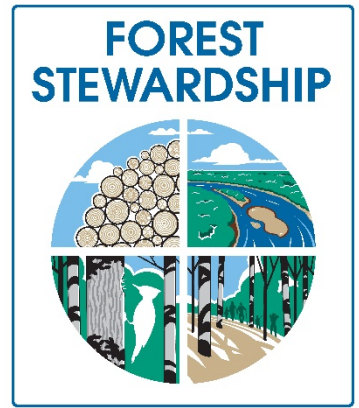

Florida Forest Stewardship Tour: Crooked Creek Preserve Property of Bill and Marcia Boothe

Gadsden County, Florida



Date: Thursday, October 3, 2019

Tour at 9:30 AM ET, adjourn after lunch

In the late 1990s, Bill and Marcia Boothe were looking for land to purchase for conservation and preservation purposes. This 145-acre tract in the northwest corner of Gadsden County had what they were looking for: ravines and a winding creek system that is home to an extremely rich diversity of rare plant and animal species. The property also included a bahia pasture and upland hardwoods. Their first step was to restore longleaf pine forest to this area. With help from FWC's Landowner Incentive Program (LIP), they offset some of the cost to have a fuel wood crew chip 22 acres of hardwoods. They prepared the site and planted longleaf, wiregrass, and Lopsided Indiangrass. The USDA Natural Resources Conservation Service's Working Lands for Wildlife Program has provided funding for prescribed burning, mechanical brush management, and pollinator habitat improvement. The Bothes planted three acres of pollinator-friendly native wildflower seeds and hedgerows of trees and shrubs in additional areas of the bahia grass pasture. Recently they acquired an additional seven acres of adjacent property that they plan to work with FWC and NRCS on wildlife friendly habitat programs.



Thank you for joining us for a tour to see longleaf pine and wiregrass uplands, wildflowers and Lopsided Indiangrass, native bee nesting boxes, bee hives, numerous game cameras at gopher tortoise burrows that monitor wildlife activity, and extensive damage to the ravine system caused by Hurricane Michael. **Note that we will be in some proximity to bee hives so please take necessary precautions if you have allergies to bee stings.**



Funding for this event is provided by the, USDA Forest Service through the Florida Department of Agriculture and Consumer Service's Florida Forest Service, Florida Tree Farm Program, and the Florida Sustainable Forestry Initiative Implementation Committee.

Crooked Creek Preserve Bill and Marcia Boothe Gadsden County





Acreage = 152

Hwy 270

Parking



Legend

-  Property boundary
-  Trails

Stops

- | | |
|--|---|
| 1 Gopher tortoise cameras | 4 Pollinator habitat, hedgerows, bee box |
| 2 Lopsided indian grass project | 5 Hurricane damage |
| 3 Apiary operation | 6 Longleaf pine/wiregrass/snags |

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We appreciate the support of our
2019 Florida Forest Stewardship Program Sponsors
-listed on the back cover-

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History and Management of Crooked Creek Preserve

In 1997, we, Bill and Marcia Boothe, purchased 145 acres of property in Gadsden County that included a winding creek, spring, and steephead/ravine system that have a rich diversity of rare plant species as well as a pasture. It was not until 2009 we really realized what we could and should do with the property. After talking with FWC biologists and others, we decided to restore the overgrown hardwoods to the original longleaf and wiregrass sandhill community that would provide habitat for wildlife.

In July 2009, we paid a logging company to cut and chip 22 acres of hardwoods with minimal soil disturbance. After a winter burn in 2010, tree crews planted longleaf, wiregrass, and Lopsided Indiagrass plugs. Since that time, we followed best management practices (burning, mechanical and hand clearing) to maintain the land.

After the initial clearing, we thought, “What have we done! Did we make a mistake?” The landscape looked like it had been bombed. But it was amazing, from the barren burned and disturbed soil emerged a flourishing ecosystem. The wiregrasses and Lopsided Indian grasses began emerging from the ashes. The longleaf pines quickly shot up. As of today, most are about twenty feet tall. By fall, beautiful fire-dependent wildflowers showed up. More and more wildlife such as bobwhite quail, gopher tortoises, turkey, and bobcats expanded into the previously uninhabitable hardwoods.

