The South Carolina
Forest Steward
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In This Issue…

Our lead article comes to us by way of the Forest Landowners Tax Council, and should be welcome news to landowners as it discusses a major and favorable breakthrough in timber-tax legislation. Additional articles cover timely information on silviculture and wildlife practices, woodlot firewood production and announcements and updates of activities and significant state programs.

Three of our articles were written by North Carolina Extension Service personnel and edited for South Carolina. We would like to acknowledge their contribution and willingness to share this information with landowners in South Carolina.

Larry Nelson and Bob Franklin, Coeditors

IRC Section 631(b) Reform and Other Timber-Taxes Updates Await President's Signature!!

On October 11, by a vote of 69-17, the Senate cleared a $137 billion corporate tax overhaul package and, since the House passed the bill last week, President Bush is expected to sign the bill (HR 4520) into law. The measure repeals a current export tax break that has been deemed an unfair trade subsidy by the World Trade Organization, as well as modifying a number of timber-taxes, including Internal Revenue Code Section 631(b) and allowing landowners to expense of reforestation costs in an accelerated fashion.

As most of you are aware, efforts have been underway for a long time – over 15 years – to obtain a change in the federal tax rules regarding the Internal Revenue Service requirements in the sale of timber necessary to ensure capital gains tax treatment on lump-sum sales. This effort has been one of the primary goals of the Forest Landowners Tax Council. The legislation contains language that will amend IRC Section 631(b) to eliminate the requirement for timber sale contracts to contain a "retained economic interest" provision, which means that non-industrial private forest landowners will no longer be forced to sell under pay-as-cut contracts and will be able to use "lump sum" sale contracts with no concern over the loss of capital gains treatment. While, in the big scheme of Washington legislative activity, this is a very minor issue (you won't hear about it on the evening news!!), it is a big deal in the field of timber taxation and is a big deal for non-industrial forest landowners in this country; Henry Barclay, a CPA in Birmingham, Alabama and a FLTC Board member, said "whether they know it or not, this may be the most significant timber-tax legislation for non-industrial private forest landowners in our lifetimes."

The Forest Landowners Tax Council has been the lead organization on the IRC Section 631(b) fix for years, having focused on the issue since our establishment in 1996. This tax reform will allow non-industrial private forest landowners capital gains treatment on income from lump-sum stumpage sales. FLTC is pleased to have recruited the interest of Senator Jeff Sessions, of Alabama, and Congressman Mac Collins, of Georgia, early on as the sponsors of 631(b)-correcting language, to have worked with the Joint Committee on Taxation to correctly calculate the measure's cost to the U.S. Treasury as "negligible," to have successfully promoted the language added to the JCT's Tax Simplification List (the only timber/forestry item listed), to have successfully encouraged the Land Trust Alliance – a high-profile environmental group – to write the Senate Finance Committee and the House Ways & Means Committee to request passage, to have successfully worked to have the House of Representatives pass the modification in every Congress since and including the 105th , and to have enlisted the support of numerous allied organizations in the effort.

Senator Jeff Sessions, of Alabama, and Congressman Mac Collins, of Georgia, were the sponsors of the successful 631(b)-correcting language. The Forest Landowners Tax Council was the lead organization on the 631(b) fix, having focused on the issue since 1996. But, an extreme level of entrée was provided by the Forest Landowners Association via their Government Affairs Committee, over the last three years. And, individual members of Association of Consulting Foresters of America, Inc. have provided guidance based in real world experience, for years. Non-industrial private forest landowners all over the United States are indebted to these fine organizations.

Other timber-tax provisions added to the bill (aka: H.R. 4520, JOBS bill, FSC/ETI bill, corporate tax bill, international trade bill) will allow expensing of up to $10,000 for reforestation costs in the year of occurrence with an accelerated amortization rate of 60 months for the remaining costs (a change from the current $10,000 tax credit), allow voluntary election of IRC Section 631(a) by timber industry to help with how they calculate their capital gains on timber, and establishes a modified safe harbor rule for timber Real Estate Investment Trusts.

This bill grew out of the need for Congress to respond to a World Trade Organization ruling that a $5 billion annual subsidy for U.S. exporters was illegal. As a result, 1,600 American exports to Europe are being hit by penalty tariffs that now stand at 12 percent and are rising by one percentage point a month. The bill became the vehicle for the most significant overhaul of corporate tax law in nearly two decades.

Site Preparation Methods and Contracts

Rick Hamilton, Extension Forest Resource Specialist, NC State University (Edited for South Carolina)

Most commercially valuable tree species found in South Carolina require full or almost full sunlight for seed germination, establishment and early growth. For regeneration to succeed, competing trees, weeds and brush must be removed or their density reduced . Such steps must be taken before planting or before pines or hardwoods can regenerate naturally. To do this, several alternative site preparation methods are available to landowners. Which method(s) is selected will depend on the type, composition and density of the competition.

Site preparation may not be necessary when cropland is converted to timber production or where a logging operation leaves a site sufficiently free of weeds and brush.

Soil type, soil moisture and geographic region must also be considered. For example, highly productive soils will require more intensive site preparation than less productive soils due to faster growth of competing vegetation. To prevent soil damage during preparation, restrict the operation of heavy equipment when soil moisture is high. Furthermore, soil disturbance on steep slopes should be limited to minimize erosion.

