South. Symptoms included trees with short, yellow-green needles, sparse crowns, and reduced radial growth at approximately 40-50 years of age. Mortality usually occurred two to three years after symptoms appeared. Early recommendations were to reduce rotation age of loblolly pine from 70 to 60 years on these sites, maintain a basal area of 60-70 square feet per acre, and convert these stands to longleaf pine (*Pinus palustris* Mill.), the historic tree species in much of the area.

Pine decline, or die-back, continues to impact forest stands. Loblolly pine is currently planted on 80 percent of all southern pine plantations, and is the primary forest type on almost 7 million acres of forestland acres in Alabama. Therefore it is very important that landowners are aware of symptoms and causes of pine stand decline, as well as management options, should their pine stand begin to show signs of decline. Although there are many factors that can affect forest tree health, declines have been associated with soil and weather conditions, deterioration of fine roots, root-feeding insects, and

the presence of fungi such as *Leptographium spp.* in the primary roots. Fire history, previous agricultural practices, lower vegetation density, and landform are factors that are also associated with declining trees.

Symptoms

Symptoms expressed by declining loblolly pines include sparse tree crowns with heavy cone crops, and short, yellow-green needles (figure 1). Trees also often have limited stem

diameter growth.

Unlike mortality caused by southern pine beetles (*Dendroctonus frontalis* Zimmermann) – where trees are attacked in groups, pitch tubes are visible on the stem of the tree, and trees usually die within a few months – mortality on declining stands appears to be more random in nature often impacting individual trees across the stand. Decline symptoms occur primarily in trees above 30 years of age, although trees as young as 12 years of age may also be affected. Mortality can occur within as little



Figure 1. Declining loblolly pine

as two to three years after the first expression of symptoms. Symptoms expressed by loblolly pines declining on upland sites may be confused with littleleaf disease. However, littleleaf disease primarily affects shortleaf pine (*Pinus echinata* Mill.), and site conditions associated with these trees are different.

Potential Causes of Declining Tree Health

Site Conditions - One way to determine if a southern forest stand is at risk for several root diseases is by evaluating soil and

site characteristics. For example, deep, well drained soils are associated with annosum root disease, and, poorly drained, heavy clay soils with littleleaf disease. However, soils on sites where pine decline has been observed are predominately sandy loam, loam, or sandy clay loam, and are moderately well-drained to well-drained (figure 2). Soil nutrient levels may also differ between sites hosting healthy versus declining loblolly pine. Some studies have suggested that low levels of soil nitrogen may lead to stand dieback.



Figure 2. Soil characteristics, moderately well-drained soil.

Disturbance/Stressors - Ongoing research also suggests that disturbance history of affected sites appears to have significant effect on the expression of decline. Fire regimes, wind events, drought, and a variety of other stress factors likely play major roles in causing premature decline of trees (figure 3). Soil and root disturbance caused by silvicultural treatments such as thinning can also hasten decline. In addition, areas with a past history of farming and subsoil hard-pan may be more susceptible. Effects may be direct such as physical injury and stress, or indirect including increased attraction of, or susceptibility to secondary insects such as the bark beetles (*Hylastes* spp.). However, the exact roles and possible interactions among disturbances, fungi, and associated insects in the premature decline of loblolly pine remain unclear, and are still being researched.

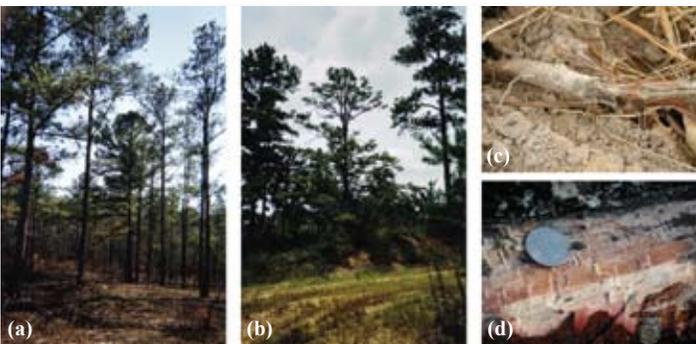


Figure 3. Examples of disturbance which affect tree vigor: (a) fire; (b) erosion/compaction; (c) hog rooting; and (d) root feeders.

Forest Pest Association - Four *Leptographium* species of fungi have consistently, and frequently, been recovered from the roots of declining southern yellow pines (loblolly, shortleaf, and Summer 2009

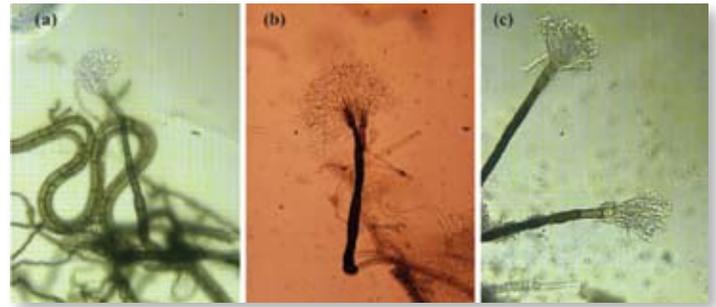


Figure 4. Three examples of *Leptographium* species: (a) *L. serpens*; (b) *L. terebrantis*; and (c) *L. procerum*.

longleaf pines) (figure 4): *L. procerum* is consistently recovered from deteriorating fine roots and primary roots while *L. terebrantis*, *L. serpens*, and *L. huntii* are only recovered from primary roots.

Leptographium species are commonly associated with various species of root-feeding bark beetles, which attack stressed trees. Therefore, bark beetles may serve as vectors introducing these fungi into tree roots or as wounding agents creating infection courts, which permit the infection by these fungi.

The predominant root-feeding insects associated with an increased incidence of *Leptographium* spp. fall in two groups: root weevils (*Hylobius pales*, *Pachylobius picivorus* and possibly others) which consistently carry *L. terebrantis* and *L. procerum*; and bark beetles (e.g., *Hylastes salebrosus*, *H. porculus*, *H. tenuis*, *H. opacus*, *D. terebrans*, and possibly others) that are often associated with *L. terebrantis*, *L. serpens* and *G. huntii* (figure 5). Both groups may introduce fungi into wounds on the roots, and the bark beetles may also spread fungi during feeding and gallery construction.

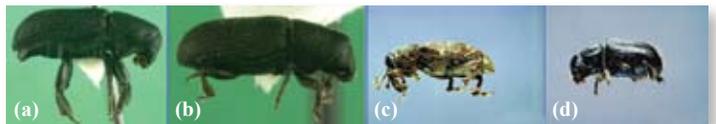


Figure 5. Vector insects of *Leptographium* species: (a) *Hylastes salebrosus*; (b) *Hylastes tenuis*; (c) *Hylobius pales*; and (d) *Dendroctonus terebrans*.