We are blessed with an abundance of gopher tortoises. We have at least 35 gopher tortoise burrows throughout the property. As an experiment, in 2013, we set up a single game camera at a burrow to see if the camera would record the comings and goings of the gopher tortoise. It was a success. Not only did we see the tortoise at the burrow, but we also saw other wildlife wandering by. Since then, we have set up fourteen additional cameras at selected burrows. As of now, we have tens of thousands of images.

It is always with anticipation that we review new images from each camera. Observing gopher tortoises can be quite rewarding: image highlights include three gopher tortoises lined up at a burrow trying to get the female’s attention, as well as mating tortoises. Although we have not seen nesting activity, we have seen “itty bitty baby” and palm-sized yearlings at their burrows. It is gratifying to see new generations of tortoises expanding into newly restored habitat.

Just as amazing are the other animals that may share or walk past a burrow. To date, we have documented birds, insects, snakes, lizards, box turtles, rabbits, and amphibians in or at burrows. We also have seen deer, bobcats, turkeys, foxes, coyotes, mama quail and babies, and an occasional black bear. Other highlights include seeing pine snakes, rattlesnakes and coachwhip snakes emerging from burrows. Often the first time we see a species is on the camera. We also would have missed seeing several species of wildlife such as the blue grosbeak and meadowlark that we did not even know we had on our property.

In 2013, at the suggestion of our FWC biologist, we had planted on the eastern side of the pasture 3000 Lopsided Indian grass plugs. This was an experiment to see if Indiagrass could compete in an existing Bahia grass pasture without using herbicides, the traditional approach. As you can see, this experiment was a success. Since we harvested seeds by hand and dispersed them each year, Indiagrass is now growing in other areas.

Already avid supporters of pollinators, we jumped at the chance to sign up in 2014 for the NRCS Pollinator Initiative, a program designed to promote and establish habitat and food resources for native pollinators such as bees, beetles, butterflies, and other insects. In November and December 2015, we

cleared, disced, and selectively herbicided three acres of the Bahia grass pasture. We densely sowed native wildflower seeds by hand. Additionally, we mechanically cleared two berms along either side of the pasture in which were planted native trees and shrubs. The species were chosen after extensively researching their wildlife value to the pollinators that may cruise by and based on marketplace availability of Florida ecotypes. We are grateful to our friends who keep bees at our property for also sowing seeds of other native plants such as summer farewell, tickseed, beardtongue, lanceleaf blanketflower, and woody goldenrod, that have now become established.

We also constructed native bee boxes that insure that bees and wasps that frequent our “pollinator garden” would remain, propagate, and pollinate.

We enjoy observing and photographing the insect life that visits year round, but especially in the fall months.

In the past ten years, with the help of FWC and NRCS, we have been promoting the need for planting more habitat for native pollinators on agricultural lands and in our “back yards.” Our “back yard” at our house is a naturalized organic pollinator-friendly yard with numerous native plant species. To date, we have documented 57 butterfly species in addition to numerous native bees and wasps.

Before it was the “rage,” Bill gave presentations at several pollinator workshops organized by FWC and supported by NRCS and other sponsors. Most recently, with FWC support, we printed a pollinators poster showing native butterflies along with their caterpillars and associated host plants.

Bill: I am a professional naturalist, environmental educator, and wildlife photographer (images may be viewed at NatureInFocus.com) with undergraduate and graduate degrees in biology. My areas of expertise include invertebrate taxonomy, herpetology, and identification of native plants. I have written numerous scientific publications and natural history articles as well as being a speaker on natural history subjects. Before acquiring this property, I never cut down big trees or used a farm tractor to mow, disc, or bush hog!

Marcia: I have a professional background in computers (“computer whiz”) and share Bill’s interests in the outdoors, especially native plants and gardening. I am always open to alternative agricultural methods such as avoiding the use of herbicides unless unavoidable. Among skills I never knew I would learn are using chainsaws, assisting with burns, and harvesting seeds.

If we can do this, you all can do this too!