Alternatives for site preparation include heavy equipment, manual labor, herbicides and fire. Costs of site preparation range from $10 per acre for burning to over $200 per acre for intensive mechanical methods.

Selecting the Proper Method(s)

The best method would be one which achieves the owner's goals and objectives such as:

- Improving early soil moisture conditions by eliminating competing vegetation and excess water.
- Improving survival by removing competing vegetation and overhead shade.
- Making tree planting easier by eliminating cull hardwoods or logging debris.
- Increasing wood production.
- Improving early growth so the first thinning for wood products can be made earlier.
- Shortening length of harvest cycle or rotation.
- Optimizing financial returns.
- Improving wildlife food and cover.
- Improving accessibility for firefighting and logging equipment.
- Reducing fire hazard.
- Preparing seedbed for natural regeneration or direct seeding.

Site Preparation Methods

Shearing or KG Blading is the best way to remove large numbers of stems over 4 inches in diameter. Shearing or KG blades are bulldozer blades with a sharpened lower edge, are angled or V-shaped and have a "stinger" for splitting large trees and stumps. With care, trees can be sheared at ground level and felled or piled (windrowed) with little soil disturbance. An inexperienced or careless bulldozer operator, in contrast, can reduce soil quality by compacting, mixing soils or moving productive topsoil into piles. To minimize erosion and site deterioration, limit shearing to moderate slopes and stable soils.

Drum chopping can be effective where brush competition is dense but of small diameter (less than 4 inches). A rolling drum chopper with offset blades is used to uproot, chop and compact brush; it continues to displace roots which reduces resprouting. An experienced operator carefully matches chopper size and weight to the density and size of competition. This is essential to minimize soil damage especially on shallow soils, heavy clay soils or soils that are low in nutrients.

Summer chopping (late June to August) is best in several ways. First, it reduces resprouting. Second, the compacted brush provides adequate fuel necessary to burn the chopped area 4 to 6 weeks later. Finally, summer chopping produces a "triple kill" when frost kills those stems which resprout following chop and burn.

Lopping involves using hand tools or chain saws to fell residual stems and leaving the felled stems where they fall. Lopping is cost effective where scattered large diameter residuals are present. Because it offers little soil disturbance, lopping is a good choice for fragile soils or steep slopes with a high risk of erosion. Lopping can be especially useful on tracts too small for heavy equipment.

Herbicides can be a safe, economical alternative to manual or mechanical methods, and can be applied by air or ground. They can also be used to treat individual stems by tree injection, stump treatment, directed foliar sprays, or basal spraying.

Several herbicides are labeled for site preparation. The success of chemical weed control depends on the size, density and composition of vegetation; on the kind and formulation of herbicide; on the volume applied and timing of application; and on proper equipment selection and calibration. Labeled herbicides applied according to label directions can be used with a minimum of concern regarding harm to humans, wildlife, soil, air or water.

Discing with heavy discs may be all that is required to prepare a site for natural seeding or direct seeding.

Fire is used alone or in combination with the methods above. Fire improves access and visibility and facilitates planting; it also controls competing vegetation. Although burning is simple and cheap, it should be done only by trained personnel under carefully controlled conditions.

Bedding, scalping, drainage or water control may be needed in certain situations. Raised beds on excessively wet areas improve drainage, make planting easier and increase seedling survival and growth. A scalper may be used to remove grass competition and clear small trash from the planting area. In very poorly drained or excessively wet areas, installing drainage ditches or water control structures may be the only practical method to insure seedling survival and early growth. A topographic survey and soils evaluation are vital to properly design a drainage system.

Site Preparation Contract

General items to include in a site preparation contract include:

- **maps** of the site to be prepared with accompanying legal descriptions, boundary landmarks or other area descriptions;
- accurate description of which site preparation **method** to be used;
- method and timing of **payment**; cost per acre (or hour);
- **time** of year or, more specifically, beginning and completion dates;
- notification of landowner by the contractor **when work begins**;
- right of contractor to, or not to, **subcontract** to a third party;
- verification that the contractor is covered by Workmen's Compensation and liability **insurance**;
- provisions for **settlement** in case of a misunderstanding or for extension in case of inclement weather or site conditions which do not allow completion in the stated time;
- specific width, location and treatment of **filter strips** (should also be designated on the site maps);
- responsibility for **damage** to roads, fences, gates or other improvements and a clause to prevent the contractor from obstructing streams or waterways or leaving debris in roads, fields or ditches;
- a clause absolving the landowner from damage to adjoining properties caused by **negligence** of the contractor;
- satisfactory **performance guidelines**, such as, destroying a minimum of 80 percent of the overstory;
- restriction on **wet weather** conditions when preparing the site would no longer protect soil productivity.

Specific clauses relating to the site preparation method include:

Shearing or KG Blading

- Keep the KG blades sharp to shear trees rather than to uproot trees which disturbs topsoil;
- Specify whether sheared trees are/are not to be piled (windrowed); note the location of windrows on the contour as well as the location of breaks in windrows;
- Indicate the minimum and maximum size of trees to be sheared and/or piled;
- Insure that there is no significant movement of topsoil.