Management Options

As a landowner, there are management options to help prevent and manage stand decline on your property. Although there is little that can be done to treat forest pests such as *Leptographium* directly, by following basic management guidelines you can potentially increase stand health and prevent or limit attacks by forest pests.

Prevention on Existing Sites

- Limit equipment entry to sites – Especially in wet months, limit the use of heavy equipment on your property to prevent soil and root compaction. Also, be sure that you have a good timber management/harvesting plan that outlines location skid trails as well as location and size of log landing sites, both of which can cause increases in soil compaction.
- Consider fertilization – Although it can be expensive, fertilization of your high-risk sites can pay off in the end.

(Continued on page 12)

Declining Loblolly Pine Stands

(Continued from page 11)

Contact your local Alabama Cooperative Extension System agent to have your soil tested for nutrient deficiencies.

Establishing New Stands

- Subsoil during site preparation – Because past management practices can cause soil compaction on decline-susceptible sites, subsoiling as part of your site preparation can help break up hard-pans and increase soil permeability.
- Consider other pines - Initial studies suggested planting pine species other than loblolly on past decline sites. One pine to consider replanting on upland sites is longleaf. Longleaf pine, while less common than loblolly pine across the southeastern United States, is better adapted to anthropogenic disturbance. Longleaf pines tend to exhibit less decline and susceptibility to both environmental and forest pest-related stress. It is important to remember that no tree species is completely immune to stress and disease, but when planted on proper sites, chances for success are much greater.

Managing Stands in Decline

- Reduce rotation age – Maximum rotation age of loblolly pine in high-risk areas should be limited to age 40.
- Stands greater than age 40 – Stands in this age class that are showing signs of decline should be clearcut harvested and converted to longleaf or other appropriate species.

- Stands 25-40 years old – These stands should be select thinned using a salvage harvest to remove scattered diseased/dying trees. Fertilization may also increase the productivity of these stands.
- Stands 15-25 years old – Keep these stands healthy using a typical management regime of thinning and fertilization. Limit soil compaction of equipment by reducing number of passes across the site when thinning.

Summary

Loblolly pine is currently planted on 80 percent of all southern pine plantations, and landowners continue to be impacted by loblolly decline on their forests. Dieback and premature decline of southern pines is a serious problem that deserves urgent attention. It is likely to be associated with interactions among many factors, with the key factors listed in this article. Active management and careful monitoring of forest stands should help landowners detect pine decline early and therefore mitigate the effects on their forest investment.

Current studies are focused on site factors and stressors which may play a role in preconditioning pines to these reported problems, as well as the effects on southern pines. More research is needed to determine host-insect-fungal interactions and relationships between disturbance and silvicultural activities. 🌲

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Alabama's FIA Crew Leads the Way in Quality

*By Brian Hendricks, FIA Coordinator,
Alabama Forestry Commission*



The Alabama Forestry Commission has had crews collecting forest resource data for the Forest Inventory & Analysis (FIA) project since the spring of 1997. FIA has gone through many changes in the last 12 years including the type of data that is collected, the type of data



recorder used, and the addition of GPS units for assisting in identifying plot locations. There was even a 50 percent reduction in the work force – from ten crew leaders in 1997 to the current five crew leaders. However, one thing has remained constant over the last 12 years, and that is the high quality of data that Alabama's crew leaders collect. Despite frequently having to work in adverse conditions, the FIA crew as a whole consistently receives high marks

when they have their work checked by Quality Assurance personnel from the US Forest Service.

I am proud to announce that not only did the FIA crew receive high "check plot" scores for the first two quarters of Fiscal Year 2009, but they also had the highest check plot score Summer 2009

average of all 13 states in the Forest Service's southern region. Alabama's 97.44 percent average score narrowly bested the 97.34 percent score of East Texas.

After working over six years as a crew leader, I can attest to the fact that collecting quality data day in and day out is a significant achievement. So many days a crew leader is working in conditions that are physically and/or mentally severely challenging. When a crew leader is being cut up by briars, wading through a chest-deep cypress swamp, or traversing 50 percent slopes all day long, it can be extremely difficult to maintain focus on the data one is supposed to be collecting. Collecting high-quality data consistently on a daily basis, and in all kinds of working conditions, is truly remarkable.

The five current FIA crew leaders – Josh Angel, Wendell Atkins, Rickey Fields, Jerry McGhee, and Adam Ziegenbein – do an outstanding job. Not only do they collect high-quality data, but they also work very hard. Since 2003 when I became the FIA Coordinator, the crew has completed its yearly allotment of FIA plots ahead of schedule. I am very fortunate to have a crew as good as these five men and I commend them for the fantastic job they do! 🙏





Sustainable Forestry Initiative

What is it and what does it mean to me as a private forest landowner?

*By Jim Jeter,
BMP Coordinator/Hardwood Specialist
Alabama Forestry Commission*

The Sustainable Forestry Initiative (SFI) program is based on the premise that responsible environmental behavior and sound business decisions can co-exist to the benefit of landowners, manufacturers, shareholders, customers, the people they serve, the environment, and future generations.” This explanation was given by John Quilliam of MeadWestvaco in Volume 6 of the Green Horizons brochure. To further explain the basic foundation of SFI, one must start with a global mindset. Sustainable Forestry Initiative participants practice responsible forestry on the lands they manage as well as influence millions of additional acres in North America and globally through certified procurement programs. These programs include measures to acquire wood from known and legal sources, keep our waters clean and fresh, and conserve biological diversity, among other things.

All forest landowners play a critical role in ensuring the long-term health and sustainability of forests. The SFI program stands apart from other forest certification standards by addressing the fact that 90 percent of the world’s forests are not certified. The program accomplishes this through procurement objectives requiring that all program participants — both those who own or manage forest lands and those who buy the raw materials they need — promote responsible forests by sharing management and stewardship knowledge when they buy fiber from lands that are not certified. One example of this type of certification would be called “Fiber Sourcing Certification.” Fiber Sourcing Certification means a company has verified that at least 66 percent of their wood supply comes from an SFI-certified procurement operation. This certification comes through a process called “Chain of Custody” (COC). This is the process that allows companies to make claims on how much of their product comes from certified lands, recycled content, and non-certified lands. COC basically tracks the handling of raw material from stump to end product.

Demand for products from responsibly managed forests is increasing worldwide. Because of this demand, a growing number of companies are demonstrating their environmental commitment through certification to the SFI program. This will allow them to meet the increasing market demand for environmentally friendly products, which is good for both these companies as well as those who sell raw materials to them. This is not only important on a local scale but also on a global scale.

What does this mean to me as a private forest landowner? Right now, maybe not much. But as more companies and mills implement COC and become Fiber Source Certified through an independent third-party audit, they will have to buy more raw materials from landowners that have been "certified" by a third-party legitimate certification program. 