Bill and Marcia

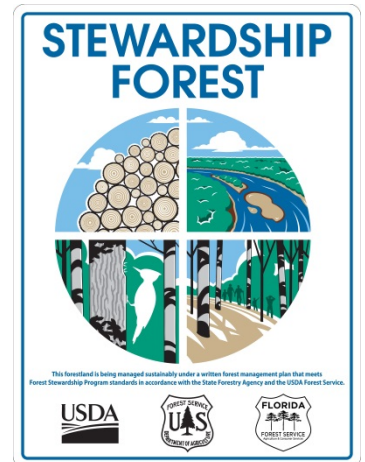
Chronology

- 1997: Purchased Crooked Creek property.
- July 2009: Cut and chipped 22 acres of hardwoods.
- December 2010: Planted 8600 longleaf, 25,000 wiregrass, and 3000 Indiangrass plugs.
- September 2013: Planted experimental plot of 3000 Indiangrass plugs in Bahia grass pasture.
- November 2015: We hand sowed native wildflower seeds and planted native trees that were pollinator-friendly.

Florida's Forest Stewardship Program

Forest Stewardship is active management of forest land to keep it in a productive and healthy condition for present and future generations, and to increase the economic, environmental and social benefits of these lands. Forest Stewards are landowners who manage their forest lands on a long-term basis by following a multiple resource management plan.

The Forest Stewardship Program addresses the improvement and maintenance of timber, wildlife, soil and water, recreation, aesthetics, as well as forage resources.



Eligibility

Private forest landowners with at least 20 acres of forest land and a desire to manage their ownerships according to Stewardship principles can participate in the Forest Stewardship Program. Also, adjacent landowners, with similar management objectives, may combine their holdings to meet this acreage limitation.

Benefits to Landowners

- A customized management plan that is based on the landowner's objectives. The plan will include forest stand characteristics, property maps, management recommendations, and a five-year time line for future planning. This plan also serves as documentation of active management on the property that may help reduce tax liability.
- An opportunity for public recognition as a certified "Forest Steward".
- Educational workshops and tours, weekly Florida Land Steward email updates, and the quarterly Florida Land Steward newsletter produced by the University of Florida, IFAS Cooperative Extension Service and other partners.

How to Enroll

Contact your local Florida Forest Service County Forester and tell them that you would like to have a Forest Stewardship Plan prepared for your property. More information and application online at:

<http://FDACS.gov/ForestStewardship>



Tree Farm Program

The American Tree Farm System® is a program of the American Forest Foundation and was founded in 1941 to promote the sustainable management of forests through education and outreach to family forest landowners. Nearly 26 million acres of privately owned forestland and 80,000 family forest landowners in 46 states are enrolled in the program and committed to excellence in forest stewardship. About half of all Tree Farms are located in the South.

Eligibility

Private forest landowners with at least 10 acres of forest land and have a desire to manage their ownerships according to sustainable forestry guidelines can participate in Tree Farm.

Benefits to Landowners

Tree Farmers are good stewards of their forestland, committed to protecting watersheds and wildlife habitat and conserving soil. They manage their forestland for various reasons, including timber production, wildlife, recreation, aesthetics, and education/outreach. Florida Tree Farmers receive many benefits:

- Representation on local, state, and federal issues affecting forestland owners.
- Exposure to a network of forestry professionals and landowners committed to sustainable forestry.
- Invitations to workshops and tours, weekly Florida Land Steward email updates, and the quarterly Florida Land Steward newsletter produced by University of Florida IFAS and other partners.
- Certification that meets international standards of sustainable forest management.
- Participation in local, state, regional, and national Outstanding Tree Farmer of the Year awards and recognition.

Getting into the Program

Contact your local Florida Forest Service County Forester and tell them that you would like to join the Tree Farm program. More information is available at:

<https://www.treefarmssystem.org/florida>



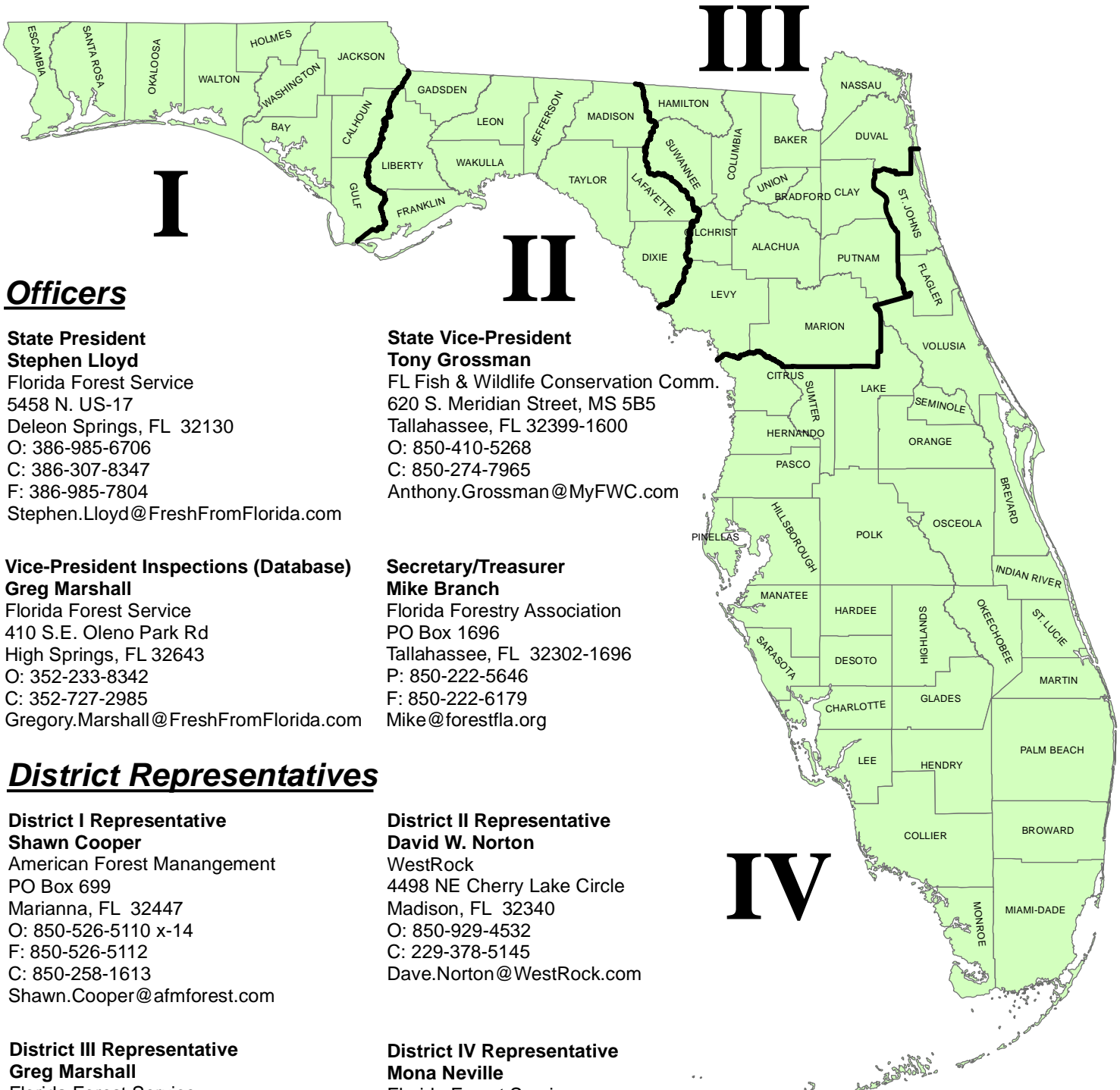
Florida Tree Farm Program, Inc. Districts, Officers, and District Reps.

Administered by the Florida Forestry Association

Revised: June 27, 2019



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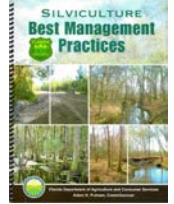
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Florida Forest Service Silviculture Best Management Practices



SILVICULTURE BEST MANAGEMENT PRACTICES (BMPs)

Silviculture BMPs are the minimum standards necessary to protect our state's waterbodies and wetlands from the degradation and sedimentation that can sometimes occur because of erosion during and immediately following recent forestry operations. Silviculture BMPs should be applied on all bonafide ongoing forestry operations, especially those adjacent to waterbodies and wetlands, and may be enforced by federal, state, and local authorities through reference of regulatory statute or rule.

SILVICULTURE BMP COURTESY CHECKS

Silviculture BMP courtesy checks are available to give landowners, land managers, and loggers a "report card" on Silviculture BMP implementation for recent or ongoing forestry operations. This helps with future management planning as well as evaluating the performance of contractors on your property.