Drum Chopping

- Specify the size and weight of chopper(s);
- Stipulate keeping the chopper blades sharp;
- Determine the size stems that will be chopped;
- Pull chopper up and down the slope, if possible.

Lopping

- Note the height that stems are to be cut above the ground;
- State the name and rate of herbicide to use if such chemicals are used to treat stumps;
- Indicate the minimum and maximum sizes of trees to be felled.

Herbicides

- Name the herbicide and rate to be used including adjuvants which enhance activity or uptake or prevent drift;
- State the method of application and precautions to prevent drift or damage to nontarget plants;
- Verify that the applicator is licensed or certified to apply herbicides commercially;
- Note who has responsibility for flagging flight lines if aerial application is used.

Fire

- Set the width and location of firebreaks or firelanes. If appropriate, also include height, width and spacing of beds; scalping depth; distance between and depth of ditches; and specifics of water control methods.

Conclusion

Several site preparation alternatives are available to woodlot owners. Choose the method which achieves the set goals and objectives at the lowest cost. Several points must be considered: soils, terrain, vegetative cover, tract size, capital and tree species. Consult a professional forester for help in selecting the proper method for a specific site and to determine if the site's potential justifies the cost to prepare it. Consult the South Carolina Forestry Commission, the county Extension agent, forest industry personnel or a consulting forester for more information. ♣

Developing Wildlife-Friendly Pine Plantations

Christopher Moorman and Rick A. Hamilton, Extension Forest Resources Specialists, NC State University (Edited for South Carolina)

Wildlife benefit landowners in many ways. Some people enjoy luring deer, rabbits, turkey, and bobwhite quail to their property. Some like to hunt game. Others simply enjoy watching the animals in their natural habitats.

When it comes to attracting wildlife, the owners of pine plantations have a special challenge. Without proper management, most plantations lose much of their plant and animal diversity as they age.

However, increasing landowner interest in wildlife management has prompted natural resource professionals to seek ways to improve pine plantations as wildlife habitat. The following details strategies that can provide suitable habitat for many wildlife species without significantly reducing timber production or cash flow.

Develop a Management Plan

Before beginning wildlife habitat improvement, develop a management plan. This helps define the steps needed to ensure that your original land management objectives are met. The plan should include maps and descriptions that provide a record of the original status of a property and enable assisting professionals to target areas for improvement.

Because each action taken to manage a pine plantation has an associated impact on the stand's potential to attract wildlife and produce forest products, you should answer certain questions and specify objectives before creating a management plan. Each property is unique and requires specific recommendations. A registered forester or professional wildlife biologist can help find the right combination for you and your property. Below are some important questions to answer.

Where does wildlife management rank in your list of objectives? If you rank timber production above wildlife management, then you must consider the loss of timber production resulting from wildlife management. Creating grassy food plots or disked openings within a

pine plantation may enhance the value of the stand for deer, turkeys, and rabbits; however, these openings are made and maintained at the expense of pine trees and future timber production.

How complete is your property as a wildlife resource? South Carolina landowners should be aware of the limitations and shortcomings of their properties. For example, some properties contain poor soils unsuitable for certain wildlife species. On properties adjacent to metropolitan areas, management of pine plantations for large game, such as deer and turkey, may be difficult and may conflict with adjacent landowners' objectives. Pine plantations on converted agricultural lands contain fewer plant species than plantations on previously forested sites and may require remedial measures to provide sufficient food and shelter for wildlife.

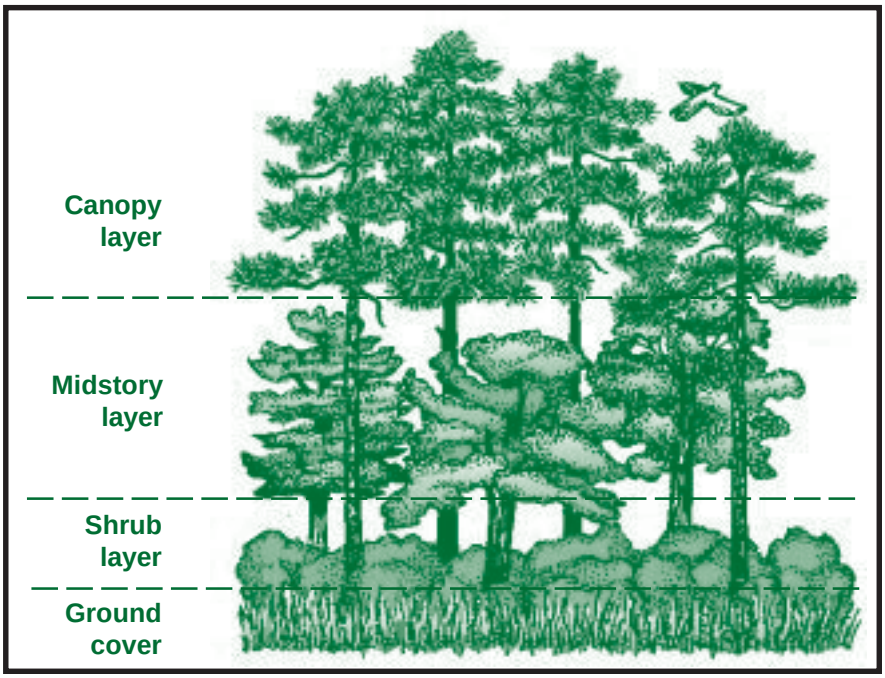

Figure 1. *A forest with well-developed vertical structure generally supports a greater diversity of wildlife than a forest with most vegetation in one stratum*