American Tree Farm System Recognizes Alabama's Forest Stewardship Plans as Meeting Certification Requirements

The Alabama Forestry Commission (AFC) and the American Tree Farm System® (ATFS) recently announced that ATFS certification universally recognizes Alabama's Forest Stewardship Plan as meeting management planning requirements for family forest landowners.

"ATFS recognition of Forest Stewardship Plans will not only expedite the process for Alabama landowners interested in being Tree Farm certified, it will also allow landowners the opportunity for third-party certification, which is required for emerging markets such as biomass energy and carbon sequestration," said Linda Casey, Alabama State Forester.

Bob Simpson, senior vice president of American Forest Foundation, the ATFS program's parent organization, echoed these sentiments. "This recognition will open the door to many types of opportunities for Alabama family forest owners seeking affordable certification of their forest management."

Previously, each individual Forest Stewardship management plan still needed to be reviewed and evaluated for approval into the Tree Farm program. Today's announcement provides programmatic level approval for landowners who are enrolled under the Alabama Forest Stewardship program.

The Forest Stewardship plan is designed to assist landowners who want to become more active in planning and managing their forests. The plan defines a landowner's objectives and outlines an action plan to achieve their goals while maintaining and enhancing forest resources. Having a management plan greatly increases the likelihood that their forests will remain intact, productive, and healthy, and that the

social, economic, and environmental benefits of these lands will be sustained for future generations.

Alabama's Forest Stewardship program is a primary tool to assist landowners in the management of their property. Under the Stewardship program, over 4,000 landowners were assisted in 2008 positively impacting 316,000 acres. Forest Stewardship plans are a main component of the program and are available to qualifying landowners without charge by contacting the Alabama Forestry Commission. As many as 1,700 Alabama forest landowners with nearly 1.5 million acres will benefit from this agreement. 



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To register contact Jackson County Extension Office (256) 574-2143 before October 2	To register contact Autauga County Extension Office (334) 361-7273 before October 2	To register contact Crenshaw County Extension Office (334) 335-6312 before October 16

Sponsored by Alabama Forests Forever Foundation, the Alabama Natural Resources Council, and the Alabama State Tree Farm Committee



GREEN INFRASTRUCTURE

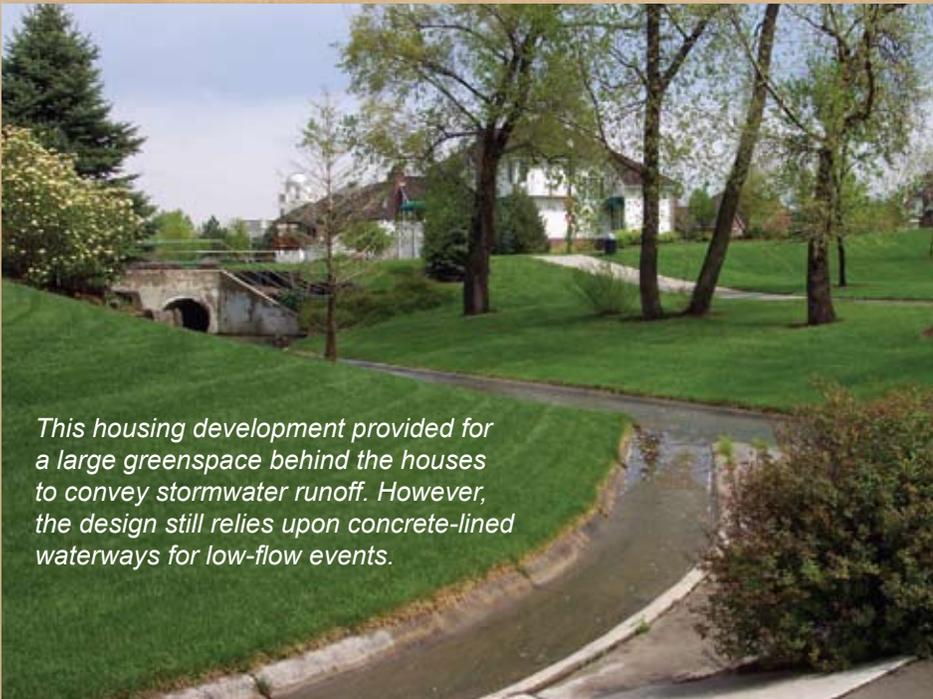
Approaches to Development

By Dr. Greg Ruark, Director, USDA National Agroforestry Center

Agricultural and forest lands are being converted to residential and commercial developments at an alarming rate. In the U.S. an estimated 1,920,000 acres of rural land is converted to residential and

commercial uses each year. This is land that was formerly forest or farmland. In 2004, a study by the Brookings Institute estimated that one third of the residential units needed to house Americans in 2030 do not currently exist and will have to be built. This translates into about 38 million new housing units by 2030. In the South this increased need for housing is expected to reach 60 percent, while in Alabama it is projected that 900,000 more housing units will need to be built by 2030.

The nation's population is increasing by about 3,000,000 annually; however, the amount of rural land converted is far greater than can be justified by population increases alone. This "urban sprawl" is propelled by the trend towards larger homes that occupy lots of one acre or more. Concerns over urbanization and the accelerated paving of fields and forests to build commercial and residential developments are widespread. These development patterns are consuming the habitat of both wildlife and people and, in some places, only small remnants of open or green space remain. When parkland is present, it is seldom connected to other vegetated areas in ways that would allow people or



This housing development provided for a large greenspace behind the houses to convey stormwater runoff. However, the design still relies upon concrete-lined waterways for low-flow events.



A constructed waterway and wetland in a new housing development slows delivery of stormwater and provides some initial water quality treatment as the water interacts with plants and soil. This location also contains interpretive signs along the public walkway.

animals to traverse from one area to another. Ironically, in an effort to simplify the environment for humans, we often create a world that is too complex for most wildlife.

As buildings are constructed, sidewalks laid in, and streets paved, large quantities of rainwater can no longer soak into the soil. The parking lots of many of our stores are designed to accommodate the “100-year” shopping event, resulting in large volumes of stormwater runoff during rainstorms. Managing this runoff is a challenge not only for a community, but also for

downstream residents of the watershed. As more and more surfaces are paved, the hydrology of the watershed is drastically altered.

The conventional solution is to use more concrete to divert untreated runoff into stormdrains, where it is concentrated and eventually discharged into dry detention ponds or directly into rivers and streams. These massive discharges, in turn, induce bank erosion and flooding downstream, while causing a general disruption in the ecological function and integrity of our waterways. In extreme cases, the stream channels themselves are lined with concrete. To complicate matters, communities are now legally required to treat stormwater discharges.

Cities, towns, and individual home sites all reside within a larger matrix of land uses which typically include privately held working lands, such as forests and farmlands. Urban areas should no longer be viewed as isolated islands on the landscape. Water and air flow in and out of communities, as do traffic, people, and wildlife. A community and the landowners in the surrounding rural area need to be more aware of each other’s land use decisions and how they affect each other.

