

Alabama's TREASURED Forests

An Alabama Forestry Commission Publication

Spring 2010

from the **STATE FORESTER**

For many landowners, selling timber from their forestland may occur only once or twice in their lifetime. Dr. Richard Brinker, Dean of the School of Forestry and Wildlife Sciences, Auburn University, said, "A timber sale is a serious matter requiring careful preparation. The results of many years of past timber growth are at stake, and the condition of the forest after the sale profoundly affects its productivity for many years to come."

The Alabama Forestry Commission, along with 14 other agencies and organizations, believes that it's important to provide landowners with resource information and recommendations that will help guide them through this process. This group, over a period of several months, has been creating a comprehensive educational program entitled, "Selling Your Timber," that during the next few months will be made available to landowners across the state.

The keystone for this campaign is a four-page brochure, packed with tips and recommendations. For your convenience, it's included in this issue of *Alabama's TREASURED Forests* as a "pull-out" guide (found on centerfold pages 15-18). Other components of this campaign include a pocket-size checklist, posters, statewide workshops, a display, as well as DVD and Power-Point presentations.



Linda Casey,
State Forester

Also of interest . . . as talks of Carbon Sequestration and a National Energy Bill heated up nationwide in the fall of '08, there was considerable discussion of how these programs would affect forest landowners at the state and national level. One of those programs centers on woody biomass. As discussions evolved, many individuals and groups believed that states should develop harvesting guidelines specific to woody biomass. The Alabama Forestry Commission takes the position that there is no reason to develop such harvesting guidelines for any forest products, including woody biomass.

The AFC's approach to harvesting issues related to woody biomass was twofold. First, evaluate the current Best Management Practices (BMPs) for Forestry in Alabama to ensure that issues related to harvesting woody biomass were adequately covered; and secondly, provide landowners with information on other areas potentially impacted by the harvesting of woody biomass. A small task force was convened to address both of these issues. Members included representatives from Auburn University, the Florida Division of Forestry, the US Forest Service, the Alabama Forestry Association, and Jim Jeter with the AFC. Upon review, the team concluded that harvesting of woody biomass is addressed sufficiently in the current BMPs.

The team was also tasked to conduct an assessment of current research on the potential impact to Soil Productivity, Biological Diversity, and Forest Health that might occur from the harvesting of woody biomass. The resulting paper entitled "Woody Biomass 101" (found on page 21) provides landowners with information they may want to consider as they develop their woody biomass harvesting plan. The Alabama Forestry Commission hopes that this resource will be helpful to all forest landowners as they plan future harvests.

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◀ 4
Hurricanes, Longleaf Pine,
and Gopher Tortoise:
One Landowner Family's Solution
by Michael Older



◀ 7
Prescribed Burning: An
Efficient and Cost-Effective Tool
by Benji Elmore



◀ 15
Selling Your Timber
(In a convenient "pull-out" guide!)



◀ 21
Woody Biomass 101
General Harvesting Issues,
Concerns, and Recommendations
for Alabama Forest Owners
by Jim Jeter



◀ 27
Mitigating the Impacts to Federally
Threatened Gopher Tortoises
by John P. McGuire

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2 Letter from the State Forester

10 I Have a Forest Management Plan . . .
Now What? by Neil Letson

12 Forest Management in a Nutshell
by Tim Albritton

14 Hardwood Corner: To Burn or
Not to Burn by Jim Jeter

19 Some Things Your Wife Should Know
about Your Forestland by Jerry Gibson

24 The Alabama Clean Water Partnership -
Locally Led Projects Making a
Difference! by Allison R. Jenkins

26 Alabama 4-H Forestry Judging Team
Wins National Championship
by Wayne Ford

32 Trees of Alabama: Buttonbush
by Fred Nation



On the Cover:
The fragrant blooms of
piedmont azaleas (also
known as wild azaleas)
(*Rhododendron cane-
scens*) grace shady for-
est creek banks of
Alabama each spring.
Photo by Mark Burkett

The Alabama Forestry
Commission is now on
Facebook and *YouTube*!



Good**FIRE**S

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Hurricanes, Longleaf Pine, and Gopher Tortoise: One Landowner Family's Solution

By Michael Older, Registered Forester, Alabama Forestry Commission

Gopher tortoise, whitetail deer, turkey, and longleaf pine have been a common denominator for most of the sandhills ecosystem located throughout south Alabama. Agriculture, changing timber industry, and urban sprawl have had and will continue to have effects on this declining ecosystem. However, Phillip and Gail Jones are doing their part in re-establishing the sandhills characteristics on their property located in Covington County. Their efforts have resulted in the Joneses being selected as the 2009 Southern Region Helene Moseley Memorial TREASURE Forest Award winners.

Phillip and Gail inherited the 166-acre property from Gail's parents.

They have now owned and managed the property for over twenty years. Gail and her sister, Elaine, grew up on the farm and can remember when they had cattle, grew bahia grass that was harvested for seed, and produced other row crops. Most of the property was cropland planted in loblolly pine in the late 1980s, while some was clearcut and regenerated in loblolly during the same time frame.

As with a lot of landowners, timber management starts out as the primary objective, but as they own the property longer and get exposed to different benefits of multiple use management and steward-



ship, many other attributes begin to share the focus of the primary objective. Wildlife, recreation, aesthetics, and education have become nearly equal to the timber management. At the time the property was planted, loblolly pine was the normal regeneration practice. As the first thinning time period was approaching, Phillip attended a forest management program sponsored by the Covington County Forestry Committee at LBW College in Andalusia. While at the program, Phillip was introduced to a local consultant forester that would provide the expertise to take the Joneses' objectives and ideas

and turn them into practices not just for economical returns but for the whole TREASURE Forest concept. The planted pine was marked and thinned to provide openings to the forest canopy, poorly stocked areas were clearcut, additional wildlife openings were created, firelines were established, and a burning program begun. The clearcut area was planted in longleaf pine. The Joneses recognized that longleaf was the species that belonged on their property, offering numerous wildlife benefits and other attributes for which they were looking.

Phillip and Gail were thrilled to have a new look to their farm with the active management taking place. Then along came Hurricane Ivan. The property suffered major damage, some of the worst in Covington County. The well-spaced thinning took a

direct hit with over 50 percent damage, and one area suffered total damage from a spinoff tornado. While some may have thrown in the white towel and admitted defeat, the Joneses wiped away the tears and went back to work with their consultant to find a solution. What was jointly decided was to salvage the damaged trees and plant longleaf pine. The tornado-damaged area was clearcut and replanted with longleaf, while in the lesser-damaged area (30-40 square feet of basal area remaining) the severely damaged trees were harvested and longleaf pine planted underneath, creating a two-species, two-aged stand. The simple solution would have been to clearcut the entire property and start over. Their solution instead retained the aesthetics of a forest, provided for future timber productivity with pine regeneration, and greatly benefited wildlife including the gopher tortoise.

Gail has fond memories of growing up on the property. One recollection is that of keeping a pet gopher tortoise during the summer months while out of school. Her father drilled a small hole on the shell skirt and attached a long cord so it could move around the yard freely. She can remember riding on the back of the tortoise. Her fondness of gopher tortoise has played a role in the current management of the property where longleaf pine, openly spaced trees, and wildlife openings all benefit the growing gopher tortoise population. The Joneses have located most

(Continued on page 6)

TREASURE Forest landowners Phillip and Gail Jones inspect a gopher tortoise burrow with AFC Forester Mike Older.



(Continued from page 5)

of the gopher tortoise burrows with a global positioning device to prevent damage during any future management activities.

While the gopher tortoise is a species of interest to the Joneses, they have enhanced other wildlife habitat. A larger wildlife opening was established, numerous fruit and mast trees were planted using tree shelters for protection, and two ponds and a streamside management zone provide water resources. The prescribed burning program has included winter and growing-season burns. The last growing season burn released a large crop of partridge pea across the property that quail and turkey dined on.

Phillip is a public accountant that has a special interest in forestry, and Gail is a semi-retired educator. The house in which Gail grew up is now used as a retreat to spend time together, as well as to host numerous groups, tours, and educational programs. Hunting is a recreation enjoyed by Phillip and friends. However, the greatest recreational benefit is the enjoyment of managing and working on the property. In addition to the natural setting, they have a small pasture where they keep miniature horses and goats. Fruit trees, grape vines, and vegetable gardens are maintained for human consumption as well as the local wildlife that claim their share.



Through their land ownership journey, they have



obtained advice and information from local resource professionals such as the Alabama Forestry Commission, the Alabama Cooperative Extension System, the Longleaf Alliance, the Natural Resource and Conservation Service, and others. They have used cost-share assistance to help offset some of the management expense. They became members of the Covington County Forestry Committee and leaders in the Covington County TREASURE Forest Chapter, as well as mentored other family members and friends along the way. They assist Gail's sister, Elaine, in managing her portion of the family property. And the circle will continue with their daughter, Alexis, a TV reporter in Birmingham becoming more interested in being the next generation steward of the family farm. 🙏

Prescribed Burning: An Efficient and Cost-Effective Tool

By Benji Elmore, Registered Forester, Alabama Forestry Commission

With contributions by Arthur Hitt, Registered Forester, Alabama Forestry Commission

Prescribed burning is one of the most cost effective forest management tools that the forest landowner has at his disposal for pine stand management. It provides multiple benefits for both timber and wildlife.

Prescribed burning controls undesirable vegetation as well as low value woody plants and shrubs. Over time, a regular program of prescribed burning will actually change the species mix of herbaceous weeds to a more palatable and desirable food mix for wildlife. In turn, controlling competing vegetation will make water, sunlight, and soil nutrients and minerals more available to the individual pine trees in the stand.

The definition of *prescribed burning* is fire that is...

- applied in a skillful manner
- under exacting weather conditions
- in a designated place
- to achieve specific results.

Looking at this definition more closely, *fire applied in a skillful manner* implies that it is done by skilled, trained personnel using a variety of techniques or different applications to achieve an assortment of purposes. *Under exacting weather conditions* refers to the fact that weather is a huge factor influencing fire behavior. As weather conditions change, fire behavior changes. *In a designated place* implies that the area to be burned must be planned ahead of time, further implying that firebreaks need to be in place to aid in controlling the spread of the fire. *To achieve specific results* tells us that we can generally expect certain outcomes, depending on the technique used with a given set of conditions.

Now that we have an idea of what prescribed fire is, let's take a look at the reasons for using it and how that is done. Various objectives and benefits of prescribed burning include: controlling undesired vegetation, improving wildlife forage and habitat, reducing potential wildfire hazard, as well as improving access and aesthetics (natural beauty). Let's look specifically at each objective. A good way to accomplish this is to take a look at the life cycle of a typical 40-acre pine stand and see how fire can be applied over the lifetime of that stand with different objectives in mind.

Let's begin on the property of Farmer Brown who had 40 acres of timber cut. We will assume that all timber has been harvested from the area, and the landowner now wishes to plant with loblolly pine seedlings. However, before planting, the area is prepared by spraying herbicide to control competing hardwood vegetation during the summer. After the vegetation browns up in the weeks following the herbicide application, the area can then be control burned in September to improve access for the crew that will plant the seedlings.