Which wildlife species are you targeting? No pine plantation, or any other forest type, can provide quality habitat for all wildlife species. Therefore, you should identify selected wildlife species before management recommendations can be made. For example, burning every 3 to 5 years will benefit white-tailed deer by promoting nutritious browse. However, bobwhite quail management requires burning more frequently.

How much will this cost? Management for wildlife is not free. Disking openings, planting food plots, prescribed burning, and applying herbicides cost money. Although these activities may improve timber production, their costs typically will not be justifiable for timber production alone. Consultation with a professional and planning, however, will help minimize these costs.

Plant Variety and Structure

Intensively managed pine plantations generally lack the plant variety and structure of natural pine stands. Therefore, activities that increase plant variety and structure will most benefit wildlife. The presence of a variety of plant species will provide a variety of wildlife foods that are available throughout the year. A forest stand with vertical and horizontal plant diversity (structure) yields a diverse and abundant animal community in a pine plantation. Having plants in all vertical layers allows ground-, shrub-, and treetop-dwelling wildlife to exist in the same horizontal space (See Figure 1). Having different tree heights and ages on your property provides alternative food and cover sources. Grasses, forbs, shrubs, and vines growing on or near the ground are especially important because many animals are confined to the forest floor. Low-growing plants provide fruits and seeds as food, cover for nesting and protection, and leaves for browsing. Taller, older trees provide nesting sites for treetop songbirds and produce acorns and fruits eaten by many animals.

Site Preparation and Early Management

The number of wildlife species is greatest in stands less than 10 years old. Young pine plantations provide dense protective cover low to the ground where most wildlife live. Wildlife-friendly stands of this age are rich with fruiting plants, such as blackberry, and provide nutritious browse for white-tailed deer and rabbits. To increase plant variety, structure, and food in young pine plantations, use these management strategies:

- Do not prepare the site as intensively.
- Leave woody debris on the ground or pile it into windrows to provide cover and food for a variety of wildlife species (See Figure 2)
- Reduce control of non-pine plants during early growth periods by applying herbicides along the planted rows of trees and not in the areas between rows (banded application).
- Plant pines at wider spacing, usually at least 10 feet by 10 feet apart or wide enough to accommodate management activities like disking in rows. If

Figure 2. *Windrows and brushpiles provide food and cover for a variety of wildlife species.*

bedding, use wider bed spacing, leaving vegetation undisturbed between beds.

- Intersperse slower-growing tree species, such as oaks, among pines OR underplant native grasses, forbs, or legumes, especially on plantation margins, roads, and ditches.
- On appropriate sites, plant longleaf pine because its growth form allows herbaceous plants to germinate in the understory and it tolerates burning better and earlier than other pine species.
- Plan for prescribed burns by installing and maintaining wide firebreaks around the plantation.

Mid-rotation Management

As densely stocked plantations mature and the canopy closes, shaded understory vegetation dies, food production decreases, cover is reduced, and overall habitat quality declines. That is why many people use the phrase "biological desert" to describe mid-rotation pine stands (See Figure 3). At this stage, management activities that increase sunlight in the forest understory benefit wildlife the most. Increased sunlight on the forest floor promotes herbaceous plant and shrub growth, which provide fruits and browse beneficial to animals, such as songbirds, deer, turkey, bobwhite quail, and rabbits. Before the canopy of a plantation closes and the stand becomes overstocked:

- Thin early and often; consider precommercial thinning.
- Thin to allow sunlight to penetrate the canopy (use basal area of 60 to 80 feet^2 per acre or lower if managing for bobwhite quail).
- Leave better-formed oaks because they provide acorns and withstand light understory burning.
- Create openings of 1 to 5 acres and disk or burn them once every 2 to 3 years if your pine plantation is larger than 50 acres.
- Thin areas adjacent to wildlife openings more heavily to give wildlife cover from predators.
- Prescribe burn every 3 to 5 years once planted pines are 15 feet tall (earlier for longleaf pines), or burn every 1 to 3 years if you favor bobwhite quail.
- Disk firebreaks and mow between widely spaced rows every 2 to 3 years.
- Apply herbicides and prescribe burn after midrotation thinning to promote herbaceous ground cover and remove undesirable hardwoods like sweetgum and red maple.

Late-rotation Management

Plantations that are more than 30 years old can become too dense. In older pine stands, understory vegetation becomes sparse, and wildlife foods are absent. To attract wildlife:

- Continue thinning to allow sunlight to reach the forest floor (using basal area of 60 to 80 feet^2 per acre or

Figure 3. *An unthinned pine plantation (left) can shade out understory vegetation, reducing food and cover for wildlife. Thinning allows sunlight to reach the forest floor, which promotes the growth of understory shrubs and herbs valuable to many animals (above right).*

lower if managing for bobwhite quail).