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Alabama’s TREASURED Forests / 17



Wildlife impacts – A pair of ducks find a place to loaf along a walking/biking trail adjacent to an urbanized stream.

GREEN INFRASTRUCTURE

(Continued from page 17)

Many of the goals that are important to rural communities – such as water quality and stormwater management, wildlife habitat, recreational and aesthetic opportunities, and economic viability – must be addressed at the landscape or regional scale to be successfully achieved. This often requires working in partnership across agencies and political jurisdictions.

The need has long been recognized by communities to invest in “grey infrastructure” such as roads, bridges, power lines, and sewers to provide the underlying foundation for continuance and growth. In a similar manner, communities have recently begun to acknowledge the need for “green infrastructure” – a strategically planned and managed interconnected network of green spaces. Green infrastructure is comprised of a system of “hubs” and “links.” Hubs may include large protected areas such as reserves, parks, forests, rangelands, and farms. Links include conservation corridors, riparian zones along rivers, and greenbelts. They are the connections that enable the system to work. This network can help support native plant and animal species, maintain natural ecological processes and functions, sustain water and air resources, and contribute to the quality of life in a community.

The key to green infrastructure is managing the pattern of growth and development. Traditional conservation strategies have tended to focus on environmental restoration and preservation, while neglecting the pace, shape, and location of developments in relation to natural resources and amenities. Green infrastructure strategies blend economic and social goals with the ecological functions and benefits provided by natural systems. Development occurs in concert with ecosystem protection and is proactive, not reactive; systematic, not haphazard; holistic,



The typical method for handling parking lot runoff is to directly convey it from parking lot to underground pipes without any water quality treatment.

not piecemeal; multi-purpose, not single-focused; and also multi-scale, not only site-based.

One promising approach is the increased use of agroforestry practices on agricultural lands, as well as modification of some of these practices for use within communities. For example, field windbreaks can control soil erosion and livestock odors while providing wildlife habitat and connecting fragmented patches of forests throughout the landscape. Riparian forest buffers can effectively protect surface waters in a watershed from fertilizers, pesticides, sediments, and animal wastes in agricultural runoff. In urban settings, modified riparian forest buffer designs can be installed to manage stormwater runoff, create wildlife habitat, provide recreation opportunities, and provide noise, odor, dust, and visual screening.

Parking lots can be designed differently to include porous paving materials, and runoff can be directed into areas arranged throughout the lot where trees and other plants are planted below grade level rather than in raised islands so that they can absorb water during rain events. Geographic information systems (GIS) can be used to enable landscape analysis of where best in a watershed to locate conservation efforts, providing a spatial context that allows for the consideration of landscape features, hydrology, and land use so that multiple benefits can be achieved.

The pace of urbanization in Alabama is accelerating, but fortunately there is still time for the state to actively choose the path along which it grows. With thoughtful planning and a commitment to green infrastructure approaches, we can sustain Alabama the Beautiful. 🌳

*Photos courtesy of the
USDA National Agroforestry Center*

An urban stream that has been straightened and the banks armored in order to handle increased stormwater delivery. This method of handling stormwater increases the rate of delivery, the energy of the stream, and downstream bank erosion.



The Decline of Pitcher Plant Bogs in Alabama

*By Griff Johnson, Wildlife Biologist, Wildlife and Freshwater Fisheries Division,
Alabama Department of Conservation and Natural Resources*

Occurring in Alabama across the lower coastal plains are special habitats known as bogs. The term “bog” has been variously used and is known by other names such as moist pine barrens, savannahs, pitcher plant bogs, and herb-bogs. In practice, the only characteristic that bogs have in common is a foundation that causes the person walking across them to “bog down,” at least during some seasons of the year.

A bog usually occurs where underground water seeps to the surface, creating wet, spongy ground. Other bogs are created by springs occurring on slopes or hillsides, referred to as “hang bogs.” The soil and water of a bog is extremely acid. This results from the constant leaching of nutrients from the soil, their association with pine trees, and because the plant remains cannot easily decompose in the oxygen-poor, water-saturated soils. It is this acidity that distinguishes a bog from a swamp or slough. It is also this acidity that causes them to support a different plant life.

Usually, two different types of plant communities can be found, depending on how often fire is associated with the bogs. When fire is excluded, an evergreen shrub thicket develops and it is known as a “bay” or “pocosin.” Shrub thickets subjected to fire at regular intervals are killed, preventing accumulation of litter and promoting a buildup of peat. The few pine trees left are usually so widely spaced that they provide practically no shade. These conditions result in an open community of primarily her-

baceous, sun-loving plants, commonly known as a pitcher plant bog.

Some of Alabama’s most beautiful and interesting plant life is found in these bogs. The more visible plants are the insectivorous pitcher plants, sundews, dew threads, and butterworts.

Terrestrial orchids such as grass pinks, yellow-fringed orchids, and rose pogonia orchids grow on the fibrous root masses found in the bogs. Mosses and a variety of plants such as fly poison, white-top sedge, pipewort, yellow-eyed grass, bunch lily, crow poison, red root, and many more grow in these bogs.

Due to intense timber management practices, suppression of fire, and land development, pitcher plant bogs have been greatly reduced in number and appearance. Under these conditions, the bogs rapidly revert to shrubby bays or upland pinewoods. Any practice that diverts water from the bog, or excludes fire, is one that will destroy the bog. Furthermore, the water that maintains the bog comes from a large area upslope, so preservation of the bog will also require preservation of the sandy uplands around it. Protection and management of these bogs are

important objectives in conservation efforts today.

If you visit a bog, observe the profusion of beautiful plants and their complicated relationship to one another. This beauty and delicate balance is found nowhere else in the state — only in the pitcher plant bogs. 🍄



Categorizing Hardwood Trees by their Monetary Value

Dr. David Mercker, Extension Forester, University of Tennessee

In short, every tree has value. Some have monetary value - but all have aesthetic, wildlife, ecosystem, or other intrinsic value measurable only by the observer. Forest management attempts to take all these values into consideration, with monetary value often of interest among forest landowners.

Monetary value becomes increasingly difficult to quantify with hardwood forests, given the richness of trees present throughout the region. Most hardwood forests have 20 or more unique species of trees.