After the seedlings are planted, they continue to grow into pulpwood-sized trees. Some 15 or so years later, Mr. Brown thinks that his trees look crowded and may need thinning, so he procures the services of a consulting forester to handle selling his timber. In turn, a local logger does the thinning operation. Approximately one year later, Brown notices sweetgums and other hardwoods sprouting after the cutting operation. With the increased sunlight reaching the forest floor, there is an influx of

(Continued on page 8)



(Continued from page 7)



growth of all sorts present. Farmer Brown is advised by his forester to have a prescribed burn done to keep the hardwoods in check. He then has the area burned in February. His purpose for burning is multi-fold. He wants to control the hardwoods sprouting after the thinning operation, but he also wants to clean up some of the debris left after the logging operation. The landowner also has another purpose in mind. He loves to hunt deer and turkey, and has heard that prescribed burning enhances the habitat for both species.

A few weeks after the burn, Brown notices that the underbrush has been top-killed but is sprouting back from the stump. He also notices some species of legumes and forbs that he hasn't seen in his forest before. This succulent new growth is being grazed by deer, turkey, and other foraging mammals and birds. The logging slash left behind after the thinning operation wasn't totally burned up, but there is much less now. The forest is also easier to walk through, with the underbrush kept in check by the fire. With the apparent success of this burn, he agrees to follow his forester's advice and begin a continuous burning program on a three-year cycle. After every burn, Farmer Brown is pleased by the park-like appearance; the underbrush is kept at a low level by the repeated burns. The firebreaks that he had

installed to control the fire are also used as access roads. Mr. Brown planted the firebreaks in bahiagrass, winter grazing, and other food crops for the deer and turkeys, so they serve a dual purpose in preventing the fire from escaping and feeding the wildlife. He simply runs over the firebreaks with his tractor and disk prior to the scheduled prescribed burn.

Farmer Brown has another older stand of pines nearby containing more sweetgum in the understory. He is concerned that the sweetgum and other hardwoods in this stand may become too large for fire to control. He uses a burning contractor and they begin with another February fire to remove the deep litter layer accumulated through the years. The next fire, two or three years later, is conducted in the late spring for the purpose of attaining better control on the undesired hardwoods. Brown notices that the later he burns in the year (i.e., May instead of February), the better control he gets on the hardwood

underbrush. On another note, it also occurs to him that if he ever has a wildfire burn through his property, it will be much less severe than if he had never burned at all, thus protecting his investment.

Finally, we come to part of Mr. Brown's property located down along the creek bottom, where the lower elevation lends itself to growing hardwoods better than pines. He asks his forester if prescribed fire could be used here, but the forester advises against burning his hardwood stands. He explains that the usual thin bark of hardwoods makes them susceptible to fire damage. It is decided that he'll not burn stands with hardwoods that he wishes to keep.



As Farmer Brown continues his burning program, he has covered all his objectives and is reaping the multiple benefits mentioned earlier. Timber buyers looking at his timber will be much more pleased to walk through the property with ease. Records kept from harvested deer show an increase in body weight. Hunting success, in general, has improved because he has increased the carrying capacity through better wildlife habitat.

Now let's summarize briefly the timeline for conducting prescribed burns. For site prep burns that prepare the ground for tree planting, late summer or early fall is usually best. For understory burning in a pine stand that has not been burned before, winter is usually best, sometimes later. For burns aimed at controlling hardwood problems in pine stands (such as sweetgum), spring or early summer generally works better, if the pine trees are large enough to withstand the heat generated by the fire.

Before a landowner begins a burning program, he/she needs to realize that it needs to be done by trained, professional personnel. Landowners can burn their own property, but that needs to happen only after they have received training and some experience before attempting to do it on their own. The Alabama Forestry Commission (AFC), as well as other contractors, offers this service for a fee. AFC personnel can also visit your property and offer recommendations at no charge. For more information about prescribed burning on your property, contact your county AFC office or visit the website at www.forestry.alabama.gov. Two other websites advocate the use of prescribed burning as a tool to achieve healthy forests and keep them safe; visit www.GoodFIRES.org and www.VisitMyForest.org 

Good**FIRES** 

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Alabama Prescribed Fire Council

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

Prescribed burning is the controlled application of fire to naturally occurring vegetative fuels under specified environmental conditions and the following of appropriate precautionary measures, which cause the fire to be confined to a predetermined area and accomplish planned land management objectives. In 1995, the Alabama State Legislature declared that the application of prescribed burning is a landowner property right as well as a management tool that benefits the safety of the public, the environment, the natural resources, and the economy of Alabama. The purpose of Alabama's Prescribed Burning Act is to authorize and promote the continued use of prescribed fire for ecological, silvicultural, agricultural, and wildlife management purposes.

The Alabama Prescribed Fire Council (APFC) was formed in October 2007, and its mission is to "protect, conserve, and expand the safe use of prescribed fire on Alabama's fire-adapted landscape." Some of the goals the council strives for include facilitating communication and the exchange of information regarding the benefits of prescribed fire, promoting a public understanding of prescribed burning benefits and the difference between wildfire and prescribed fire, and providing a focus for issues and concerns surrounding prescribed fire in Alabama. Other purposes of the council are to provide a forum where interested parties may participate in meetings and gain information generated by APFC, promote safety, training and research in the science of prescribed fire, and to promote an increase in acreage annually managed by prescribed fire.

The APFC is governed by a steering committee composed of landowners, consultants, representatives from state and federal agencies, professionals from forest industry, and non-profit organizations. There are working groups that deal with certain prescribed burning issues such as policy and legislation, litigation, insurance, smoke management, fire behavior, public relations, education, and website maintenance.

The APFC is a member of the national Coalition of Prescribed Fire Councils. Comprised of 28 states, Canada, and Mexico, this coalition's primary objective is to promote prescribed burning on a national level.

To become a member of the Alabama Prescribed Fire Council, simply send an e-mail to rxburning@aol.com with your name and contact information. General membership meetings are held annually in October. Please visit www.alpfc.org for more information, or contact Frank Allen, Area Wildlife Biologist, Alabama Department of Conservation and Natural Resources, at (256) 587-3114. 

I Have a Forest Management Plan . . . Now What?

By Neil Letson
Forest Management Assistant Director,
Alabama Forestry Commission



AFC Forester Tom Lang (right) looks over forestland with landowner Dr. Lee Youngblood.

An estimated 400,000+ nonindustrial, private landowners either own or control 79 percent of Alabama's forestland. The sheer number of family forest owners makes this ownership group the largest (by far) of any in the state. They also represent countless opportunities to manage their forests in ways that are as diverse as their backgrounds, experiences, and objectives. It cannot be overstated to say that how well these family forest owners tend their land holdings is crucial to the wise use and sustainability of Alabama's natural resources.

The key for each family forest owner's success is the same as for anyone owning something of value . . . good planning. For the forest landowner, this means having a written management plan. Yet according to the 2004 National Woodland Owner Survey, only 3 percent of family forest owners in the South have a written document to guide management activities. That's why a lot of effort has been placed on showing landowners how they can and why they should have forest management plans (see "Why You Need a Forest Management Plan...and Where to Get One" by Tim Albritton, *Alabama's TREASURED Forests* magazine, Winter 2000).

But, what happens when a family forest landowner receives their written management plan? How can they use the document? Answering these questions correctly can go a long way in

helping to make forest ownership more fulfilling and meaningful. It will also help our forest resource remain one of Alabama's greatest treasures.

Read It

Tom Lang is a 24-year career forester with the Alabama Forestry Commission. In that time, he has written landowner plans for cost-share assistance, the Stewardship program, Southern Pine Beetle, and the Conservation Reserve Program (CRP). He has seen some landowners use their plans, and he has seen others file them away never to be opened again.

Lang believes making a management plan work starts with the landowner knowing what is in their plan and why it says what it says. For Lang, this means the management plan should always represent the family forest owner's values, because it will give the landowner a vested interest in making sure he or she is motivated to read it and carry it out. To do that, the first step for the landowner is to sit down and go through the plan as soon as it is written, preferably alongside the professional forester who wrote it.

"It's good to sit down with the landowner and go over their plan with them," said Lang. "Let them flip through it and then answer their questions, especially when an absentee landowner is in town. The more they understand forest management, the

more they'll get out of their plan. If we're telling them to clearcut, but don't say why or how, they might think we want to do it for the wrong reason."

Mac Prince agrees with Lang that it is essential landowners read their plan, understand it, and then agree with it.

"First thing they need to do is to look at it and see if they like what's in it," said the 32-year veteran forester, 21 years with the AFC. "If there is something they don't like, they need to get with the writer and change it."

Work the Plan

In 1973, Malon Murphy inherited family property in Pike County. The first 10 years he and his father did very little to the land. And it showed. Not one to sit idle and let his property remain dormant, he knew he had to find help and that he needed a plan.

"I got Mac Prince to write me a plan and I have kept up with it since," said Murphy. "I began to harvest timber, thin every year, replant, and spray. I also managed for wildlife and it's moving along very well. Everything began to take shape."

Murphy credits his plan for providing a road map to put his property on track to produce income and personal enjoyment. He says that having a forester to talk to before and after the plan was written made all the difference.

"I asked Mac how to improve my land, and he said, 'you need a plan.' I did everything accordingly and it has worked."

Murphy's written plan also helped him become a lifelong student of natural resource management. He has used its contents to increase his own personal knowledge and to make sure he is actively engaged in managing his property. His plan is now a part of a huge binder filled with an increasing amount of information to help manage his forest.

"I make notes and keep a log of everything," said Murphy. "I put something in it once or twice a week so I can have a record. My plan is in the front of my binder. If I read a good article, I put it in the binder. Every December, I make a bullet list of things to do next year. It's a whole page and I check it off as I complete each item."

Be Flexible

A forest management plan is only as certain as the date it was written. Future events and unknowns will always throw a wrench into the best laid plans. The market may vary. Unexpected storms happen. Disease or insect pests may crop up. Landowner objectives can change. Forest management is never static. Family forest owners should always be prepared to adapt to these changes with new strategies, while maintaining their goals and objectives.

"A plan has got to be dynamic. It's not in stone," said Prince. "It's not like the Bible. Landowners must be ready and willing to always make changes."

Lang offered several ways for family forest owners to adapt their plans to change. He said they should keep themselves current and up-to-date on new technologies in forest management, attend forest management meetings, and learn from other landowners' experiences. But above all, he feels landowners show build and maintain relationships with professionals, especially consultant foresters.

"Call a professional if you have a question," said Lang. "Sometimes you may have more than one option, especially with hardwood stands. Go to the experts who are knowledgeable."

Celebrate Your Successes

There is great satisfaction when something works as planned. That's the reward many landowners experience with their family forests, especially when they see their investment, time, and labor pay off. That's also the beauty of family forest ownership where ordinary citizens from a broad spectrum of society use their goals and objectives to make Alabama's forests better.

Family forest owners should not only celebrate their successes, but be willing to share them with others. That way they can help guarantee that their landowner ethic and forest management planning will be passed on to the next generation of family forest owners.

Claire Murphy watched with keen interest as her husband Malon followed his plan to effect. Impressed, she and her brothers had a professional forester write a management plan for their 371-acre Pike County property.

Following their plan has created a new enthusiasm in the family, along with a greater appreciation for their forest.

"With a management plan, you know where you are with the land," said Claire. "We want the land to be there for our children and grandchildren." 🌲

Pike County landowner Malon Murphy discusses his written management plan with AFC Forester Mac Prince.



Photo by Charles Rawls

Forest Management

Nut in a Shell

By Tim Albritton, State Staff Forester, Natural Resources Conservation Service

This article is the first in a series dedicated to the forest management information needs of small landowners.

Over the years I have been asked by countless landowners to give them a quick and easy formula for forest management, often without the opportunity to see the property. To offer a helpful summary of such a diverse subject is, to say the least, a difficult assignment.