- If thinning to low basal areas conflicts with timber management objectives, limit heavier thinning to the first 50 to 100 feet from the edges of haul roads, wildlife openings, and fields.
- Continue burning every 3 to 5 years, making sure to intersperse the stands that are burned in any year.
  - Fire increases production of fruit by shrubs and vines beginning 3 years after the burn and ending 5 years after the burn.
  - Fire makes leafy browse more nutritious for 1 to 2 years after the burn.
  - Fire promotes growth of legumes, grasses, and forbs favored by wildlife.
- Where safe, leave dead trees (snags) for cavity nesting birds and squirrels.
- Maintain 1- to 5-acre, irregularly shaped grassy openings or leave wide strips within stands, especially if there is little or no open habitat.
- Align strip openings with management roads, creating a wider area for sunlight to enter adjacent plantations and to allow easy access for maintenance.

Edge Maintenance and Consideration

Edges usually are home for a greater variety and number of plants and animals than interior areas. Edges have dense plant growth, and animals spending time there have simultaneous access to two habitat types. Because edges are linear, many predators travel along them while searching for prey. Normally, prey are abundant along edges because of the dense cover and variety of food sources. However, edges vary in quality as wildlife habitat, and wildlife abundance varies with edge quality. To improve edges for wildlife:

- Skip 30 to 50 feet (3 to 5 rows of trees) at the margin of old fields or clearcuts when planting pines.
- Manage these unplanted borders or any edge between a plantation and an adjacent stand by disking every 2 to 3 years OR by planting ***native*** wildlife foods (See Figure 5).
- Maintain firebreaks and roads within and along the edge of plantations in grassy cover by disking or mowing in late winter or early spring.
- Time harvests to maximize the age difference between adjacent stands. The greater the difference in age between adjacent stands (edge contrast), the greater the diversity and abundance of wildlife likely to be present.

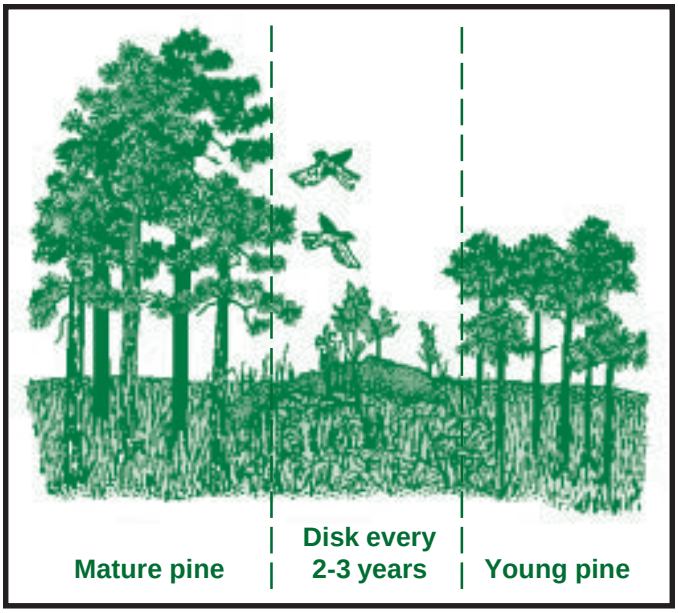

Figure 5. *Disk or mow firebreaks, roads or edges between adjacent stands every 2 to 3 years.*

- Thin more heavily along edges adjacent to fields, food plots, or permanent openings to create dense escape cover for prey.

Conclusion

Management of pine plantations for both profit and wildlife habitat requires substantial planning and investment. However, these efforts can be surprisingly successful and rewarding. Left unattended, pine plantations become extremely poor wildlife habitat after crown closure. Management techniques that increase the diversity of plants, especially along the ground or in the understory, benefit wildlife. Ask a professional forester or wildlife biologist to help you develop a management plan and to improve wildlife habitat in your pine plantations. The financial costs associated with improving wildlife habitat in plantations may be partially or fully covered by state and federal cost-share programs. For more information, contact the South Carolina Forestry Commission, South Carolina Department of Natural Resources, the Natural Resources Conservation Service, your county Cooperative Extension agent, or a consulting forester.

NRCS Showcases Wildlife Habitat Enhancement Practices in Darlington

By Amy O. Maxwell, USDA-NRCS, Public Affairs Specialist

In Darlington County, South Carolina, numerous wildlife species are getting first-class treatment at Clemson University's Pee Dee Research and Education

Center. The USDA-Natural Resources Conservation Service's (NRCS) Wildlife Habitat Incentives Program (WHIP) is providing financial and technical assistance to establish habitat enhancements as demonstration and research sites. The project is a collaboration of efforts by numerous local, state, and federal agencies to illustrate integrated land management for wildlife, agriculture, and forestry in an environmentally sound and sustainable manner. The project will target a wide audience, including farmers and landowners, as well as school children and the general public.