SILVICULTURE BMP SITE ASSESSMENTS

On-the-ground Silviculture BMP site assessments are available to discuss which Silviculture BMPs will apply to planned operations on a specific site. This helps with harvest plan development, road layout, mitigation of existing problem areas, etc.

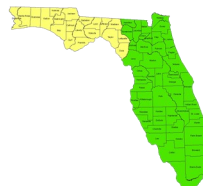
SILVICULTURE BMP NOTICE OF INTENT

The Silviculture BMP Notice of Intent (Rule 5I-6 F.A.C.) is a voluntary one-time pledge that a landowner signs to indicate his or her intention to follow Silviculture BMPs on their property. Once a landowner has signed the Notice of Intent, he or she will become eligible to receive a *presumption of compliance* with state water quality standards during future bonafide ongoing forestry operations. This is very important if the landowner's property falls within an area covered by a Florida Department of Environmental Protection Basin Management Action Plan for impaired waters.

ADDITIONAL SERVICES

For information on the services listed above or any other services provided by the Florida Forest Service's Hydrology Section please contact your local **BMP Forester**.

William McCarthy
Panhandle Area
William.McCarthy@FDACS.gov
(850) 681-5942



Robin Holland
Peninsula Area
Robin.Holland@FDACS.gov
(352) 732-1781



Florida Department of Agriculture and Consumer Services



Forestry Wildlife Best Management Practices

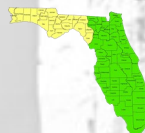


- Forestry Wildlife Best Management Practices for State Imperiled Species (WBMPs) were adopted into Florida Administrative Code (Rule 5I-8) on October 21, 2014.
- WBMPs were developed through a partnership between the Florida Department of Agriculture and Consumer Services' Florida Forest Service and the Florida Fish and Wildlife Conservation Commission (FWC).
- WBMPs are **voluntary** practices designed as a practical approach for avoiding and minimizing the loss of **State Imperiled Species** due to silviculture operations.
- WBMP practices address the 16 State Imperiled Species which are considered to be potentially vulnerable to silviculture operations including ten aquatic species, two burrowing animals, and four nesting birds.
- WBMPs are designed to supplement the existing water quality-based Silviculture BMPs which already provide many valuable benefits to the conservation and management of fish and wildlife in Florida.
- Landowners and other forestry resource professionals can enroll in the voluntary program by completing a WBMP Notice of Intent. Those who do not wish to enroll will continue to be subject to all current laws and regulations regarding State Imperiled Species.
- Once enrolled, applicants who **properly implement** WBMPs will no longer be required to obtain a permit authorizing the incidental take of State Imperiled Species during bonafide ongoing forestry operations. In addition, they will not be subject to any fines or penalties associated with an incidental take of the State Imperiled Species covered by the WBMP Manual.
- WBMPs are not designed to facilitate wildlife habitat restoration or species recovery and expansion. Also, they do not address any Federally Listed Species. For information on Federally Listed Species, refer to FWC's online "Florida Wildlife Conservation Guide."
- To obtain more information or a copy of the WBMP Manual and Notice of Intent, contact your local Florida Forest Service BMP forester (see below) or a FWC Landowner Assistance Program biologist (850) 488-3831.

Florida Forest Service BMP Foresters

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Got Invasives?

Invasive exotic plant problem? Find a program to help by using FloridaInvasives.org.

The Florida Invasive Species Partnership has collected, evaluated and categorized assistance programs into a single resource, making it easier to find the financial and/or technical assistance available to Florida landowners to prevent or control invasive exotic species problems. FloridaInvasives.org has an online resource of management assistance programs to help in your fight against problematic plant species. This resource takes the guesswork out of finding the agencies or organizations offering assistance and will direct you to available programs. The Landowner's Incentives Database will also provide the requirements for each program, to help you decide if they are a good match for your needs.

Why was FloridaInvasives.org developed?

Invasive species have been identified as being costly ecologically and economically statewide in Florida. The Florida Invasive Species Partnership (FISP) is a collaboration of public and private entities in Florida, formed to link efforts at preventing and controlling invasive exotic plants across agency and property boundaries. FISP has developed an on-line tool of available financial and technical assistance sources to make it easier for landowners and land managers to find them.