Such a recommendation, if followed, could prove costly to a landowner. For a forester to adequately assess a forest stand and develop sound management recommendations, a thorough survey or timber cruise is necessary. A careful survey equips a forester to estimate the quantity of timber that exists on a given area according to species, age, quality, size, possible products, or other characteristics. This process takes time, even for an experienced forester.



NRCS Forester Tim Albritton examines a longleaf seedling with landowner Jerry Brown.

Many landowners are reluctant to pay a forester for advice or pay for the development of a management plan with detailed recommendations. However, these same people do not hesitate to pay a doctor, a lawyer, or a certified public accountant for advice or services. This way of thinking is puzzling. I guess the

old saying is true, “Free advice is often overpriced.” But the truth is, the best forest management advice will come from an experienced forester who takes time to ask you questions about your goals and objectives and then walks your property.

Having said all that, I realize that some landowners still believe the State Staff Forester with the NRCS should be able to offer them a summary of forest management in a nutshell, so to speak. So despite some misgiving, I decided to develop a helpful summary of management principles. A management principle can serve as a guide in a variety of timber types, regions, and areas of the state.

By definition, a *principle* is a basic truth or assumption from which other decisions can be made. Another word that fits this description is *axiom*, a self-evident truth that requires no proof. My goal is to offer a list of management principles that a landowner could adhere to and begin building a foundation for future forest management.

Here are my management principles:

- 1. Develop a long-term goal.** With any worthwhile endeavor, you need to set some goals that go beyond the current season. Years pass with increasing regularity, and before you know it, 5, 10, or even 20 years will go by. Without some tangible goals, you will find yourself wishing you had done one thing or another. So set some long-term goals and get started.
- J. C. Penny said, “Give me a stock clerk with a goal and I’ll give you a man who will make history. Give me a man with no goals and I’ll give you a stock clerk.”
- 2. Recognize the need for diversity.** Managing your forest for diversity can help prevent future problems with insect and disease issues, as well as create future opportunities with a variety of products to sell. There is certainly nothing wrong environmentally or economically with an even-age single-species forest management approach. There will always be a place for commercial forest production in Alabama. However, a landowner owning a small tract may want to consider a more diverse approach.



- Diversity is very important if wildlife management is an objective. The three basic things wild animals need to survive are food, water, and cover. Habitat needs vary, depending on which animal is being managed, and so should the management.
- In his article entitled, "Are Foodplots Wildlife Management?" Joel Glover, Wildlife Biologist with the Alabama Department of Conservation and Natural Resources, states, *"Diversity of habitat is the key to successful wildlife management."*
- 3. **Manage for vigorous growth of native species.** Suppression is a frequent cause of death in the forest, more than most landowners realize. One way to prevent this natural cause of tree mortality is to monitor stand density. When a stand is overcrowded, prepare to thin. Maintaining vigorous growth will also help prevent common insect pests such as the southern pine beetle.
- In your hardwood stands, watch out for non-native species that are invading our forests. Species such as privet, tallow tree, and Chinaberry tree are invading our natural woodlands and have little or no commercial value. They need to be eliminated; they are using up sunlight, water, and nutrients that your native trees could be utilizing.
- 4. **Be a good steward.** The land you are managing was owned by someone before you, and it will be owned by someone after you have passed on. You cannot take it with you. At least let it be said of you after your time is done, "He left it in better shape than when he found it."
- In years past, in order to be certified in the TREASURE Forest Program, landowners were asked to sign a creed. Five of the six statements in the creed mentioned stewardship. The creed is not used any more, but remains a worthwhile document for landowners to consider.

We live in a fast food, microwave society, and I suppose forest landowners will continue to seek a quick and easy management recommendation rather than a well-planned methodical approach. So don't be surprised by my answer if you ask me in a Hardee's parking lot, "How should I manage my forest land?"

My response will be that you should follow a few basic principles such as: develop a long-term goal, recognize the need for diversity, manage for vigorous growth of native species, and always be a good steward. That is the best I can do over a biscuit. But if you have time to enjoy a nice steak dinner with me, I will be able to share more with you than forest management "in a nutshell." 🍷



Landowner Barnett King discusses long-term forestry goals with NRCS Forester Tim Albritton.

Forest Management Resources

The following list is provided to assist you in finding a forester:

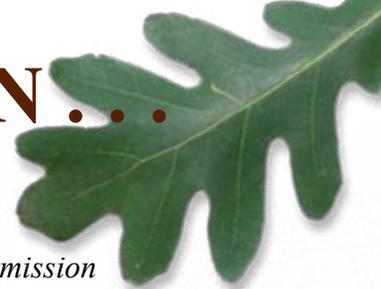
- Your county Alabama Forestry Commission office or visit: www.forestry.alabama.gov/ServiceProviders.aspx
- the USDA Natural Resources Conservation Service at www.al.nrcs.usda.gov
- the Alabama Chapter of the Association of Consulting Foresters at www.alacf.com
- the Alabama State Board of Registration for Foresters at www.asbrf.alabama.gov

TO BURN OR NOT TO BURN . . .

That Is the Question

By Jim Jeter

Statewide BMP Coordinator/Hardwood Specialist, Alabama Forestry Commission



I am frequently asked about prescribed burning of hardwood stands. To do something I have always been warned against is probably in my nature (as others have told me), but I usually answer this question with a question: *Why would you want to burn your hardwood stand?*

In the following article, I will address some of the answers I receive when I ask that question, and my response. This is not a scientific article based on data from past or ongoing studies. It is however, a reflection of my observations over the past 34 years of practicing forestry in Alabama, as well as seeing some studies actually implemented on the ground. In other words, it is my opinion based on practice, not theory. First I need to remind you that in Alabama we have two distinct hardwood growing regions: uplands to include coves and drains, and bottomlands. As discussed in earlier articles, the species composition of the two regions is similar, but there are some silvicultural differences when it comes to growing quality sawtimber products in each region.

Why do you want to burn your stand of hardwood or your hardwood site?

Answer #1 – I want to improve wildlife habitat on my property.

Response: If improved wildlife habitat is your primary objective and you have absolutely no regard for the quality of the hardwood timber within the stand, and it is on an upland hardwood site, then a very cool burn may clean the stand up a bit and possibly create some browse. The key word is “cool” burn. Most landowners think they understand what a “cool” burn consists of, but never really achieve the “cool” part of the complex list of variables associated with a prescribed burn. Ambient air temperature is probably the single most important factor affecting fuel moisture. The instantaneous lethal temperature for growing plant tissue, including the cambium under the bark and buds, is approximately 145°F. However, the dwell time around the root collar or in the crown may result in live tissue mortality at lesser temperatures, depending on whether the tissue is dormant or actively growing.

As you know, most hardwood species have thinner bark than most softwood species. The bark thickness determines the insulating protection from direct flames and associated heat. The thinner bark results in a much less fire-tolerant species. Most upland hardwood burns do not result in mortality of the entire tree, but do result in scorching and splitting of the bark. The result is an opening in the bark that allows stain, decay, and rot to enter into the cambial layer, ruining the grade of the butt log. The scarred trees may live for years, but the ability of a particular tree to grow or stay in the grade sawtimber category has been greatly diminished.

I have yet to see a “cool” hardwood burn that did not result in damage to the existing growing stock. Simply put, hardwood sawtimber production and burning do not mix. This observation has held true even more so on bottomland sites.

Answer #2 – I want to reduce the fuel buildup in my hardwood stand.

Response: Some ongoing studies in North Alabama and Tennessee have shown that hardwood litter does not have the

same characteristics and buildup potential as softwood litter. Thus, this litter buildup reasoning does not justify the adverse effects of burning quality hardwood sites.

Answer #3 – I want to improve my oak regeneration potential.

Response: First and foremost, if you do not have an oak component in the existing stand, it is very unlikely that a prescribed burn will improve any oak regeneration potential. Oak regeneration is disturbance-oriented and based on the fact that some type natural oak in the stand will provide the source of regeneration after the disturbance. My point is that in order to naturally regenerate an existing oak stand, evaluations need to be made prior to a harvest or burn to evaluate the regeneration potential, and then take steps to increase the potential if it does exist. In a bottomland stand, this may involve no more than a silvicultural final harvest if the potential is medium to high. On sites with less potential, a shelterwood harvest may need to be implemented to open the stand and to target oak as “leave” (mother) trees to provide seed for advanced regeneration.

I have seen studies that say a prescribed burn can improve the regeneration potential of oak. What they fail to mention is the harmful effects to the existing stand that may be incurred from the burn. If you have quality sawtimber in the shelterwood overstory – which you should have – and you blister the bark, your timing of the final harvest just got planned. I have seen the results of this type burn on the Cumberland Plateau dealing with scarlet oak. The main issue I observed was the residual fire damage to the overstory. At some point, if the regeneration burn is successful, that overstory will be harvested in order for the regeneration to grow properly. Will the economic loss justify the means? It depends on your individual objectives.

Answer #4 – I want to clean up the logging debris (i.e., site-preparation).

Response: Unless the logging debris is in piles and the area involved is limited to as small an area as possible, I would not burn. Bottomland hardwood sites and most upland hardwood sites will naturally regenerate after a harvest cut with the species that previously existed in the stand. This is accomplished by the existence of – or prior establishment of – advanced regeneration, seed in place, root sprouts, and stump sprouts. Regardless of the species, if you burn this area hot enough, you will do damage or destroy this process. Most site-prep burns involve 10-hour and 100-hour heavy fuels that will prevent you from having a “cool” burn. Even though it is not aesthetically pleasing to leave the scattered logging debris, site-prep burns for naturally regenerated hardwood stands do more damage than good.

Summary: As you can tell, I am not a proponent of burning in hardwood stands for any reason when the landowner’s objective is to grow quality hardwood sawtimber. This issue is more complex than the discussion put forth in this article. I am also sure there are some folks that will disagree with my observations, maybe strongly, but as a general rule, fire and hardwood silviculture do not mix. Too many prescribed burners do not realize the damage they are creating. After all, we burn pine stands to kill or knock back the in-stand or remaining hardwood.

Why would you want to burn your hardwood stand?

HARDWOOD CORNER

Selling Your Timber



A timber sale is a serious matter requiring careful preparation. The results of many years of past timber growth are at stake, and the condition of the forest after the sale profoundly affects its productivity for many years to come.

Your best interest should be the top priority of anyone you hire to assist in your timber sale. They should fully disclose and resolve any existing or potential conflicts of interest.

Basics to Consider

1. Hire a Registered Forester or Consultant (who is a Registered Forester) to Help With the Planning and Sale of Your Timber

Selling timber can be a source of great satisfaction to a landowner, or it may be a source of surprise, frustration, and stress, especially for those landowners who make timber sales infrequently.

Relying on the expertise of a registered forester or consultant that is a registered forester to help with the harvest planning and timber sale can prevent surprises to either the seller or buyer and help ensure landowners get the best value for their timber.

To find a registered forester or consultant, you can go to the Alabama Forestry Commission's web page www.forestry.alabama.gov, the Alabama Chapter of the Association of Consulting Foresters at www.alacf.com, or the Alabama State Board of Registration for Foresters at www.asbrf.alabama.gov.

2. Develop a Forest Management Plan

Properly managed forests yield more timber, have a higher net present value, suffer fewer environmental impacts, and enhance wildlife habitat more than non-managed forests.

Forest management plans are also required for third-party certification and future markets, such as Woody Biomass and Carbon Sequestration.