Pee Dee Research and Education Center Director George Askew spearheaded the project when he called a meeting of various agencies to discuss establishment of a wildlife habitat demonstration site. "We set out to show the economic and environmental value of beneficial wildlife practices and how they can be incorporated into existing farming practices," he explained. "The idea that supporting and maintaining wildlife alongside farming practices has not been widely accepted by many farmers because they did not understand the vast benefits, particularly the immediate benefits to their operations." Establishment of wildlife habitat practices increases wildlife populations which can allow farmers to lease their land for hunting, therefore adding economic value to their operations. "This project is a big step in changing some negative ideas about providing food and shelter for wildlife alongside farming practices," said Askew.

The project was implemented through WHIP, a federal program which helps landowners develop habitat for upland wildlife, wetland wildlife, threatened and endangered species, fish, and other wildlife in South Carolina. The bobwhite quail, wintering waterfowl and shorebird habitat, and threatened and endangered plant and animal species have been identified as the "priority conservation concern" in the state. The program offers both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat.

NRCS Wildlife Biologist Jim Lewis said that he hopes to add to the initial $50,000 of funding the Center received to begin the project. The Clemson University Board of Directors also showed their support for the project by putting additional funds into the project, allowing them to hire a full-time wildlife biologist to coordinate the initiative. T.J. Savereno provides on-the-ground oversight of the project, assisting Clemson PhD. Candidate Laura Knipp. The research is serving as Knipp's dissertation project. Together, they are managing the WHIP project on a day-to-day basis and will observe the practices over the length of the 5-year contract. Greg Yarrow, Clemson Professor of Wildlife, was responsible for writing up the proposal to fund the WHIP project, as well as securing the assistance of Knipp, which is being funded by the Wildlife Habitat Management Institute (WHMI).

Lewis emphasized the importance of this project in educating both landusers and the general public. "It's one thing to tell people about wildlife habitat enhancement, but when you can actually show them the practice on the land, and show them the benefits first-hand—that's where the real impact happens." NRCS conservationists Wayne Cowell and John Bennett of Darlington County were also instrumental in helping to plan and implement the project, which began last January.

The project consists of illustrating and evaluating WHIP and other USDA conservation practices for wildlife including 1) agricultural filter strips, 2) hedgerow plantings, 3) field borders, 4) native warm season grasses, 5) forest stand improvements, 6) forest openings, 7) riparian forest buffers, and 8) prescribed burning. Field borders are particularly beneficial to wildlife because they promote vegetation that harbors insect species eaten by wildlife, provide seed and soft mast that also serve as food sources, and provide important escape and nesting cover. They can also cut down on populations of harmful insects, which can effect crop productivity, by increasing their natural predators. Additional work in the future will also include enhancing wetland areas for wildlife.

Project highlights also included establishing new and expanding existing hedgerows by planting a variety of native hardwood species and shrubs. The hedgerows and field borders, along with filter strips and riparian buffers, provide multiple benefits including food and shelter for wildlife, but they also help filter out harmful pollutants that may run off from crops and other agricultural uses. The project is enhanced by signage which explains to viewers the purpose of each practice area.

As part of the project, Savereno and Knipp will evaluate the effectiveness of the WHIP prescribed practices and their specifications. "We will be able to look at the results such as increase of certain wildlife species to see what's working and what can be improved," explained Knipp. The results will be compiled at the end of the WHIP contract and submitted to NRCS as suggestions for fine tuning the program.

State Prescribed Fire Council Meeting Set November 10 in Edgefield

The South Carolina Prescribed Fire Council will hold its first annual meeting Wednesday, Nov. 10 at the National Wild Turkey Federation Headquarters east of Edgefield on U.S. 25.

Registration for the South Carolina Prescribed Fire Council meeting will begin at 9 a.m. Nov. 10 at the National Wild Turkey Federation Headquarters in Edgefield, and the meeting is scheduled to conclude at 3:30 p.m. The registration fee is $5.00 and includes lunch. Space is limited, so early registration is encouraged. Register by contacting Melinda Ottaviano of The Nature Conservancy at (803) 254-9049, extension 20, or e-mail mottaviano@tnc.org.

The mission statement of the South Carolina Prescribed Fire Council is to foster cooperation among all parties in the Palmetto State with an interest in prescribed fire to optimize burning opportunities, to encourage the exchange of information, techniques and experiences among practitioners of prescribed fire and to promote public understanding of the importance and benefits of prescribed fire.

Among the charter members of the South Carolina Prescribed Fire Council is a collection of private organizations and individuals and state and federal agencies, including The Nature Conservancy Fire Program, S.C. Forestry Commission, S.C. Department of Natural Resources, and Clemson University.

Topics to be covered at the meeting include air quality issues; smoke modeling technology; operating procedures when smoke impacts roads, incentives available for grasslands work, current and future challenges to prescribed burning, and activities the Council has for promoting prescribed burning in the state. Anyone having an interest in prescribed burning is encouraged to attend.

Producing Firewood from Your Woodlot

William E. Gardner, Extension Forestry Specialist , NC Cooperative Extension Service

A century ago wood supplied most of South Carolina's energy. That share dwindled to less than one percent as energy consumption increased, but people switched to coal, oil, and natural gas (much of it used in production of electricity). In the 1970s, steep price increases for nonrenewable fossil fuels led to renewed interest in firewood for domestic heat. Demand for firewood declined with cheap oil prices during the 1980's, but may climb again as we are currently seeing record prices.