This article is written to help summarize the monetary value of selected species for their wood product usage, with trees placed into very high, high, medium, and low value groups. Readers should note that some species fluctuate between high and medium, or medium and low depending on market demand, consumer preference, producer supply, and regional differences. For instance, even though black cherry has enjoyed a high market value in the northeastern states, its quality and resulting market value throughout the South is much less. Also, niche markets (often short-lived) can exist that allow for high prices to be offered for species that normally have low value. The following list is very general, but can help landowners, foresters, and educators with silvicultural decisions when managing forests to produce favorable incomes by managing for high "value" species. 🌲

Traditionally Very High Market Value

Black walnut (lumber and veneer trees)
Oak veneer

Traditionally High Market Value

Red oaks (most)
White oaks (most)
Black cherry
Sugar maple

Traditionally Medium Market Value

Ash	Baldcypress
Yellow poplar	Hickory
Soft maple	Red cedar
Sassafras	Basswood

Traditionally Low Market Value

Cottonwood	Sycamore	Buckeye
Sweetgum	Blackgum	Mulberry
Elm	Hackberry	Locust
Willow	Boxelder	Hackberry
Beech	Birch	Tree-of-Heaven
Sourwood		

Education, Education, & More Education

*By Jim Jeter, BMP Coordinator/Hardwood Specialist,
Alabama Forestry Commission*

Since December of 2007, I have had the opportunity to discuss several topics related to hardwood silviculture in the “Hardwood Corner” column. As time has passed and I have had more opportunities to discuss hardwood silviculture with individual landowners as related to their individual properties, I have also had the opportunity to be a part of several classes that were organized to raise the awareness of the subject, both upland hardwood and bottomland hardwood. Although upland species and bottomland species have a lot in common, there is quite a bit of difference in the silviculture of hardwood species in the different geographic regions.

With that being said, I want to talk about how the Alabama Forestry Commission (AFC) and other state and federal agencies are cooperating together to enlighten and engage their staff as well as landowners and forestry consultants in the management of hardwoods in Alabama. Before I brag about anyone or any particular class, I want to emphasize the fact that this has been and should continue to be a cooperative effort. Three educational opportunities I particularly want to inform you about targeted three different audiences and were organized by professionals with the US Forest Service (USFS), and the Alabama Cooperative Extension System (ACES). I want to thank Dr. Callie Jo Schweitzer and Patrick Cook for their leadership in the respective agencies.

The first opportunity to learn more about the management of upland hardwood species in North Alabama was on October 4, 2008, in Scottsboro, Alabama. This was an open session organized by Patrick Cook, ACES, that was well attended by AFC associates, including the State Forester and Assistant State Forester. Topics discussed were:

- Overview of Hardwoods in the Region: Becky Barlow, Auburn University
- Successful Oak Regeneration: Wayne Clatterbuck, University of Tennessee
- Crop Tree Management: David Mercker, University of Tennessee
- Potions for Degraded Stands: Wayne Clatterbuck
- Invasive Plants in Hardwoods: Nancy Loewenstein, Auburn University
- Managing Hardwoods for Non-game Wildlife: Patrick Cook, ACES
- Managing Hardwoods for Deer and Turkey: Patrick Cook
- Practical Approaches to Achieving Objectives: Tim Albritton, NRCS

(Continued on page 22)



Upland hardwood field training conducted by Callie Jo Switzer with the US Forest Service.

Education, Education, & More Education

(Continued from page 21)

The second opportunity to learn more about upland hardwood management was on April 15 and 16, 2009. In a class originally designed to assist newer employees of the USDA Natural Resources Conservation Service (NRCS) better understand some of the programs they are implementing, NRCS State Staff Forester Tim Albritton and Callie Schweitzer were kind enough to include a few of us other agencies in this year's class. There were nine NRCS employees, one USDA Soil and Water Conservation District employee, eleven AFC employees, and three Alabama Department of Conservation and Natural Resources (ADCNR) employees attending this session. What a great show of cooperation. Topics discussed were:

- Silviculture Terminology: Jim Jeter, AFC, and Tim Albritton, NRCS
- Managing Upland Hardwood Stands: Callie Schweitzer, USFS
- Hardwood Habitat for Wildlife and Cost Share Programs for Hardwoods: Jim Schrenkel, ADCNR, Wildlife Habitat Enhancement Unit
- Artificial Hardwood Regeneration: Stacy Clark, USFS
- Intermediate Stand Treatments, Including Crop Tree Management and Corridor Thinnings: David Mercker, University of Tennessee
- Fire in Upland Hardwood Forested Systems: Callie Schweitzer and Stacy Clark
- Situational Assessments, Using Stuff on the Ground: Lynn Washington, AFC

The next day the class culminated with a tour of Moss Lumber Industries, a visit to a shelterwood harvest site, a natural regeneration site, an artificial regeneration site, and an American chestnut restoration site.

The third class was on May 7, 2009, in Lowndes County, Alabama. Again, this was an open session organized by Patrick Cook. Well over 120 attendees were present to listen to the following topics:

- Introduction to Bottomland Hardwood Ecology: John Hodges, Mississippi State University, Retired
- Wildlife Considerations in Hardwood Management: Patrick Cook, ACES
- Silvicultural Approaches to Existing Stands: John Hodges
- Regulatory Considerations in Hardwood Management: Cindy House-Pearson, U.S. Army Corps of Engineers
- Reforestation – Hardwood Planting: Drew Nix, ADCNR, and Jim Jeter, AFC
- Controlling Invasive Plant Species in Hardwood Stands: Tim Albritton, NRCS
- On-site Specific Stand Prescriptions: Group Discussion

I realize this column is a little longer than usual; however, I wanted you to know what is going on in the world of hardwood educational opportunities. I never fail to learn more about hardwoods during each of these sessions. There is a major cooperative effort, as you have read, to spread the knowledge of hardwood management among agencies, other natural resource managers, and ultimately, landowners. I will try to keep you posted of hardwood training opportunities by posting them on our website: forestry.alabama.gov as well as communicating such with other agencies. There is an ongoing commitment by the following agencies to better educate the landowners of this state on how to better manage their hardwood timber.

- US Forest Service
- NRCS – Natural Resources and Conservation Service
- AFC - Alabama Forestry Commission
- ADCNR – Alabama Department of Conservation and Natural Resources
- ACES – Alabama Cooperative Extension Service
- Auburn University
- University of Tennessee
- Mississippi State University

What a great cooperative effort. Thanks and kudos to all. 

A Landowner's Perspective: The True Value of Your Forest Habitat

By Joseph Scanlon, M.D.

Few of us TREASURE Forest owners can really appreciate the ecological value of our forests. It is easy to appreciate the many forms of terrestrial animals that benefit from the forest cover, but how about the aquatic? We are beginning to understand why it is important to preserve the wetlands, the riparian borders of our streams, and why we should not allow livestock to wade unrestrained into the creeks that pass through our property.

How many aquatic animals die when the creeks are polluted by soils? In many cases it is due to sedimentation from the runoff by the soil itself, rather than pesticides, that cause the greatest destruction to streams and their biota. Most planned alterations of streams and the filling of wetlands can spell disaster for the diverse aquatic life that inhabits them. Even the federal and state fish and wildlife agencies have become involved in the restoration of some of our streams that have previously been degraded by human interventions.

We are extremely blessed in Alabama. There are more than 77,000 miles of natural freshwater streams, of which 46,970 miles are permanent and 30,030 are intermittent with flows during the wetter seasons in Alabama . . . much of it running through heavily forested lands. We have more aquatic species of freshwater fish, mussels, snails, and crayfish than any other state in the Union. As a result, many species are threatened by alterations in our wetlands and on stream banks without proper buffer zones.