3. Pre-Harvest Planning

Pre-harvest planning will ensure that your forest management objectives and goals are not compromised. It will reduce opportunities for misunderstandings between you and the buyer and/or logger, help ensure that the harvest will maximize financial returns for all parties, protect water quality, and maintain or enhance forest productivity.

If profit is your primary objective, avoid the temptation to make a "quick sale." Think about what you are going to do, and don't be pressured into making a decision. Using the competitive bid process can maximize your profits.

Clearly marking sale boundary lines will help ensure that the logger does not cut non-designated trees and/or trespass on the neighbors' property.

The use of topographic maps will assist you in identifying streams, existing roads, property boundaries, steep grades, and road access. Soil maps will help identify wet areas and soils that can be easily damaged during the logging process. The use of topo and soil maps can also help in planning not only the time of year to harvest, but also the potential location of logging decks, stream crossings, culverts, and temporary roads.

You should designate areas adjacent to streams as Streamside Management Zones, where timber harvesting should be controlled or avoided.

Before harvesting begins, you or your representative should conduct an on-the-ground meeting with the buyer and logger to review the pre-harvest plan.

The consequences of not having a pre-harvest plan include: time and money spent on unintended problems, degraded forest conditions, illegal activities, declining water quality, more forest land impacted by skidding, degrading post-harvest condition of forest soils, trees more susceptible to disease and insect damage, reduced regeneration of seedlings and saplings growth, etc.

4. Determine a Selling Method

Timber is generally sold by one of two methods: negotiation or sealed bid. You should seek the advice of your Registered Forester or Consultant Forester to determine which method is best for you and your harvesting objective.

Tax Implications

Competent tax advice should be sought well before a sale. It is recommended that prior to making the sale you contact your CPA for clarification of the current tax laws.

There are also various sources of information that you can access on the internet. The Alabama Cooperative Extension System, my-forest.com, the US Forest Service Cooperative Forestry, and the National Timber Tax Website provide tax information that may help you better understand the tax implications of selling your timber.

Those sites are:

- www.aces.edu/
- www.my-forest.com
- www.fs.fed.us/spf/coop/
- www.timbertax.org

Properly managed forests yield more timber, have a higher net present value, suffer fewer environmental impacts, and enhance wildlife habitat more than non-managed forests.



Preparing a contract encourages forethought and planning, which will minimize difficulties and ensure that the transaction meets your expectations.

You should always consult with a registered forester and attorney when drafting a timber sale contract.



Sample contracts are available on our website at www.forestry.alabama.gov, under "Market & Informational Resources" menu or <http://forestry.about.com>

- **Negotiated sales** involve face-to-face bargaining between you and the buyer.
- **Sealed bid sales** require that prospective buyers submit confidential offers in writing for your timber.

Generally, the sealed bid method returns the highest dollar value to you, the landowner, especially if you are unfamiliar with local markets. The negotiated sale is more prevalent for specialty products such as high-value hardwoods, where there are normally very few bidders. Whichever sale method is selected, you should require the logger to be Professional Logging Manager (PLM) certified.

A trained professional logger can ensure trees are effectively harvested and merchandised in a manner that fully utilizes Best Management Practices (BMPs). This is particularly important as more emphasis is being placed on protecting and enhancing water quality. It's a good idea to take time to know the prospective logger by asking for references, business experience, and whether they have completed PLM training. You or your agent can verify they've attended Alabama's PLM course by going to the Alabama Forestry Association's website at www.alaforestry.org and clicking on PLM.

(If you choose to sell your timber through the bid process, you may limit your ability to specify a particular logger.)

5. Have a Contract

A written contract is essential and will reduce surprises to both you and the buyer and/or logger. Preparing a contract encourages forethought and planning, which will minimize difficulties and ensure that the transaction meets your expectations. A contract is not a substitute for good faith and fair dealing between parties, it is a framework in which good faith and fair dealing can operate in an orderly and effective manner.

The following items should be included in a timber sale contract:

Timber Description

- **An Accurate Legal Description:**
In the contract, state the exact location and legal description of the timber sale area.
- **Marking Corners and Boundaries:**
The contract should state at whose expense marking will be done and how the boundaries and corners will be marked.

- **Selling Timber on a Per-Unit Basis:**
If you choose to sell timber by the unit, specify the units of measurement to be used, who is to do the measuring, and where. Measurements may be made by one of several different methods: log scales, weight, cords, or some combination of these. A per-unit sale should specify that all timber harvested is to be measured and paid for according to its most valuable product use.
- **The Type of Harvest:**
Specify the type of harvest you desire and if the timber is marked, how it's marked. For example, if you are making a seed tree cut, you may specify that all trees banded with blue paint 4-1/2 feet above ground (Diameter at Breast Height, DBH) are seed trees and will not be cut or damaged. If you are thinning or using a select cut, you may want to designate the trees to be cut with one paint spot above DBH and another below the stump height. If you are doing an operator-select harvest, specify selection guidelines in the contract.

Payment, Damage Clauses, and Penalties

The following are provisions to consider including in a timber sale contract. Be aware that some restrictions placed on harvesting may lower the price someone is willing to pay for your timber, so be reasonable in your expectations.

- **Selling Timber on a Lump-Sum Basis:**
If you are selling your timber on a lump-sum basis, specify that you desire payment in full at the time of contract execution; or if you are deferring payment, the exact date(s) you expect payment.
(A lump-sum sale is the outright sale of standing timber for a fixed dollar amount agreed upon in advance. The sale price is not a function of the volume cut.)
- **Selling Timber on a Per-Unit Basis (price):**
If you are selling on a per-unit basis, specify the payment per unit for each species and product, as well as timing of payments. Additionally, agree on the method and place of scaling and measurement. Also, you should require in the contract that the buyer provide you with a complete accounting of all species and products by delivery point that are harvested from your sale.

Whether you're dealing directly or indirectly with a timber buyer, wood supplier, logger, registered forester or consultant, you should always request references, experience, applicable licenses, and certifications.



(A per-unit price is determined in advance, but the amount of timber to be harvested is not. Income from sale is based strictly on the volume actually harvested.)

Time Period for Cutting Timber:

Normal time periods for cutting timber are 12 to 24 months. There can be provisions for extensions, but the details and timing of the extension should be defined. There is usually a cost to the buyer for an extension, and you can consider the value of additional growth if the buyer holds for longer than 12 months.

Damage to Your Land or Remaining Timber:

A certain degree of damage should be expected. You may want to visit a comparable site that has been recently harvested by the logger who will harvest your tract. Also, you may want to state your damage requirements, such as no more than a maximum number of trees per acre having visible skidding damage, or specify the acceptable depth (in inches) of skidding ruts.

Access Restrictions:

Specify any restrictions you have for ingress and egress to your property. For example, If you desire that the logger not use a certain entrance to your property, such as through your pasture or beside your house, specify this requirement in the contract.

If You are Making a Partial Cut:

Include a penalty for cutting non-designated trees. If you specify in the contract a dollar value per merchantable tree volume for the cutting of non-designated trees, later problems will be more easily resolved. The usual penalty for such damage is double or triple the stumpage rate.

Removing Canopy or Overstory:

If you intend to remove a canopy or overstory to allow the future stand room to grow, you should likewise specify a penalty for failure to cut designated trees.

Logging Notification:

Agree on when logging can begin and ask to be notified prior to the logger moving on the sale site.

Logging Clauses

Method of Logging:

You may specify a certain method of logging be used, such as a forwarding system instead of tree-length skidding, to minimize damage to your residual stand during a thinning operation.

Road Maintenance and Skid Trail Layout:

If you desire that roads be maintained to a minimum standard, refer to that standard in the contract. A usual requirement is to return roads to as good or better condition than before logging occurred. Address your expectations for repair of fences or other special places that may be damaged during the harvesting operation.

As important as it is, the contract is only one of many issues that needs to be considered when the decision to sell timber is being made. The following concerns should have a bearing on the content within the contract:

1. Do you have a clear title for the timber being sold?
2. Have you established your tax basis for the land and timber you plan to sell to claim your capital gains treatment?
3. What are the market conditions for the products being sold or retained?
4. How will the sale be marketed to receive the best price or the best job?
5. Will there be any environmental issues (i.e. wetland management or threatened & endangered species) involved in the sale area?
6. How will the sale area be accessed? You would not want large equipment utilizing trails or traveling on property outside the sale area.
7. Site preparation and reforestation options.

These topics are not all inclusive but show why pre-harvest planning is important.

Timber Sale Timeline

Develop a Forest Management Plan



Monitor Harvest



Hire a Registered Forester or Consultant (who is a registered forester)

Develop Harvesting Schedule

- Decide to Have a Sale
- Determine Type of Harvest
- Check Timber Prices
- Delineate Sale Boundary
- Identify Special Requirements

Pre-Harvest Planning

- Develop Prospectus
- Select Timber Buyer/Logger
- Develop Harvest Plan
- Contract
- Pre-Harvest Conference with Buyer/Logger

Closeout with Buyer/Logger



Monitor the Harvest Operation

Check the logging operation on a regular basis to ensure contract requirements are being met. Always require as part of pay-per-unit sales that you are provided with a full accounting of what's being harvested. This information should be provided to you by the buyer. The frequency with which you receive this information is up to you, but it's recommended that it be provided on a regular time schedule, i.e. weekly, monthly, etc.

Requiring a load-by-load accounting of forest products removed from your timber sale is a good business practice for you and the buyer. It provides you with a full accounting of what is harvested off your property and helps ensure that contractual terms are fulfilled.

Record-keeping on per-unit sales:

- Load number
- County and state of origin
- Landowner's name
- Date and time
- Scale ticket number
- Species and product
- Destination
- Purchaser

Acknowledgements:

- Dr. Richard Brinker, Auburn University
- Alabama Cooperative Extension System
- Arkansas Forestry Commission
- North Carolina Department of Forest Resources
- Cornell Cooperative Extension
- Steve Nix, About.com Guide
- USDA Forest Service, Cooperative Forestry
- www.forestry.alabama.gov

- **Reduce the possibilities for non-point source pollution:**
You should specify that all logging should be done in accordance with "Alabama's Best Management Practices (BMPs) for Forestry." For more information on BMPs visit our website at www.forestry.alabama.gov/BMPIndex.aspx.

- **Stump Height and Top Diameter Harvested:**
If stump height and top diameter harvested is important to you, then you should specify, in inches, the maximum stump height allowed or top diameter. If you want to easily machine-plant your next timber stand, allow a maximum stump height over which the tree planter can easily maneuver.

- **Selling Your Timber Based on Unit Volume:**
If you are selling your timber based on unit volume, be sure to specify the maximum top diameter that you will allow to remain in the woods.

- **Cleanup:**
Include a statement requiring removal of all litter and trash from the logging operation. You may also want to specify that logging debris be scattered back over the site, versus piled at the logging deck.

The Sale and Harvest

- Arrange a meeting with the buyer and/or logger so that you or your representative can point out any special restrictions that you have imposed. Walk the sale site to ensure sale boundary lines and other restrictions are understood.
- Check the logging operation on a regular basis and inform the logging supervisor if you think that the terms of the contract are not being faithfully followed.
- Be reasonable in your expectations and assignment of damage penalties. In some instances, the amount that you receive for your timber may be reduced due to excessive restrictions.