What does this mean for South Carolina's woodlot owners? Thousands of households in the state consume a cord or more of firewood each winter. Firewood use will likely increase, as will woodlot management opportunities created by firewood demand. The state remains two-thirds forested, and more than half of that forest is hardwood. One of the most discussed forest management problems in recent decades has concerned the abundance of small, poor quality hardwoods. Firewood cutting can help solve that problem. In addition, recent higher pulp prices for what was once considered "junk" hardwood may provide a competitive market and drive firewood prices upward.

Woodlot owners can benefit from firewood production in at least three ways:

1. Save fuel cost by burning firewood.
2. Generate income by selling firewood.
3. Improve timber quality, species composition, and growth rate by removing undesirable trees for firewood.

Firewood and Forest Management

Firewood removal can improve timber production and other management objectives if the woodlot owner carefully decides when, where, and how to cut that firewood. Three opportunities are broadly grouped below as they relate to conventional harvesting: "Following Timber Harvest," "Prior to Timber Harvest" or "Intermediate Stand Management."

Following Timber Harvest

The best opportunities for firewood production are found immediately after the sale of merchantable timber. Once the trees have been harvested, they do not interfere with access or processing and they cannot be damaged or "underutilized." Limbs and tops, as well as residual trees, remain available for use as firewood. The landowner's plan for regenerating a stand can generate revenue and benefits from the removal of firewood.

On sites where pine has been harvested, reestablishment of pine is generally a good investment. Whether from natural regeneration or from planted seedlings, the establishment of pine reproduction is helped by controlling or reducing competing vegetation and material. This frequently includes many standing low-quality hardwood trees. Chemical control of hardwood

stumps as the trees are cut for firewood can reduce the competitive threat from resprouting.

Where regeneration of a hardwood stand is desired, in many cases it is a good silviculture (applied forest ecology) practice to cut all standing trees. Those trees which remain after harvest are generally of low value because of stem defect, poor form, long-term suppression, or species. For the same reasons, they are not likely to develop into quality trees for timber or ecological value. After felling all stems, the new stand can develop from seeds or sprouts, depending on the species, condition, and site. Stumps of small trees cut closely to the ground (lower than 6 inches) during the fall or winter provide the most vigorous sprouts. Regeneration from seeds may be obtained from the current year's seed crop on harvested or nearby standing trees, or it may come from the accumulation of previous years' seed drops already on the ground.

Quick-Reference List of Natural Resource Websites

Clemson Extension Forestry & Natural Resources	www.clemson.edu/extfor
Southern Region Extension Forestry	www.soforext.net
Forestry Index.Net	www.forestryindex.net
Private Forest Management Team	www.pfmt.org
South Carolina Department of Natural Resources	http://water.dnr.state.sc.us/
South Carolina Forestry Commission	www.state.sc.us/forest
USDA Natural Resources Conservation Service-SC	www.sc.nrcs.usda.gov
USDA Farm Service Agency-SC	www.fsa.usda.gov/sc
Society of American Foresters	www.safnet.org
The Wildlife Society	www.wildlife.org
National Agroforestry Center	www.unl.edu/nac
South Carolina Forestry Association	www.scforestry.org
Tree Farm Program	www.treefarmsystem.org
South Carolina Wildlife Federation	www.scwf.org
Forest Landowners Association	www.forestland.org
Quality Deer Management Association	www.qdma.com
National Wild Turkey Federation	www.nwtf.org
Quail Unlimited	www.qu.org
Ducks Unlimited	www.ducks.org
South Carolina Waterfowl Association	www.scwa.org

Prior To Timber Harvest

Removing firewood from a mature timber stand prior to harvest requires more care than a post harvest operation. Marketable trees that will be sold for timber at future harvests must be identified so they will not be damaged when firewood or other trees are removed. Trees to be removed for firewood include those with crooked, dead, partially rotten, diseased, and small stems as well as unfavorable and competing species. Although access throughout the stand is generally easier before harvest than after, available firewood volume can be much less, and its removal without damaging merchantable trees can be difficult. However, a well done preharvest firewood cutting can reduce logging costs and enhance the appearance and perhaps the harvest value of the remaining stand.

Intermediate Stand Management

Management of existing stands should include activities that protect, upgrade the quality or improve the growth rate of trees selected to grow to maturity. These trees are known as crop trees or residual trees. Residual trees must be identified by their anticipated performance and merchantability, which in turn depends on species, vigor, form, and quality as well as markets.

Most firewood thinning opportunities are found on sites that are moderate to good quality in hardwood stands between 20 and 60 years old. Such stands can supply half a cord per acre of firewood each year while simultaneously producing valuable timber. Stands older than 60 years may lack the vigor to respond to thinning. Stands younger than 20 years should not be thinned because crop tree identification and response are uncertain. Thinned, very young hardwood stands are particularly vulnerable to damage from ice, snow, and wind. Also, releasing young hardwood trees frequently reduced quality because branches remain, or sometimes form, lower on the stems.