How does FloridaInvasives.org help you?

FISP has created a searchable database, the [Florida landowner incentives database](http://FloridaInvasives.org), accessible at FloridaInvasives.org that allows you to find an assistance program for your needs. Search by your county, target species or other pertinent information into the online tool, and you will retrieve a current list of available programs.

FloridaInvasives.org will help provide focus to your search so that you can get the right person at the right program.

FloridaInvasives.org:

- Builds community awareness,
- Leverages limited resources through cooperation and
- May reduce individual land management costs.

This resource will be regularly updated with the most current program information to provide you the most up-to-date opportunities.

Go to FloridaInvasives.org to find out more.

Species Shown from top to bottom:

Mexican Petunia, Boston Fern, Mimosa, Cogongrass, Camphor



Think Locally, Act Neighborly

invasive species know no boundaries!

5

Steps to Assistance

How to Get Assistance from NRCS for Farms, Ranches and Forests

1 PLANNING

Visit your local NRCS field office to discuss your goals and work with staff on a conservation plan.

2 APPLICATION

With the help of NRCS, complete an application for financial assistance programs.

3 ELIGIBILITY

Find out if you're eligible for NRCS' variety of financial assistance programs.

4 RANKING

NRCS ranks applications according to local resource concerns.

5 IMPLEMENTING

Put conservation to work by signing a contract and implementing conservation practices.

Get Started with NRCS

Do you farm or ranch and want to make improvements to the land that you own or lease?

Natural Resources Conservation Service offers technical and financial assistance to help farmers, ranchers and forest landowners.

1 Planning

To get started with NRCS, we recommend you stop by your local NRCS field office.

We'll discuss your vision for your land.

NRCS provides landowners with free technical assistance, or advice, for their land. Common technical assistance includes: resource assessment, practice design and resource monitoring. Your conservation planner will help you determine if financial assistance is right for you.

2 Application

We'll walk you through the application process. To get started on applying for financial assistance, we'll work with you:

- To fill out an AD 1026, which ensures a conservation plan is in place before lands with highly erodible soils are farmed. It also ensures that identified wetland areas are protected.
- To meet other eligibility certifications.

Once complete, we'll work with you on the application, or CPA 1200.

Applications for most programs are accepted on a continuous basis, but they're considered for funding in different ranking periods. Be sure to ask your local NRCS district conservationist about the deadline for the ranking period to ensure you turn in your application in time.

3 Eligibility

As part of the application process, we'll check to see if you are eligible.

To do this, you'll need to bring:

- An official tax ID (Social Security number or an employer ID)
- A property deed or lease agreement to show you have control of the property; and
- A farm tract number.

If you don't have a farm tract number, you can get one from USDA's Farm Service Agency. Typically, the local FSA office is located in the same building as the local NRCS office. You only need a farm tract number if you're interested in financial assistance.

4 Ranking

NRCS will take a look at the applications and rank them according to local resource

concerns, the amount of conservation benefits the work will provide and the needs of applicants.

5 Implementing

If you're selected, you can choose whether to sign the contract for the work to be done.

Once you sign the contract, you'll be provided standards and specifications for completing the practice or practices, and then you will have a specified amount of time to implement. Once the work is implemented and inspected, you'll be paid the rate of compensation for the work if it meets NRCS standards and specifications.

USDA is an equal opportunity provider and employer.

To find out more, go to: www.nrcs.usda.gov/GetStarted

Prepare Your Property for Hurricane Season

DRAFT

By Chris Demers

Hurricane season is June 1 through November 30. As we have learned in recent years, powerful hurricanes can make their way inland and do considerable damage to forest and agricultural lands and enterprises. It's never too early to start planning for a major hurricane that could make a direct hit on your land. There is no way to fully prepare for major devastation in advance, but there are some strategies and steps you can take to prepare you and your land for a major storm and recover more smoothly.

Connect with Professionals

Don't go it alone. There are resources and services available to help with your land management activities, and these connections can give you a leg up in the event of a hurricane or other natural disaster.