Other Contract Provisions to Consider

- Name and address of buyer
- Date contract is executed
- Declarations of the seller's ownership and right to convey. This may include a title abstract and insurance.
- Clarify ownership of by-products.
- Liability Insurance of all contractors and sub-contractors
- State who is responsible for paying severance tax.
- Statement of who suffers the loss if timber is destroyed or stolen
- Provision for or against assignment of the contract
- Notarization of the contract

For more information, contact one of the following agencies or organizations:



The Alabama Forestry Commission (AFC) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. The AFC is an equal opportunity provider and employer. Funding provided in part by various state and federal agencies, and private organizations.

6. Monitor the Harvest

You or your agent should frequently inspect the harvesting operation to ensure the contract terms are being fulfilled.

When you sell on a per-unit basis, a full accounting of what was removed during the harvest should be provided by the buyer. You can designate how frequently you want the information: weekly, monthly, or at the end of the sale. Minimum information received should include:

- Each load of timber leaving a cutting site must be assigned a load number. Load numbers for each job site should be in numerical sequence.
- The county and state where the timber was cut
- The landowner's name, or if multiple owners, the name of the estate where the timber is being cut.
- Date and time the forest product was loaded on the truck
- The scale ticket number that corresponds to each load number to verify delivery of individual loads of forest product
- The forest product type identified (for example: pine logs, pine poles, pine pulpwood, hardwood logs, hardwood pulp, chip and saw, woody biomass, and miscellaneous forest products)
- Destination of the first wood-receiving facility that the forest product is being transported to
- The name of the logging company, wood dealer, or producer removing the forest products

7. Closeout with Buyer/Logger

- A notice of completion of harvest from the buyer can be helpful in removing any question if the buyer considers the harvest complete and relinquishes remaining biomass back to owner.
- Review and agree on action and timing to address any land or timber damages related to harvesting operations.
- Address any other issues related to non-compliance of the contract.
- Ensure compliance with BMPs.

Some Things Your Wife Should Know about Your Forestland

By Jerry Gibson, Landowner

When I bought my farm in 1990, I was the dumbest forest landowner in Washington County. So why should you read on? Because I know something most of you do not. I know what it's like to be a female forest landowner, uneducated in good forest management.

- Gentlemen, if you died tonight, could your wife successfully manage your forestland?
- Does she know where it is?
- Does she know where the land lines are? Are they marked?
- Does she know where your forest management plan is? If it's only in your head, that won't help her.

The most valuable asset a man can have is an educated wife. There are too many horror stories of widows being cheated. Don't allow your wife to become a victim.

- Does she recognize and appreciate the value of your land and timber?
- Does she know where your legal papers are located? Will, deed, insurance papers, bank statements, outstanding loans, investments, etc.
- Does she know your forester, accountant, insurance agent, and contact at the bank? Can they work as well with her as they do with you?
- Have you discussed your goals for the land with your wife? Is she in agreement?

Your land is important to you. You worked hard acquiring and improving it. Most of you would want the land to stay in the family and continue to be well-managed. Now is the time to work just as hard in educating your heirs.

Do your children and grandchildren appreciate, respect, and love the land as you do? Having fun is a good starting point. Money spent to help kids appreciate forestland is a wise invest-



Jerry Gibson (right) and her sister, Wilma Gandelman, mark an area they've treated for cogongrass. It's an ongoing battle in Mrs. Gibson's 260-acre TREASURE Forest.

ment. A very smart man once shared with me the advice his daddy gave him: "Make your place the most fun place to visit."

Do your wife/heirs know who to call for professional advice? Even if your forestry plan is up to date and written down, wouldn't it be easier for your widow to continue doing the good job you've been doing if she had a professional forester to help her? Not just any qualified forester, but one that will provide the desired level of service. The best forester in Alabama may not be the best one for your widow, if they can't work together.

In 1990, friends advised me to hire a professional forester. They said it would be easy; "the woods are full of them." They are, but it wasn't that easy. The following story is mostly true; the names have been changed. All the men and women were well-qualified foresters, but they were not the right foresters for me.

(Continued on page 20)

Some Things Your Wife Should Know

(Continued from page 19)

The first one, “Adam,” came to the farm one early autumn. [My sister, Wilma Gandelman, and I – both of us widows – live on a 260-acre TREASURE Forest.] As we walked the property, he would occasionally make a comment. At the first fallow field, he kicked the dirt and said, “Look at that! Dirt’s so poor it won’t even grow weeds! I don’t know what you paid for this place, but you sure got took.” He didn’t ask, and I didn’t tell, that the field had been rented out and improperly farmed that summer.

“Let’s go look at those trees,” he said. So we did. A few minutes and a hundred yards later, we stood at the edge of the 20-year-old pine plantation. To my surprise he said, “I don’t know what you paid for this place, but you sure got a good deal.” Then he turned to me and said, “What you ladies need are two good men.”

I opened my mouth to ask if he was available, then looking him up and down, decided he probably was, and shut my mouth. Needless to say, I did not choose him to be my forester.

Later, several foresters, representing a highly recommended local management firm, dropped by one at a time to visit. First Alex, then Daniel, Jessica, Gaines, Max, Aime, and Marcus all sat on the back porch with me, drank iced tea, and made polite conversation. There was a lot of talk, but very little about forest management.

“Bruce” was doing an excellent job for a friend of a friend. He suggested undertaking a select cut, then planting the fallow fields. I accepted his recommendation and he did a good job. He even wrote a five-year management plan for me, without asking about my long-term goals. Then, for a year, he forgot to return my phone calls. He forgot to answer my letters. He *did* remember to send me a bill. I forgot to pay. I guess he quit, but it’s kinda hard to tell.

After several years, and a degree from the School of Hard Knocks, I met the right forester for me while attending an AFC forestry tour. When Patrick (his real name) came to the farm, I suggested we have some iced tea on the back porch. He said, “Why don’t you show me your place first?” *That* was different.

We rode where we could and as we turned to go back, he stopped the truck, turned to me and asked, “What do you want to do with your forestland?” I was speechless. No one had ever asked me that.

I’m really proud of what we’ve accomplished. Patrick wrote a management plan with my input. We have marked the lines, applied herbicide, thinned trees, improved roads and ditches, and established permanent fire lanes. I am now a Certified Burn Manager, and together we have conducted prescribed burns as needed. We also learned some unexpected lessons from hurricanes Ivan and Katrina.

With three years of help from the Natural Resource Conservation Service’s cost-share programs, we have had great success in controlling cogongrass. We continue to monitor the land for new infestations and spray as needed.

We have also greatly reduced the amount of Japanese climbing fern, Chinese privet, tallow trees, willows, and wax myrtles. Patrick keeps me informed of new trends in management and programs available from various agencies. We discuss the options and together make the decisions.

In 2006, we were riding through the then-36-year-old-pine plantation when he asked me, “Do you know the first thing most heirs do when they inherit forest land? They clear cut.” It took me about 20 seconds to decide that we needed to set some new long-term goals.

We clear cut, leaving several areas of mixed pines, hardwood, and native shrubs surrounded by a permanent fire lane. Patrick and I discussed the site-prep options, reached a consensus, and then did it. We planted slash pines because they are the best species for my land and my goals.

We’re managing the land for timber production, later to be leased out as a hunting camp.

When my work here on earth is done, my grandchildren will be in charge of managing the property. I have taken the time to teach them the value of their inheritance, while they enjoy visiting the property and getting their hands dirty. In 2009, my Christmas present to them was to apply liquid fertilizer to the two-year-old pine plantation!

It took me a while to find the right forester and management plan for me. But my advice to you is that it is not too late to start. Educate your loved ones about the value of your forestland. Give them an opportunity to enjoy the land as you have. And hopefully, they will learn a lesson from you and teach it to the next generation of forestland owners. 🌲





WOODY BIOMASS 101

General Harvesting Issues, Concerns, and Recommendations for Alabama Forest Owners

By Jim Jeter

Statewide BMP Coordinator/Hardwood Specialist, Alabama Forestry Commission

It is important for Alabama forest owners to understand what is going on with woody biomass harvesting in Alabama, and how the issues involved will affect some of their forest management strategies.

Issues and Concerns

While definitions of woody biomass are usually similar, there can be surprising differences. These differences in definitions are at the center of a national debate as Congress considers a new energy policy as well as a cap and trade bill involving carbon sequestration. There are some factions that want a very narrow definition allowing only a small portion of usable woody biomass to meet the standards within these two bills; then there is the other side that prefers a broader definition that would be advantageous to most woodland landowners.

Technically, the term *woody biomass* includes all the trees and woody plants in the forest, woodlands, or rangelands. This biomass includes limbs, tops, needles, leaves, and other woody parts. In practice, woody biomass usually refers to material that has historically had a low value or no economic value and cannot be sold as timber or pulpwood. At present this is the case in Alabama and most of the southeastern states. In the South, woody biomass that has been harvested thus far includes logging slash, small diameter trees, tops, limbs, and/or trees that

cannot be sold as a higher-value product. Markets will determine which trees are considered acceptable for each individual product and which are relegated to the low-value biomass category. As markets change over time and from region to region, different kinds of materials may be considered woody biomass. So far in Alabama, short-rotation woody biomass plantations have not been implemented as a silvicultural system. However, as more government incentives are brought forth, these plantations will be a part of the woody biomass market.

While the debate lingers, there have been concerns by different groups as to what effects the removal of woody biomass may have on the environment. As natural resource managers, there is great concern that we adopt practices and develop products that are not only environmentally, socially, and economically sound, but also meet present needs without compromising the ability of future generations to meet their needs. To address these concerns, most groups are looking at criteria and indicators for nine principles: soil productivity, biological diversity, water quality, climate change, socio-economic well-being, legality, transparency, continuous improvement, and integrated resources management planning.

(Continued on page 22)

Woody Biomass

(Continued from page 21)

Soil Productivity: The maintenance of site productivity is perhaps the key non-water quality issue when anticipating the expansion of the use of woody biomass. Many soils in the South are still recovering from agricultural practices of a century ago. This improvement in soil quality is largely due to the extensive reforestation efforts undertaken in the 1930s. With the addition of key nutrients through fertilization “boost,” the options are to either improve or maintain existing site productivity of most forest soils. If it is proven that the harvesting of woody biomass actually depletes the nutrients in certain soils, fertilization may become a standard management tool. Studies have shown that most soils recover any nutrient loss within three to six years after a harvest.

It is unlikely that any damage from forestry operations other than road construction would prevent establishment of vegetative cover. If so, measures suggested by Best Management



Practices (BMPs) to establish vegetative cover following harvesting would prevent soil erosion and restore some of the soil's productive capacity. Additional measures (fertilization and tillage) to restore or increase site fertility beyond that needed to establish vegetative cover would be justified by economic analysis of tree growth. Studies over time have shown that individual case/site analysis is needed to determine whether avoidance of soil damage is more cost effective than rehabilitation.

There is great diversity in soils across the South, from droughty sands to sandy loams to sandy-loam-clays to clays. Due to this diversity and its corresponding productivity, each soil has its own specific recommendations dealing with nutrient depletion or addition. However, those of biggest concern should be the droughty deep sands. In the case where a tract contains mostly sandy soils, it would be recommended that less woody biomass be harvested. There are numerous ongoing soil studies dealing with nutrient depletion and nutrient translocation that should give us a better handle on this in the future. Until then, special steps may be taken to mitigate nutrient loss on sites identified as vulnerable to nutrient depletion. Examples of such steps may include altering the harvest plan, redistributing a portion of the logging slash, or supplementing the native nutrient level through fertilization.

Use the web soil survey at <http://websoilsurvey.nrcs.usda.gov> to view the soils on a given tract, or contact your local county USDA Natural Resources Conservation Service (NRCS)

office. This survey provides a simple yet powerful way to analyze soil data in three basic steps.