I have developed a considerable interest in our forests since my wife, Maurite, has become part-owner of a "TREASURE Forest." Additionally, I have had a lifelong interest in fish – not the kind you eat, but rather the kind you might admire for their beauty and fascinating behaviors. Most Alabamians don't realize that there are more than 306 species of native freshwater fishes and 13 nonnative species in this state . . . some found in no other

state! We also have more species of mussels than any other state, and the result of all this is that we also have the greatest number of endangered species.

For the past several years I have been studying one of these fishes. Called the "stippled studfish," it is a top-water minnow that is found mostly in the Tallapoosa drainage system in Alabama. Two other closely-related fish are the "southern studfish" which is found in the Coosa system, and the "northern studfish" that lives in the Tennessee drainage. No other state has these three studfish.

Although the stippled studfish (*Fundulus bifax*) was previously found in two Tallapoosa locations in Georgia, it has not been collected there since 1991. A study of the stream map of Alabama easily shows that the stippled studfish is found only in areas that remain heavily forested, perhaps explaining why it has been collected from the Tallapoosa in Alabama. A good example of this is Hillabee Creek and its tributaries which lie south of the Talladega National Forest. This is a relatively unpopulated area with very minimal agriculture and lots of trees. It does appear that the stippled studfish requires trees and high quality water if it is to continue to exist in Alabama.

Alabama forests are priceless treasures that ensure a healthy environment, for us, and all the other creatures living in the forest and streams that flow through them. I hope that this short article will help shed a new light on *your* TREASURE! 🌲

Editor's Note: Cedar Oaks Ranch, located in Bullock County, is owned by best friends Jane James and Maurite Scanlon, who is the wife of Dr. Scanlon. This TREASURE Forest, a former Helene Mosley Memorial Award winner, was featured in the Summer 2000 issue of Alabama's TREASURED Forests magazine. Special thanks to Joe Addison with the Alabama Department of Conservation and Natural Resources for his technical editing.



WHAT'S BLACK AND WHITE FOX SQUIRREL

By John S. Powers, Wildlife Biologist, Divi.



WHITE, AND RED ALL OVER? SQUIRRELS, OF COURSE!

Division of Wildlife and Freshwater Fisheries, Alabama Department of Conservation and Natural Resources

At some point in our lives, most of us have been asked the question, “What’s black and white and red all over?” Acceptable responses are known to include “newspapers,” “zebras with sunburn,” and “road-killed skunks.” Have you considered that there might be an equally accurate and somewhat more realistic answer to young riddlers who ask this question?

Fox squirrels (*Sciurus niger*) are the most colorful tree squirrels in the Western Hemisphere and are the most variably colored mammals in North America. Fox squirrels are widely distributed across the eastern United States and Canada, and are found on a local basis throughout Alabama. In most of their range, fox squirrels typically have brownish, reddish, orange, or grizzled tan upper parts, a grizzled or black nose, and no white markings on the head or feet. Fox squirrels in the Southeast usually have silver, gray, or grizzled upper parts sometimes with a reddish cast, especially on the legs and tail. Most fox squirrels in this region have black markings on the head, with some white or gray on their noses, ears, and feet.

The color patterns of fox squirrels are produced by a highly variable mix of reddish, black, and white/silver hairs. The upper parts of their bodies and their tails usually are salt and pepper gray, but often have a rusty shading. This reddish cast seems to be more common in northern and western portions of the state, while fox squirrels in the extreme southeastern corner of

Alabama are more commonly light gray or, sometimes, almost silver in appearance. The bellies of fox squirrels in Alabama vary from cream colored to reddish orange.

Differences among individual fox squirrels may be extreme. Many combinations of colors exist, and it seems that no two fox squirrels are exactly alike. One relatively constant characteristic is the presence of the black facial mask with white-tipped nose and ears. Melanistic (all black) fox squirrels occur throughout the species’ range, but are most common in southern regions. True albino individuals occur as well, but are rare in all but a few largely protected urban populations.

Fox squirrels are the largest tree squirrels in the Western Hemisphere. They have a heavy-bodied look and long bushy tails. A fox squirrel’s head is somewhat blocky in appearance, with rounded, stubby-looking ears. Adults may reach 2 1/2 feet in length and sometimes weigh as much as 3 pounds. Typically solitary animals, fox squirrels are rarely found in groups except during breeding chases and in areas providing a concentrated food supply. They are not territorial, but when circumstances bring them together, dominant hierarchies or “pecking orders” are quickly established. Most of the time, they simply avoid or ignore each other.

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Photo by Reid Duvall

Southern Treats in the Summertime

A UNIQUE STYLE OF GARDENING

*By Tim Washburne, Forester Hale/Greene Counties,
Alabama Forestry Commission*

One of the greatest things about working in the forestry profession is meeting people that use their land in different ways. This summer I have been introduced to the practice of cultivating blackberry bushes. I'm sure that just about everyone in the South has picked and eaten native blackberries at least once in their lifetime; I know I have. However, the practice of cultivating blackberry bushes is a little bit different than finding a patch of them out in the forest. With the guidance of Dr. Arlie A. Powell, the professor who developed this system, Dr. Finley McRae and his family have been growing blackberries for several years now. And I had the pleasure of learning a little bit about the process.

Native blackberries (*Rubus occidentalis*) grow throughout the Southeast and have many benefits to their name. Not only do they provide soft mast for multitudes of wildlife, they also provide excellent escape cover for small mammals such as cottontail rabbits as well as numerous game and non-game bird species. As

far as human consumption, they are filled with several vitamins including A, C, and E, and have been studied for their antioxidant properties. The native blackberry is also the state fruit of Alabama.

Pre-planting practices are critical in the process of



Dr. Finley McRae encourages berry branches to grow down a trellis by fastening them to the wire.

starting a blackberry trellis and should include site selection as well as soil testing. The site should get plenty of sunlight and be free of any encroaching vegetation. A soil test should also be done to check pH levels and fertility of the soil. Your local Cooperative Extension System office can assist you with the soil testing process.

This practice uses genetically improved varieties of erect blackberries, which include Apache, Arapaho, Chickasaw, Choctaw, Kiowa, Navaho, and Shawnee. Some are thorny while others are not. Several of these varieties can be purchased from specialty nurseries and come in 1-3 gallon containers. A one- or two-wire trellis system is needed to support the plant through the growing process. Trellis wires should be located approximately 2.5-5.5 feet from the ground. A drip irrigation system should also be installed to provide water during the growing months. The McRaes have a one-wire trellis system for one variety and a two-wire trellis system for another variety.

The purpose of growing blackberries with this type trellis system has several reasons. For one, you can regulate moisture content of the soil by using a drip irrigation system. Two, it makes harvesting the fruit much easier. It also makes fertilizing the plants easier, as well as maintaining the trellis and drip irrigation systems.