Administering Firewood Removal

There are many ways to conduct firewood removal, ranging from the give away of logging slash and cull trees to the complete processing and sale of cut, split, and delivered wood. Near metropolitan areas, firewood cutters may pay $10 or more per pick up truck load for "firewood stumpage" (permission to cut and remove standing trees or material on the ground). The best method for conducting firewood removal depends upon accessibility and distance to market as well as the amount of time, interest, and effort the landowner is willing to exert.

Most landowners have found it necessary to control both access to, and the cutting of, firewood. Control may be exercised by issuing permits for specific dates and times, or by distinctly marking the boundaries of areas where wood can be cut. County forestry offices and extension centers often maintain lists of firewood cutters, cutting areas, and local market information.

Administration of firewood sales can affect how well the woodlot owners' objectives are accomplished. Selling everything within a marked boundary is frequently effective in motivating a cutter to clean up an area. Sale of wood by the pick up truck load may improve control, but can also discourage removal of small, rough, and hard to reach trees.

Safety

Firewood cutting and any chain saw operation is extremely dangerous, so it must be done with care. The cost of even a minor accident can more than offset any potential value or saving. Dead trees and "leaners" are particularly hazardous because they can break and fall unexpectedly while being cut. Consider leaving dead snags in the woods for their wildlife value rather than taking the high risk of felling them.

Chain saws are the major cause of accidents among professional loggers (who presumably understand the risks and know how to operate them safety). Firewood cutters should take appropriate precautions. The chain saw operating manual should be thoroughly read and understood before operating the saw. Learn safe techniques, use well-maintained equipment, wear appropriate clothing and protective gear, and avoid excessive fatigue.

If others are cutting firewood on your property, require them to work safely. Provide separation between cutters so they do not endanger each other, but do not allow anyone to work alone. It is always advisable to carry adequate liability insurance.

Summary

Producing firewood from a woodlot can be an excellent forest management opportunity. Properly marked and administered, firewood cutting can produce immediate income while increasing the long term value of the woodlot. However, cutting the wrong trees (valuable residual trees) for firewood will reduce long-term profits. Ask a forester how firewood cutting could fit into your management plan and improve your woodlot.

Sudden Oak Death Update

Two Cases Reported in Virginia

According to officials from the Virginia Department of Agriculture, phytophthora ramorum, the pathogen responsible for the tree-killing disease known as sudden oak death, was found on a camellia at a nursery in Hampton and on a rhododendron at a nursery in Chesapeake. US Department of Agriculture personnel discovered both plants in nursery stock. The agency has

Upcoming Events

November 8-9	Forestry Herbicides: Developments in Technology, Research and Application. Columbia, SC. For more information go to www.clemson.edu/extfor/calendar and click on Forestry Herbicides, or call (864) 656-0606.
November 10	SC Prescribed Fire Council Meeting. National Wild Turkey Federation Headquarters, Edgefield, SC. For more information, see the article on page 10 of this newsletter.
December	Timber Tax Workshop. Satellite broadcast to multiple locations in SC. Final dates not set. Check for updates at www.clemson.edu/extfor/calendar, or call (864) 656-0606.
December 10-11	Entrepreneurial Ventures in Recreational Horse Camps and Trails. Clemson, SC. For more information go to www.clemson.edu/extfor/calendar and click on "Ventures in Recreational Horse Camps and Trails," or call (864) 656-0606.
Feb. 1 through Mar. 15, 2005	Master Wildlifer Program. Satellite broadcast to multiple locations across the Southeast. For more information, go to www.masterwildlifer.net.
Spring 2005	Wildlife Damage Management Workshop. Florence, SC. Dates to be announced.

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been surveying nurseries throughout the country. To date, more than 140 cases have been found in more than 20 states.

Pathogen Found on Tree in New York State

According to the USDA Animal Plant Health Inspection Service (APHIS), Phytophthora ramorum, the pathogen responsible for the tree-killing disease known as sudden oak death, was found on a mature red oak tree located in a 192-acre hardwood and oak forest in Nassau County, New York. Further surveys are underway to determine if there are other infected plants and infested sites. As of June 30, P. ramorum has been confirmed in plants at 118 locations in 16 states. The numbers of nurseries or garden centers with positive trace forward samples from the wholesaler by state are California (43), Alabama (3), Arkansas (1), Florida (6), Washington (11), Oregon (9), Texas (10), Colorado (1), Georgia (13), Louisiana (5), Maryland (1), North Carolina (9), New Mexico (1), Tennessee (2), and Virginia (1).

Questions about this newsletter, submissions and requests for subscriptions should be directed to: Editor, *Forest Steward* Newsletter, Clemson University Cooperative Extension Service, Department of Forest Resources, 272 Lehotsky Hall, Box 340317, Clemson, SC 29634-0317. Phone: 864/656-2479.

The Forest Steward

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The South Carolina Forest Steward Newsletter is sponsored by the Forest Stewardship Program in South Carolina. For more information on the Forest Stewardship Program, contact Ron Ferguson at the South Carolina Forestry Commission, 803/896-8846. *The South Carolina Forest Steward* is compiled and edited by Larry Nelson, Extension Forester at Clemson University, and Bob Franklin, Area Forestry & Wildlife Agent, Walterboro, South Carolina.