Soil compaction and excessive rutting can also impact site productivity. This is usually the result of logging or performing equipment operations during wet or saturated soil conditions. Although site productivity can be restored in these cases, the necessary mechanical site preparation practices are very expensive. Timing harvest operations to avoid wet soil conditions or minimizing equipment travel patterns can prevent such impacts.

Biological Diversity: As biomass utilization expands there will be growing pressure to maximize the efficiency at which these raw materials are harvested. There is a major concern that this pressure could result in increased intensification of natural forest management as well as conversion of native forest to plantations or short-rotation dedicated energy crops. Intensive forest management has been a well-accepted silvicultural practice among forest managers in the southern states, thus presenting less concern in this region. However, the concern is greatest in the northern-most states where intensive management is presently not the norm. Recommendations regarding plantation establishment and management, and situations where biomass is the primary product being grown and harvested will be addressed as biomass utilization intensifies and specifications for particular products are established, i.e., species, rotation length, and product size.

One of the central concerns in woody biomass removals is the reduction of the quantity of dead wood left on site. Dead wood plays an important role in the ecosystem, from wildlife habitat and nutrient cycling to carbon storage. Coarse woody material (CWM) provides habitat for mammals, amphibians, reptiles, and beetles. Birds use snags to build nests, search for insects, and as hunting perches. Woody material on the ground decreases water run-off and erosion. If woody biomass harvesting gets to the point where biodiversity and the lack of dead wood on a tract is an issue, specific recommendations will be made to leave a certain amount/number of the desired material on-site. Again this would be site-specific and based on what is present before the harvest.

Intensive management of pine plantations in the South has been a major concern for years; however, Alabama remains fifth in the nation in biodiversity. There is a major push by most groups to take anything dealing with genetically modified organisms (GMO) off the table as allowable biomass. There is also great concern dealing with species being introduced that will later be deemed as an invasive species. Even though most intensive management practices are geared toward a specific stand, if short-rotation woody biomass plantations become a reality the public may become more aware of the landscape management approach to support the full range of biodiversity we presently enjoy. As biomass markets expand, more emphasis and attention may be placed on watershed management.

We need to remember that these issues are distinctly related to scale. At the landscape scale, concerns for habitat diversity and fragmentation are high and there is little guidance on how it could be affected. Major unknowns create great uncertainty in determining whether a fully developed, widespread bioenergy market would significantly affect landscape scale attributes. Will

demand be high enough to have significant broad impacts on landowner behavior? Is demand high enough to significantly change logging opportunities? On the landowner scale, there is much that can be considered in a management plan to maintain habitat complexity and diversity in the framework of intensive management for any product type. Some of these guidelines are listed in this document in the "Recommendations" section.

Water Quality: In general, water quality and riparian concerns should not change with the addition of woody biomass removals to a harvest plan. Streams and wetlands should be protected by existing Best Management Practices (BMPs) for Forestry. Southern states have an excellent track record in the development, implementation, and monitoring of forestry BMPs related to water quality. Using the Clean Water Act as a fundamental base, each state in the South has a BMP manual and program to address water quality issues.

Climate Change: One of the reasons biomass harvesting is so appealing is that the resulting fuel, energy, and chemicals provide an alternative to fossil fuel-derived products, thereby offering the possibility of dramatic reductions in carbon dioxide emissions and other greenhouse gases. The opportunity for forest-derived biomass to be part of the carbon solution is an important consideration in the planning and development of biomass projects. Without careful planning, projects may include inefficiencies that greatly undermine opportunities to replace fossil fuels and minimize greenhouse gas emissions. Ideally, biomass development will occur in a manner that maximizes efficiencies in energy production and minimizes energy consumption associated with transportation, storage, and raw material processing, while maintaining biodiversity and improving the environment.

Socio-Economic Well-Being: Despite general enthusiasm for the prospects of bio-energy production, there are significant concerns about the potential role of forests in bio-energy production. Some see great opportunity, viewing new markets for forest biomass as a source of income to more effectively respond to ecological challenges including insect and disease threats, wildfire and fuel loading concerns, storm events, and natural disasters. There are, in addition, perceived benefits of achieving more effective management of young forests to support longer-lived species and higher-valued products. Biomass harvesting and resulting energy, fuel, and chemical products are also widely viewed as offering significant opportunities for economic development, fossil fuel independence, community self-reliance, and job creation. Some of the challenges facing woody biomass include the cost of technology in the facility for bio-energy production and developing a market for biomass as competition grows in the energy markets. Additional factors include competition for use in other wood products, environmental concerns with sustainability of our forests, and community acceptance as an alternative energy source.

Finally, there should be economic considerations when examining ways to increase woody biomass production while meeting the standards that are expected from the general populous. Intensively managed plantations are enterprises for which landowners will expect some level of economic return. There are various costs associated with managing for increased biodiversity which create trade-offs between biodiversity and economic returns. If management practices are too costly, they are unlikely to be implemented on private lands.

The Biomass Crop Assistance Program (BCAP) is one such program that responds to the added cost of transporting woody biomass to a certified facility. BCAP is part of the Farm Bill and Recovery Act. In Phase 1, which is active, it provides financial assistance to producers that deliver eligible biomass material to designated biomass conversion facilities for use as heat, power, bio-based products, etc. Initial assistance is for the collection, harvest, storage, and transportation costs associated with the delivery of eligible materials through a direct matching of dollar for dollar of dry ton delivered to qualified facilities, up to \$45 maximum over the next two years. Phase 2 should be activated by this spring and will pay biomass growers. The details of Phase 2 have not been made public. At the time of this writing, Alabama has 13 Qualified Biomass Conversion Facilities.

This program is administered by the USDA Farm Service Agency (FSA). To view details and updates, go to www.fsa.usda.gov/FSA/webapp?area=home&subject=ener&topic=bcap or the Alabama Forestry Commission website, www.forestry.alabama.gov. Click on the Market and Information Resources tab on the left, and then Biomass at the top.



Transparency: The success or failure of biomass projects may hinge upon public trust of forest managers and biomass project developers. Mistrust of forest managers is strong among people who hold an ecocentric perspective of the environment, while only weak levels of trust tend to exist in other segments of the population. Environmental groups in the early stages of learning about biomass utilization may tend to react negatively to proposed projects until trust is established. Acceptable forest management prescriptions vary geographically and depend upon individual experience and beliefs. What is good for the northern states may not be good for Alabama.

The diversity of existing perceptions on forest management and public agency trust can challenge projects that may create biomass feedstock on public lands and projects developed through public-private partnerships. We as landowners and natural resource managers must gain this trust by using sound, proven silvicultural practices in our prescriptions to others. There is already a fear from environmental group representatives that large-scale biomass utilization will allow demand for biomass to control forest management decision making, rather than forest management leading the decision making, resulting in the production of woody biomass as a byproduct of forest restoration. We must calm those fears and prove them wrong.

(Continued on page 30)



Clean Water Partnership

Locally Led Projects

By Allison R. Jenkins

Statewide Coordinator, Alabama Clean Water Partnership

What do giant fishing lures, watershed plans, rain barrels, fishing line recycling stations and crumbling river banks along the Lower Tombigbee River have in common? All are projects supported by the Alabama Clean Water Partnership (ACWP), a statewide watershed-focused organization working to protect, restore, and enhance water quality across the state of Alabama. The ACWP, a nonprofit organization incorporated in 2001, is supported by private and corporate donations, as well as grant funds from the Alabama Department of Environmental Management, U.S. Environmental Protection Agency, and others.

Working in conjunction with citizens and a variety of agencies and organizations across Alabama and in the shared watersheds of neighboring states, the ACWP works to initiate projects that positively affect water quality. With an overall goal of restoring and protecting the state's water resources in accordance with the goals of the Clean Water Act, *the ACWP provides a neutral forum to the public, offering a non-threatening atmosphere in which to work together for better water quality, addressing storm-water runoff in a non-regulatory way.*

Storm-water runoff and the pollutants that are carried with it untreated into the state's waterways are the primary focus of the group's efforts, making education and interaction with the public key to its success. Organizations serving private forest landowners in Alabama that are currently partnering with the ACWP in its efforts include the Alabama Forestry Association, Alabama Forestry Commission, Alabama Pulp & Paper Council, Alabama Soil & Water Conservation Committee, Natural Resources Conservation Service, Alabama Wildlife Federation, The Nature Conservancy, and the Alabama Farmers Federation.

Ten ACWP River Basin Facilitators work across the state in support of river basin steering committees composed of interested stakeholders. The public, local businesses, and organizations are all encouraged to become involved in efforts underway at both the basin and sub-basin levels, focusing on local issues, planning, and implementing projects that make a difference in water quality. Scientific watershed studies, written and web-based educational materials, and local workshops for cities, businesses, educators, and homeowners are just some of the projects underway for 2010.

To learn more or to GET INVOLVED with ongoing watershed efforts, visit the ACWP website at www.cleanwaterpartnership.org or contact Allison Jenkins, statewide coordinator, at (205) 266-6285. ☎



Thirty giant fishing lures decorated by local artists educated residents of Montgomery, Prattville, and Millbrook about storm-water runoff as part of the "Hooked on the Alabama River" project.



Property loss along the lower Tombigbee River is a challenge for farmers and homeowners alike.

Making a Difference!



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Participants in the Alabama Rain Barrel Project construct rain barrels to aid in storm-water harvesting at their homes. This project is supported by Coca-Cola Enterprises, the World Wildlife Fund, Alabama Cooperative Extension System, Legacy, Rain Catchers, the Soil & Water Conservation Society, and various other partners throughout the state.

Partners across the state are installing Mono-filament Fishing Line Recycling Units (MRUs) at marinas, public fishing piers, and boat ramps in an effort to safeguard recreational water users and wildlife. Pictured top: James Lafoy, employee of the Tuscaloosa Water and Sewer Department-Lakes Division, installing one of three MRUs at Lake Tuscaloosa boat landings.



Alabama 4-H Forestry Judging Team Wins National Championship

Who says that 13 is an unlucky charm! Not if you are from Tuscaloosa County. The Tuscaloosa County 4-H Forestry Judging Team took top honors this past July at the National 4-H Forestry Invitational in Weston, West Virginia, defeating 13 other competing states. This win marked the 13th time since 1984 that a Tuscaloosa County 4-H Forestry or Wildlife Judging Team has won the national championship. It also continued Alabama's dominance in the state teams winning 17 national 4-H forestry team championships since 1984. Only two other states have won three championships each in that time frame!

The team of Forrest Ford, Amelia Dewitt, Tamara Beams, and Hunter Ford won this opportunity of representing the state of Alabama by winning the 2009 Alabama 4-H Forestry Invitational in Winfield in June. In taking this national honor, these youngsters scored a very impressive total of 1690 points. They defeated the second place team, Illinois, by 61 points, and the third place team, Louisiana, by 91 points. Arkansas and Tennessee rounded out the top five states.

The National 4-H Forestry Invitational is the equivalent to the Olympics in sports. In this 4-H youth event, 4-H'ers learn how to identify trees, diseases, and insects located all over the United States. They test their skills in reading compasses and properly pacing distances, and how to determine the value of woodlands by evaluating timber stands. The students were tested on their ability of reading topography maps, a forestry written exam, and forest site evaluation as well.

The team was also the national champions in the Forestry Knowledge Bowl. Due to their excellent forestry test scores, they received a bye in the first round. They defeated New York in the second round and Tennessee in the third round. Then they made it to the final round, the only part of the Invitational in which all youth and adults may observe. This group made Alabama proud, in front of a packed house, defeating a very good Illinois team by a score of 165-65. This makes the eighth time that a Tuscaloosa County 4-H Forestry Team has won the National 4-H "Forestry Knowledge" Bowl Championship.