This practice requires little to no pesticide use. From an aesthetics stand point, the trellises are very pleasant to look at during the flowering and fruiting stages, and could be viewed as an ornamental on any fence.

The Process

After choosing the trellis site and variety of blackberry you want to plant, establish plant rows underneath the bottom wire giving appropriate space for growth, around 3-6 feet. During the



Installing a drip irrigation system provides water during the growing months.

first year of growth, choose the two most upright canes of the plant. Leaving these two canes – known as “primocanes” – remove all other emerging canes from the base of the plant. The two remaining should be straight in form, healthy, and growing vigorously.

When one of the two primocanes reach the bottom wire, it should be topped, leaving about 2-3 inches of primocane above the wire. This will promote branching of the primocane. Once the primocane branches start growing down the wire, lightly fasten them to it. Heavy string or plastic zip ties can be used to hold the branches to the wire. You should continue to tie the primocane down as it grows over summer. Remove all emerging

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A one- or two-wire trellis system, located approximately 2.5-5.5 feet from the ground, is needed to support the plant through the growing process.





Southern Treats in the Summertime

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Some genetically improved varieties of blackberries are thorny while others are not.

branches from the primocanes as well. This will focus more growth to the cane for a stronger stem.

As the other primocane of the plant reaches the bottom wire, secure it. Repeat the topping and tying process as performed on the top primocane. These canes will be your main stems for fruit

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production the following year. The following spring, branches will form on the primocanes. The old primocanes are now known as "floracanes."

As the floracanes are going through the flowering and fruit process, new primocanes will emerge from the base of the plants. Use these new primocanes for next year's growing stock. Fruit growth and harvest time usually occurs from late May through late June. After fruit production has ended, remove that season's floracanes from the trellis system. By doing this, it will allow the emerging primocanes to grow through the rest of the summer for the following year's fruit production. After the floracanes are removed, it is suggested that fertilizing and watering the new emerging primocanes will help the growth tremendously. Repeat the growing and training process over again.

It has been very educational for me to learn about cultivating blackberries and believe me, the varieties I tasted are great. If you are interested in growing blackberries yourself, information can be found on the internet or contact your local Cooperative Extension System office for information. ☕

Photography by Colin McRae

Summer 2009

Students Compete at Mathematical Forest Expedition

By Roger C. Vines, Coosa County Extension Coordinator,
Alabama Cooperative Extension System

Crunching numbers in math class can sometimes cause a student to ask the questions, “Why do I need to learn all this stuff? Does this really apply to real life?” The answer to both is a very definite “yes.” To demonstrate this point, the students in the Connections math class at Coosa County Central High School were invited to participate in a program called the “Mathematical Forest Expedition.”

The idea came to Coosa County Extension Coordinator Roger Vines about a year ago and a grant proposal was then developed and submitted to the Coosa Valley R, C, and D Council. Upon receiving approval for the project, Vines teamed up with the Coosa County Forestry Planning Committee and Coosa County Central High School math teacher, Amy Tucker, to pull this project together.

The idea was to take the math class out to a farm and let them use their math skills to solve real world problems. While Mrs. Tucker had already provided the math background, the students still needed some training on basic terms and concepts related to forestry and wildlife management on a tree farm. Forestry Planning Committee members Doug McConnell and Roger Vines visited with Mrs. Tucker’s class a couple days prior to the event to provide some in-class instruction. The students learned about calculating board feet volumes of timber, calculating acreage, mixing herbicides, pond construction, fertilizer applications, estimating wildlife population growth, tree planting, and estimating financial returns from growing timber.

The following Tuesday, the class rode the school bus to the Vines TREASURE Forest not far from the school. The students were divided into teams of five, then rotated through six different stations. At each station they were challenged with different



math problems and common calculations made on a farm. The event was conducted as a competition among the teams for high score.

At the first station, consulting forester Doug McConnell had the students measure the circumference of a tree, calculate the diameter using pi, and then use the Pythagorean Theorem to convert the round tree to a square log. Next, the students calculated the cubic inches of wood in the tree, converted this to board feet, and finally applied current prices to estimate the value.

Annette Spivey with the USDA Natural Resources Conservation Service led station #2, in which the students measured the dimensions of an earthen pond dam including length, top width, height, and base width. Since this forms the shape of trapezoid, the students then calculated the cubic foot volume of the dam, converted this to cubic yards, and applied current construction rates to come up with the cost of building the pond. They also figured how many gallons of water would be added to the pond after a one-inch rain – over 32,000 gallons!

At station #3, Bryan Wood, an engineer for the City of Auburn, had the teams measure the size of a wildlife food plot. The students then calculated how many pounds of seed would be needed to plant the food plot. They also used soil test recommendations to calculate the number of pounds of fertilizer and lime needed on the site. Finally, they were asked to project the growth of a deer herd over a three-year period.

Next the teams moved to station #4, led by Roger Vines. At this station, the participants measured off a 1/10th acre sample plot of timber. Then they determined the number of trees per acre, average diameter of the trees, and average height of the



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Alabama Forestry Commission Rates High in

Customer Satisfaction



The Alabama Forestry Commission (AFC) authorized a customer satisfaction survey from the Center for Governmental Services at Auburn University in July 2008. The purpose of this study was to assess customer satisfaction among Alabama landowners who requested or received services from the agency within the 2007-2008 fiscal year. After the AFC identified approximately 3,800 clients who had requested or received such services, these customers were mailed surveys and 1,184 completed surveys were returned.

Expressing high levels of satisfaction in all areas, the survey revealed that overall clients of the Alabama Forestry Commission have a high opinion of the agency and the services it provides to the public. Below is a summary of the key findings.

- 95 percent of customers rated their overall satisfaction with the services they were provided as “satisfactory” or “excellent”
- 96 percent of customers felt the services provided were “some-what” or “very” timely
- 94 percent of customers felt that the response they received met their needs.

The most common reason customers cited for contacting the agency was to request prescribed burn assistance (40 percent), followed by assistance with a specific forestry program, fire prevention and control training, stand management recommenda-

tions/improvement plans, and land management assistance. These contacts were typically made by phone.

Of the customers surveyed, 13 percent had visited the new AFC web site. Of those who had visited the website, the primary reason for their visit was to find out about services offered by the agency, and 98 percent of them thought it was “easy” or “very easy” to obtain the information they needed.

Survey respondents were asked to consider several options to address declining funding. Customers indicated their preference would be for the AFC to continue to seek additional funding sources rather than decrease services. Fire mitigation/suppression was identified as the most preferred service, followed by forest management services, and then educational services.

About one-quarter of the respondents indicated they had current needs they would like the agency to address. The most common need mentioned was for assistance with prescribed burns (37 percent), yet only 8 percent indicated they had a need to be contacted by the AFC.