Work with a Consulting Forester and Get a Forest Inventory

Consulting foresters provide technical assistance in all phases of forest management for a fee. Their services include management plan preparation, forest inventory, timber sales, thinning, tree planting, herbicide and fertilizer application, and prescribed burning. The expertise, guidance, and connections of a consultant can be invaluable in the recovery process after the storm. If you have a lot of value in standing timber, a forest inventory will provide a detailed account of that value, which can be important for documentation for financial assistance after a hurricane or other natural disaster.

Get Connected to Assistance before the Storm

Don't wait for disaster to strike to contact the people and agencies that can help and provide management and recovery assistance. Get to know your University of Florida IFAS County Extension Agent and Florida Forest Service County Forester. They can provide valuable management assistance and will be knowledgeable about local recovery efforts, workshops, and available assistance after a hurricane.

Also contact your USDA Natural Resources Conservation Service and Farm Service Agency to see what assistance they can offer to help you reach your land management goals. Having your land or farm enrolled in an assistance program will help you get connected to recovery assistance when it is available after a natural disaster.

Pre-Storm Preparation

Do some pruning —Trees, especially those over structures and fences, should be pruned regularly to reduce broken or dead limbs that could cause damage.

DRAFT

Fill the tanks — Tanks containing fuel, herbicides, fertilizer, and other materials should be kept full, or otherwise secured, and to ensure that sufficient fuel is available for machinery used in recovery efforts after the storm.

Keep ditches clean — If present, ditches should be kept clean so excess storm water can drain properly.

Emergency equipment — Make sure that all emergency equipment; including generators, chain saws, air compressors, and other equipment; is on hand and in good working order.

Communications equipment — If you have them, ensure that radios are in good working order. Have hand-held portable radios with extra charged battery packs available for family or hired help after the storm. Direct truck-to-truck radio communication is most reliable when phone lines are down, but cellular phones with radio capabilities and standard cellular phones can help family and workers save valuable time during the recovery process, as opposed to communication systems that require communications to be relayed through a base unit.

Hazardous materials—Hazardous materials should be secured prior to a storm, and gasoline pumps, if present, should be shut down.

Emergency contacts — Have a list of phone numbers you might need in an emergency, including numbers for phone and internet service, utilities, fire department, police, and medical facilities.

Take photos – Take photos of your stands and/or fields before the storm so you can have a record of the condition of these areas before damage occurs. This could help with records needed for insurance claims and/or government assistance programs.

Time for harvest? – If in line with your management plan and objectives, consider harvesting mature timber stands to capture the full market value of the products you have. A salvage sale of a storm-damaged stand will only yield 10-15% of the normal market value. See Steps to Marketing Timber, <https://edis.ifas.ufl.edu/fr130>, for important considerations for selling your timber.

References

Zekri, M., R. Rouse, and J. Crane. 2017. Hurricane Preparedness for Citrus Groves. HS-804. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available online: <https://edis.ifas.ufl.edu/ch178>

Demers, C. and A. Long. 2019. Selecting a Consulting Forester. SS-FOR-16. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available online: <https://edis.ifas.ufl.edu/fr125>

Establishing Wildflowers

The establishment of native wildflower plantings in Florida can benefit agricultural producers as well as native pollinators and other beneficial insects (predators and parasitoids). The plantings do this by:

- providing forage and nesting sites for bees, butterflies, and other pollinators;
- increasing wild bee numbers possibly across the farm, and
- increasing natural enemies of insect pests (that also depend on forage and nesting sites).

When protecting, enhancing, or restoring habitat to benefit pollinators, **choose a mix of native plant species that will bloom throughout the year and provide a continuous source of pollen and nectar** for many pollinator species. Site selection and pre-planting weed eradication are key to the success of establishing new pollinator habitat. The site should be practical to manage, maximize benefits to wildlife, and fit into the overall management practices of the property.

A Guide to Planting Wildflower Enhancements in Florida:

<https://edis.ifas.ufl.edu/in1180>

Cogongrass Control

Cogongrass (*Imperata cylindrical*) is a warm-season perennial grass species found throughout tropical and sub-tropical regions of the world. Native to Southeast Asia, cogongrass is an aggressive invasive plant that has spread to all continents except Antarctica and is considered among the worst problematic weeds in the world. In the United States, it is naturalized in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, and Oregon. It was first accidentally introduced in the United States near Mobile Alabama in 1912 and subsequently intentionally introduced from the Philippines into Mississippi as a forage crop in 1921. Early regional introductions contributed to the establishment of cogongrass in the Southeast. Cogongrass is regulated as a federal noxious weed.