In individual scores, Alabama's Forrest Ford won the overall high individual award with a score of 459.5/500 points. Amelia DeWitt took second place honors with a score of 443 points, and Tamara Beams placed fifth with a score of 433.5 points. Hunter Ford placed right out of the top ten with a score of 406 points.

In team scores, the Alabama team scored 150/150 in disease identification, 130/150 in the forestry exam, 284/300 in tree identification, 143/150 in insect identification, 234/300 in tree measurement, 264/300 in compass orienteering, 140/150 in topography, and a 240/300 in site evaluation. They earned extra points by winning the Forestry Knowledge Bowl.

The 2009 Alabama 4-H Forestry Team was coached by Tuscaloosa County Extension Coordinator Wayne Ford (Alabama Cooperative Extension System), assisted by 4-H volunteer leader Lisa Ford. This win marked the eighth time that a Tuscaloosa County 4-H Forestry team coached by Wayne Ford has won this honor, the most in the United States.



2009 Alabama 4-H Forestry Team - (L-R) Coach Wayne Ford, Forrest Ford, Tamara Beams, Amelia DeWitt, Hunter Ford, 4-H Volunteer Leader Lisa Ford, and Todd Dailey of Farm Credit System.

Tuscaloosa County teams won in 1984, 1987, 1989, 1992, 1996, 2000, 2002, and of course, 2009. Ford has had eight teams to win the National 4-H Forestry Knowledge Bowl as well, also the most wins by any coach in the nation. To round out Tuscaloosa

County's 13 national championships, the Tuscaloosa County 4-H Wildlife Teams won in 1990, 1993, 1998, 2003, and 2006.

Local sponsors of the 2009 Alabama Team included Auburn University; the Tuscaloosa County Farmers Federation; Kiwanis of Tuscaloosa; Home Depot; and 4-H forestry team alumni, Jarred West and Lindsey Waters Johnson. State sponsors included the Alabama Forest Owners Association, the Alabama Forestry Commission, International Paper, Inc., and Norphlett McCollum.

The National 4-H Forestry Invitational is always held at historic Jackson's Mill State 4-H Camp, the old mill where General Thomas 'Stonewall' Jackson worked as a boy. This picturesque site, which is nestled among the beautiful rolling West Virginia hills and along the West Fork River, was also the first state 4-H camp in the United States. The Farm Credit System and the Cooperative Extension System sponsored this event. 🌲

Mitigating the Impacts to Federally Threatened Gopher Tortoises

By John P. McGuire, Senior Project Manager, Westervelt Ecological Services

During a session of the Alabama Senate in 1884, C.H. Laney made what was dubbed the “gopher [tortoise] speech” as a push for actions that would lead to better transportation into south Alabama. A portion of his speech was inspired by a childhood rhyme, “*Jack Spratt could eat no fat, his wife could eat no lean, but everybody in the world can eat gopher [tortoise] when the railroads penetrate ... Give us transportation, and we will send our gophers to Vanderbilt and Gould, and every nabob of the land shall feast like gods.*” (Laney, 1902)

The value of gopher tortoises throughout the longleaf pine belt was historically recognized at the dinner table, as a gumbo served warm over rice. Unlike traditional prey mammals such as the white-tailed deer, however, gopher tortoises are slow to reproduce and thrive best in a specific habitat. With this in mind, it’s easy to understand that trading gopher tortoise for the dinner table would never have been a sustainable option.

With the decrease of longleaf pine habitat, gopher tortoise populations have declined in some areas enough to trigger federal listing for protection. However, Westervelt Ecological Service in Auburn, Alabama, under the guidance of the U.S. Fish and Wildlife Service (USFWS), has recently established a conservation bank for gopher tortoises in southeast Mississippi, connecting financial value with the long-term sustainability of this native reptile, 125 years following Laney’s speech.

A Barometer for Well-Maintained Fire Landscapes

A peculiar relic of the Pleistocene era, the gopher tortoise has used its shovel-like front legs to dig burrows in the sandy soils of the Southeastern United States coastal plain for tens of thou-

sands of years. Averaging 5-10 feet in depth, the burrows serve not only as a refuge to gopher tortoises, but also to hundreds of other documented animals like snakes, lizards, insects, and some mammals and birds. The dirt kicked out by the gopher tortoise during burrow construction and maintenance also serves as an area for these cold-blooded creatures to bask in the sunlight and lay eggs. It also provides a microsite for plant germination. Scientists have determined that for the reasons stated, the existence of many plants, animals, and insects is dependent on the existence of the tortoises. Though they can survive in areas without trees, the presence of gopher tortoises has become a barometer in assessing the health of longleaf pine forests.

A prominent forester and wildlife biologist in south Alabama once shared that the strategy to managing for food and habitat for gopher tortoises is to remember that they don’t jump. In other words, managing the food sources for tortoises must focus on what is available in the first several inches off the ground. Sparse canopy cover that allows sunlight to reach the forest floor, and frequent fires that remove forest litter are key to man-

(Continued on page 28)



Photo by John McGuire



Mitigating the Impacts to Federally Threatened Gopher Tortoises

(Continued from page 27)

aging grasses, forbs, and fruit-bearing vegetation (such as blackberries), all of which are utilized by tortoises. Shed, cured pine needles contribute to the flammability of the forest and assist in the ability to burn. Although other pines can serve as surrogates in this fire landscape, longleaf pine evolved long before modern fire control efficacy, and typically fares the best, making it the most sustainable.

Across vast areas of the Southeast, the once wide-spread, open, park-like piney woods have been replaced by dense pine plantations that consist primarily of pine, yaupon midstory, and pine straw ground layer. Though some animals thrive in the conditions that this habitat provides, these areas offer little habitat to tortoises. With much of their preferred habitat lost or degraded, many remnant gopher tortoises found today are pushed into more marginal habitat such as roadsides, ditch banks, utility and pipeline rights-of-way, pastures, etc., with increasing obstructions to breeding. In 1987, following significant declines in the populations, gopher tortoises were federally listed as threatened across the western portion of its range in Mississippi, Southeastern Louisiana, and those areas west of the Tombigbee and Mobile Rivers in Alabama.

From a financial perspective, requiring mitigation for gopher tortoises allows for a novel income stream to be realized.

What is a Conservation Bank?

Until now, development of property where gopher tortoises are federally listed has been constrained by the Endangered Species Act, which limits actions that would otherwise push tortoises closer to extinction. Recognizing a preference for avoiding or minimizing threats to gopher tortoises, the USFWS acknowledged that some impacts could be mitigated and transferred to a conservation bank.

In exchange for restoring and maintaining ecosystem structure and function, and by preserving the ecologically valuable land, a third party (a “banker”) is awarded “approved credits” by the USFWS. The approval of these credits is based on a rigorous set of guidelines established by the USFWS and includes desired habitat conditions, legal assurances of the property title, short-term assurances of restoration success (such as establishment of a Letter of Credit), a permanent Conservation Easement, and establishment of an endowment which will provide money to manage the property into perpetuity. For land developers allowed to mitigate their impacts through USFWS approval (usually through a Biological Opinion), credits can be purchased from the banker. In return for the purchase of these credits, the developer can exercise a severance of liability and move forward with their project.

Several biological arguments can be made for the role of conservation banks in the recovery of gopher tortoises. Many gopher tortoises today are isolated groups or individuals with diminishing chances for reproduction. Conservation banking requires the establishment of larger reserves that allow for many of these isolated tortoises to be relocated amongst other tortoises, increasing potential for breeding success. Restoring tortoise

habitat over large acres also increases the potential benefit to other species such as the eastern indigo snake, Bachman’s sparrow, black pine snake, etc., and contributes to an increase in fire-maintained longleaf pine forests. Finally, conservation banks have legal and financial safety nets in place to make certain that mitigated animals will be permanently protected. By contrast, tortoises remaining on private land throughout their range do not have these protections. Though not a panacea for recovery of the species, conservation banks established under the new guidelines provide near “bullet-proof” conservation of important lands contributing to recovery.

From a financial perspective, requiring mitigation for gopher tortoises allows for a novel income stream to be realized. In September 2009, Westervelt Ecological Services became the first company to establish an entrepreneurial conservation bank for gopher tortoises. In order to establish the Chickasawhay Conservation Bank, roughly 1200 acres were carved out of a larger landscape owned by The Westervelt Company in Greene County, Mississippi. While the company will generate revenue over time through timber sales and hunting leases, the objective of this parcel is not to maximize timber production at the expense of ecosystem values. In fact, the contrary is true, the goal is maximize habitat for gopher tortoises; which, just so happens to earn revenue.

Site Selection, Restoration, and Management

Primary field evaluations focused on a specific list of soils deemed appropriate for gopher tortoises by the USFWS. The area chosen had to have the potential of supporting roughly 80 gopher tortoises on approximately 220 acres of suitable land. As soil types do not follow perfectly symmetrical lines, putting a fire break along the sinuous boundary between suitable and unsuitable soils for gopher tortoises seemed largely impractical. Instead, additional land was included into the bank as a buffer despite little, if any, credit given for it.

The next step was to determine the population size of the current tortoise population on the bank, after which the gopher tortoise carrying capacity (based on soil type) was determined to reveal the potential population capacity. When the land occupied by the resident population was removed from the equation, the number of available credits available for sale was recognized. In this case, credits are roughly the amount of acres – two on average – required to sustain a relocated, adult gopher tortoise.

Credit release occurs when the habitat reaches a range of conditions deemed by the USFWS as ideal for tortoises. As such, the timing of restoration was of utmost importance, as the timing of credits released is hinged to the business plan. Modifications were made to typical silvicultural techniques on these sandy uplands. Although having a pine overstory was important, restoration is driven almost exclusively by the need to restore groundcover vegetation. Given the starting point of closed canopy loblolly plantations, typical restoration techniques called for intensive chemical site preparation, planting containerized longleaf pine, and follow-up with herbaceous weed con-

Alabama Forestry Commission Partners with Wildlife & Freshwater Fisheries to Restore Longleaf Pine Habitat

The Alabama Forestry Commission, in partnership with the Alabama Department of Conservation and Natural Resources Division of Wildlife and Freshwater Fisheries (WFF), is restoring longleaf pine through the American Reinvestment and Recovery Act. The award amount of \$360,350 will be used to restore longleaf pine on Barbour County Wildlife Management Area and private lands.

Restoration of longleaf pine on private lands is being administered through the WFF Landowner Incentive Program (LIP). Projects were selected to assist private landowners with the cost of containerized longleaf pine seedlings. Under this grant, restoration activities will cover seven counties and over 370,000 longleaf pine seedlings planted on approximately 800 acres. "With over 90 percent of the land in Alabama being under private ownership, landowners are critical to the success in the restoration of the longleaf pine ecosystem," said Traci D. George, WFF Landowner Incentive Program Coordinator. "This partnership with the AFC allows an opportunity to strengthen program services to forest landowners and restore longleaf pine."

The Barbour County Management Area is comprised of 19,624 acres in parts of Barbour and Bullock counties. The

total project restoration area includes approximately 2,500 acres that will be restored to a longleaf pine forest. The first phase of this project consists of an approximately 500-acre block that can be observed from the boundary formed by North Road and John Road. Restoration practices funded by this grant include site preparation spraying, prescribed burning, herbaceous weed control, as well as purchase and planting of longleaf seedlings.