Additionally, the survey reveals new services desired by landowners and additional ways that the agency can meet customer needs. This study reflects the Alabama Forestry Commission’s commitment to evaluating and continuously improving the quality of services. ♣

WHAT'S BLACK AND WHITE, AND RED ALL OVER? FOX SQUIRRELS, OF COURSE!

(Continued from page 25)

In Alabama, litters of two to five young fox squirrels are born from late January through March, with second litters produced in July and August. Gestation is about 44 days. Yearling females breed at about 10 months of age and generally skip a breeding period before producing a second litter. Older females in good physical condition most often breed twice each year when food supplies are good. Almost all summer litters are raised in leaf nests in the branches of trees, as are many winter/spring young in the southern part of the state. Hollows in trees (when available) are more commonly used for brood rearing and shelter during winter in northern parts of the state.

Throughout their range, fox squirrels eat a variety of wild foods including acorns, nuts, seeds, fleshy fruits, buds, flowers, bird eggs, insects, tubers, roots, and fungi. Pine seeds are a favorite food during the limited time they are available (late summer), while hard mast is of critical importance during fall and winter. At all times fox squirrels are opportunistic feeders. Most water is obtained from eating succulent vegetation and fruits, or by licking dew from leaves. During periods of extreme drought, however, surface water may become necessary for survival. Calcium and other minerals largely lacking in vegetable foods are obtained by gnawing bones and antlers or by eating soil.

Habitat varies considerably both regionally and locally, including a variety of forest types. Throughout western, mid-western, northeastern, and central portions of their range, fox

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squirrels are most often found in relatively small or narrow stands of mature hardwoods having little understory vegetation and incomplete canopy closure. Those living in the Atlantic and Gulf Coast regions, including Alabama, are known to occupy virtually all of the diverse forest habitats, but have been most strongly associated with mature, fire-maintained pine forests. Research done in Alabama and elsewhere in the coastal region indicates that while fox squirrels may spend much of their time in pine stands, hardwood habitats adjacent to or within these areas may be more heavily used than would be expected based on their limited availability. This relatively intense use of hardwood habitats likely points to their importance to fox squirrels for both food and cover.

Life is full of questions, many of which, sadly, go unanswered. Children are among the best at coming up with difficult questions and trying to stump grown-ups. This being the case, odds are that the most recent time you were asked, "What's black and white and red all over?" was not the last. Next time, forget newsprint, sunburn, and road-kill. Answer, "fox squirrels!" 🦫

Students Compete at Mathematical Forest Expedition

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trees. They converted this into the number of cords and tons of pulpwood that could be harvested. Then the groups applied current timber prices to estimate the financial value of the stand.

Consulting forester Sara Baldwin led station #5 dealing with herbicide mixtures. The students calculated the number of ounces of herbicide needed to treat the area, how many gallons of water per acre would be applied, and how much water and herbicide to put in each tank of the 3-gallon sprayer. They also solved problems based on mixing a percent solution spray mix.

The final station was led by Blake Kelly, forester with the Alabama Forestry Commission, at which the participants determined how many tree seedlings were needed to plant a given area. From there the students extrapolated to a larger acreage, determined the cost of site preparation, tree seedlings, and planting. These expenses were then compared to projected income

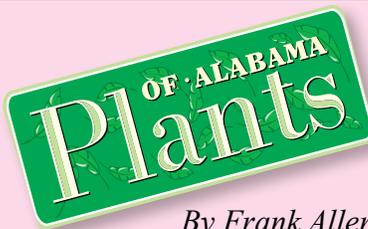
calculated by applying today's timber prices to growth and yield tables for loblolly pine.

After a lunch sponsored by the Coosa County Farmer's Federation, each instructor went over the problems from their respective stations and answered questions. To conclude the program, the winning teams were announced. Winning team members received a trophy and cash award, sponsored by Bryan Wood and CGS Surveying. Bryan is a former Coosa County 4-H Forestry and Wildlife Team member who enjoyed the success of two state championships and placing second and third in two national 4-H Forestry and Wildlife events. He simply wanted to give something back. Thanks also to Pete Rodgers with Coosa Valley R, C, and D Council and Coosa Forestry Planning Committee members Tom Reichert, Raymond Shaw, Lori Woodfin, and the AFC's Ricky Porch. 🦫



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The Truth about Lespedezas

*By Frank Allen, Area Wildlife Biologist, Division of Wildlife and Freshwater Fisheries
Alabama Department of Conservation and Natural Resources*

Lespedezas are plants that have been utilized by wildlife managers and soil conservationists for over 50 years. Now there is a debate about whether the lespedeza's benefits outweigh its problems. Exotic lespedezas were brought into the United States from Asia to assist with soil stabilization and to provide food for game birds such as the Northern bobwhite quail. Other lespedeza species are native to the United States and have been planted and managed to accomplish the same objectives as exotic lespedezas. A total of 13 different lespedezas grow in the Southeast consisting of two annuals, two shrubs, and nine perennials. Ten of these species are native and three are exotic. All belong to the legume family, meaning they produce a fruit-bearing pod similar to a pea or bean. While certain exotic lespedezas do provide cover and are an excellent food source for some wildlife, their ability to spread and dominate native plants should not be overlooked.

While Eastern cottontail, wild turkey, and ruffed grouse use the seeds and foliage from lespedezas, the plants are probably the most important seed producers for Northern bobwhite quail. White-tailed deer also prefer lespedezas during summer months. Contrary to popular reasoning, seed-eating songbirds rarely utilize lespedeza seeds.

Major drawbacks occur primarily with the two most commonly cultivated lespedeza species. Both lespedeza bicolor and sericea lespedeza were originally imported to the United States from Asia as ornamental plants. Later, they were used to inhibit erosion and provide food and cover for wildlife. The main issue surrounding these plants is that they are not

native and are out-competing beneficial native plants. They have become invasive, and once established are extremely difficult and expensive to control.

Prescribed burning, a practice used by woodland managers, actually causes bicolor to spread. Burning may kill the top of the plant, but re-sprouting will occur from the root. Even if herbicide is used as a foliar treatment, lespedeza bicolor seed can remain viable for years in the seed bank, making re-treatment inevitable.

Once an area has been invaded, dense stands of lespedeza bicolor develop, resulting in land that is difficult to access.

Sericea lespedeza, once thought to be beneficial, offers essentially no wildlife value other than cover. It will help stabilize soil when erosion is a problem, but why create another problem when different plant species will work? Sericea and bicolor are so problematic, many states have placed them on their noxious plant lists.

Although land managers, wildlife biologists, and soil conservationists continue to argue whether or not exotic lespedezas' assets are greater than

their liabilities, the answer is simple. Enhance, encourage, and manage the ten native lespedeza species found in southeastern habitats, instead of risking disaster with exotic species. ☪

Photo by James H. Miller, US Forest Service, Bugwood.org