The longleaf pine ecosystem once covered almost 90 million acres in North America. Due to a number of factors, such as land clearing and fire suppression, the longleaf pine habitat has been reduced to about 3 million acres. Restoration projects such as this AFC-WFF effort are a proactive and beneficial step in ensuring a healthy ecosystem and wildlife populations. A number of species of concern, such as the gopher tortoise, eastern indigo snake, black pine snake, and red-cockaded woodpecker all thrive in fire-maintained longleaf pine habitat. Other associated species that benefit from this ecosystem include the bobwhite quail, whitetail deer, eastern turkey, and the Bachman's sparrow. 🏠

control the next spring. Although many native plants will return following this regime, there were no assurances this would coincide with the required timeframe.

In areas where we did not have obvious groundcover, the overstory was completely removed. However, in locations where there was groundcover evident, the loblolly pine overstory was thinned back from roughly 100 ft²/acre to 30 ft²/acre. In either situation, both groundcover and shrub response was vigorous following tree harvest. Left alone, the sites would have grown up into a tangle of midstory vegetation unsuitable for gopher tortoises. As opposed to broadcast herbicide treatments, site preparation consisted almost entirely of using targeted herbicides to control midstory shrubs with 48 oz. *Garlon XRT*®, 16 oz. *Chopper Gen 2*® and 96 oz. *Sunset MSO*®. Yaupon was one plant aggressively targeted by back-pack crews, and the results were astounding. In areas that would have taken multiple growing season burns to achieve similar results, the desired forest structure was achieved with merely one application of targeted chemicals. This produced the grasses and forbs desired by gopher tortoises, and did not serve as a barrier for initiation of a prescribed fire regime.

Non-native, invasive organisms have the potential to threaten the long-term vitality of this conservation bank if they are not aggressively managed. Cogongrass was, and will continue to be, a struggle to control on this site (as well as the Southeast). To

combat, a large amount of effort and resources are dedicated to control this noxious weed, primarily the application of 20 oz. Arsenal® mixed with 48 oz. Accord MRT® and 20 gallons of water in early fall prior to dormancy.

The use of prescribed fire is requisite on this site. In all likelihood a three-year burning rotation will be adopted which may vary in both season and frequency due to the vegetative response. Annual monitoring is used to help assess restoration success and is a feedback mechanism into the management of Chickasawhay Conservation Bank.

Conclusion

Conservation banking is not a final solution to the recovery of the gopher tortoise, nor is it a viable economic alternative for all landowners. However, where appropriate, impacts to occupied gopher tortoise habitat can be mitigated

offsite on a protected property with suitable ecological characteristics. The development of the Chickasawhay Conservation Bank by Westervelt Ecological Services attempts to tap into this novel market under the guidance of the USFWS. Through the ecosystem market of gopher tortoise conservation, revenue will be generated through a holistic approach to managing forests that bridges the gap between business and biology. 🏠

Citation

Laney, C. H. (1902) The gopher and reminiscences of the Alabama legislature. Pensacola, Fla., Burrow Printery 30 p.



Woody Biomass

(Continued from page 23)

Legislation: Renewable Portfolio Standards (RPS) or Renewable Electricity Standards (RES) are regulations placed on providers of electricity to produce certain percentages of their energy from renewable resources. Although Alabama has not enacted such regulation, over 25 states have done so. New policies being discussed at the national level will, in all probability, set Alabama's percentages. The bill to watch is The Renewable Energy Standard (RES), which will not only define these percentages, but also provide the accepted definition of what will be eligible as woody biomass. This will be pivotal for Alabama's forest owners.

Continuous Improvements: Since there is no "legally-approved" definition of woody biomass, what type of forest it can be removed from, or how much we will need to harvest, we must work with our present knowledge, making assumptions until these issues are solidified. Presently there are a lot of questions to be answered. Universities will have to answer most of the questions with studies and models. Then the practices will have to be put in place on the ground to verify the projected results.

One such study has already been announced. Auburn University, the recipient of a grant worth up to \$4.9 million from the US Department of Energy, will design and demonstrate a high productivity system to harvest, process, and transport woody biomass from southern pine plantations. Specific project objectives are to develop design improvements in tree length harvesting machines for energy plantations; configure and assemble a high-productivity, lowest-cost harvesting and transportation system for biomass and demonstrate at full industrial scale; and document performance of the systems.

There have been and will be more demonstrations of woody biomass harvesting equipment such as the "Biobaler." Visit www.supertrak.com/video/BIOBALER.wmv to view how it works.

As with any new endeavor, policies change, techniques change, and practices on the ground change. We must look ahead and try to address the issues until there is a defined policy and market. One thing we cannot do is become complacent in our thinking or silvicultural practices; we must be willing to accept and embrace change if we are to succeed.

Integrated Resource Management Planning: Woody biomass harvesting and associated energy, fuel, and chemical producers offer significant opportunities for economic development, fossil fuel independence, community self-reliance, and job creation. Again, woody biomass harvesting could also help in responding to ecological challenges including insect and disease threats, storm events and natural disasters, wildfire and fuel loading concerns, and goals of achieving more effective management of young forests to support longer-lived species and higher-valued products. However, as stated before, biomass harvesting raises significant social concerns about aesthetics and political conflicts with other forest values and benefits. Careful monitoring and precautionary guidelines, as well as other policy and planning actions, are needed to ensure that biomass investments do not negatively impact biodiversity, soil productivity, and ecosystem health in Alabama or any other state. It will take a collaborative effort through a multidisciplinary team at the

state level to address all the issues. The team should consist of a broad and diverse group of stakeholders that are professionals in their field and science-based.

Precautionary Woody Biomass Harvesting Recommendations for Alabama's Forest Owners

General

- If you do not have a written management plan, obtain one by hiring a consultant forester or by contacting your local AFC county office. Service providers and AFC contacts can be found by going to www.forestry.alabama.gov.
- At the very minimum, utilize a written woody biomass harvesting/timber sale contract. Examples of what a landowner should consider when selling forest products are located on the AFC website listed above.
- Develop and implement a reforestation plan.
- Follow Alabama's Best Management Practices for Forestry manual.

Soil Productivity

- Woody biomass harvesting operations should be completed in conjunction with a normal harvest or other management activity when possible. Avoid re-entry into a site for biomass harvest, if possible. Concentrated slash piles can be collected in a second pass if needed. Do not harvest/log when sites are extremely wet or soils are saturated.
- Enough logging slash should be left and scattered across the area to maintain site productivity. Minimize the extent of forest tillage.
- Protect sensitive sites and steep slopes by leaving slash and understory vegetation. The litter layer should be protected and the soil undisturbed.
- Select sites with deep soils and low erosive potential for short rotation woody crops.
- Evaluate site productivity to determine frequency of biomass harvesting and removals, especially on deep sandy sites.
- Use fertilizer if desired at recommended rates.

Biological Diversity

- Plant seedlings at a rate conducive to slow crown closure.
- Thin the stand if the rotation cycle will allow it.
- Maintain sensitive areas, streamside management zones, and other areas that will create stand diversity.
- Use frequent low-intensity prescribed burns if the rotation cycle will allow.
- Non-pine woody vegetation can be controlled by using a selective herbicide that is also conducive to growing wildlife-beneficial plants.
- Utilize intensive site preparation to enhance grass and forbs on soils that will allow.
- Retain key structural features such as snags, coarse woody debris, and mature live trees.

- In intensive management regimes, avoid large regularly shaped stands that do not conform to changes in habitat characteristics, soil type, or hydrology.

Water Quality

- Have a pre-harvest plan.
- Maintain streamside management zones, riparian buffers, and other sensitive sites.
- Apply all erosion control BMPs where needed.
- Maintain vegetation and litter cover on steep slopes or highly erodible soils.
- Do not apply fertilizer or herbicides directly into water bodies unless they have an aquatic label.
- Avoid harvesting stumps and root systems in areas where it will cause excessive erosion.
- Any chip piles should be located at landings and away from water bodies.
- Any stabilization where slash and litter were utilized, alternative techniques such as mulch and seeding will be needed.
- Promptly reforest the site.

Note: It is generally agreed that current forestry BMPs are adequate at this time to protect water quality during woody biomass harvesting.

Forest Health

- Reduce risks of escape of known and existing invasive species by identification and control of such on site.
- Prevent dispersal of invasive species by not harvesting biomass prior to seed maturity, cleaning equipment, and minimizing propagule dispersal throughout the rotation cycle.
- Minimize soil disturbance by rapidly replanting the site.

Conclusion

High energy prices in the global market and a strong reaction from federal and state governments in the form of new legislation are promoting the use of locally available feedstocks to reduce both the country's dependence on foreign sources of energy and greenhouse gas emissions, while igniting new forms of economic opportunities. Forests are poised to be a major source of biomass to supply some of the energy in various sections of the economy, especially in the southern states.

Availability of woody biomass can be severely affected by resource owner's willingness to adopt biomass treatments, particularly in areas like Alabama that are dominated by private lands. In summary, "one size does not fit all" should be the correct approach to promote the use of woody biomass. Future efforts should continue monitoring evolving challenges and opportunities as technology and market conditions change and new policies are adopted at the federal and state levels. Natural resource managers and private landowners must be flexible and protective of our existing forest acres if we are going to be successful in the endeavor. 🌲

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Buttonbush (*Cephalanthus occidentalis*)

By Fred Nation, Environmental Services, Baldwin County

Buttonbush is a large shrub or small irregular tree that can reach 25 feet in height, with a stem diameter of 4 inches or more. The native range is very large: from Canada and New England to Florida, Mexico, and Central America. It also occurs in Arizona and California. Buttonbush is found throughout Alabama: in swamps, hardwood bottoms, marshes, and bogs.

The leaves are deciduous, elliptical or ovate, opposite or in whorls of 3 or 4; variable in size, to about 6 inches long, 3 inches wide. The edges are smooth (entire), and the veins are depressed, giving the leaves an attractive quilted appearance. The bark is brownish gray, becoming rough and furrowed on old stems. Twigs are reddish brown.

Buttonbush has several common names, and they are descriptive of the distinctive spherical clusters of creamy white, fragrant flowers. Some examples are “honey-balls,” “globeflower,” and “button willow.” The genus name, “*Cephalanthus*,” is also descriptive, from two Greek words which mean “head flower.” The handsome flowers are important nectar sources for many bee and butterfly species, and for hummingbirds. The fruits are nutlets that develop in hard, spherical clusters about an inch across. Ducks and other waterfowl feed on the nutlets. Buttonbush is a larval host for the spectacular sphinx moths, which are some-

times mistaken for hummingbirds.

Though it is considered to be poisonous, *Cephalanthus occidentalis* was widely used, apparently with some success during the

American Civil War, as a treatment for “the ague,” which we know today as malaria. This is not surprising, since a close relative is the South American cinchona tree, the source of quinine, still a standard treatment for malaria. Early American herbalists frequently prescribed buttonbush for a variety of maladies including fevers, toothaches, and dysentery. Other famous family relations include pentas, bluets, gardenias, and, most important of all – a coffee!

Buttonbush is an attractive shrub or small tree, with great wildlife value, but, possibly

because it is an obligate wetland species, it is not widely cultivated and is seldom seen in nurseries or plant sales. It is easy to root and grows quickly from stem cuttings, and it can be an interesting addition to stream banks, lakeshores, or wet “problem areas” in the landscape. The summer flowers are very pretty and the birds and butterflies will reward you with their visits! 🍷



Photos by Fred Nation