Control of cogongrass is difficult because it spreads in two ways: by extensive rhizome systems and by seeds. Cogongrass rhizomes can comprise more than 60% of the total plant biomass. The rhizomes support rapid re-growth following mowing or burning.

Control in Pine Forests

Chemical control is required. Glyphosate, imazapyr, and combinations of the two herbicides are most effective. Eradication requires multiple applications. In many instances, selective control of cogongrass without damage to desired vegetation is not possible, but where the canopy of shrubs and trees is above that of cogongrass, glyphosate sprays may be directed to cogongrass in the understory with fair selectivity to the taller vegetation. Imazapyr, however, used in the quantities and at the application frequencies necessary to eradicate cogongrass, will kill hardwood trees and shrubs.

Control in Hardwood Forests

To avoid injury to hardwood trees or shrubs in mixed pine-hardwood stands, glyphosate alone is commonly used at 3 to 4 lb ai/acre (3 to 4 quarts per acre for many common 4 lb ai/gallon product formulations), and selectivity is obtained by spraying cogongrass in the understory and avoiding any spray contact near the crowns of trees and shrubs. Imazapyr will kill hardwood trees and shrubs.

Biology and Control of Cogongrass in Southern Forests: <https://edis.ifas.ufl.edu/fr411>

Cogongrass Biology, Ecology, and Management in Florida Grazing Lands:
<https://edis.ifas.ufl.edu/WG202>

Enhancing Habitat for Wildlife

Southern forests have the potential to provide productive wildlife habitat for a variety of species. Landowners interested in promoting wildlife must recognize that each wildlife species requires a specific set of habitat conditions. Animals will frequent your property depending on the condition, type, and variety of food and cover that are present.

Production of timber products and enhancement of wildlife diversity are compatible objectives. However, some tradeoffs may be necessary because strategies that maximize timber growth are typically not exactly the same as strategies that will provide habitat for a wide variety of wildlife species. For this reason, it is important to prioritize your objectives and decide where wildlife ranks relative to timber production in your land use planning.

Ten Tips for Increasing Wildlife Biodiversity in Your Pine Plantations:

<http://edis.ifas.ufl.edu/uw319>

Ten Tips for Encouraging the Use of Your Pine Plantations by Game Species:

<http://edis.ifas.ufl.edu/uw318>

The Importance of Bottomland Hardwood Forests for Wildlife:

<http://edis.ifas.ufl.edu/uw316>

Establishing and Maintaining Wildlife Food Sources:

<http://edis.ifas.ufl.edu/fr062>

Making the Most of Your Mast: <https://edis.ifas.ufl.edu/fr036>

Managing Oaks to Produce Food for Wildlife: <http://edis.ifas.ufl.edu/uw293>

Providing Wildlife Cover: <https://edis.ifas.ufl.edu/fr124>

Longleaf Pine

Longleaf pine (*Pinus palustris*) has many favorable characteristics for landowners who have long-term, multiple-use resource management objectives. Of all the southern pine species, longleaf pine is the most adapted to fire and has the greatest longevity. When burned regularly, longleaf pine forests develop a stable grass savannah ecosystem, providing ideal habitat for a diverse array of plants and animals.

Longleaf pine is a pioneer species on a variety of sites but is intolerant of competition and flooding during its grass stage, when it appears like a clump of grass. Historically, fire and moisture have been the principal factors controlling longleaf distribution within its natural range. In the lower Coastal Plain longleaf grows on sandy, well-drained to excessively well-drained soils where loblolly or slash pine perform more poorly. **Prescribed fire** is an important part of longleaf pine management. Fire reduces competing vegetation, exposing the bare soil necessary for successful seedling establishment. In the historic fire-dominated longleaf pine grass savannah ecosystem, relatively stable plant communities are characterized by an overstory of uneven-aged, widely spaced longleaf pines and fire-tolerant oaks such as bluejack oak (*Quercus incana*) and turkey oak (*Quercus laevis*) and a predominate ground cover of bunch grasses such as wiregrass (*Aristida stricta*) and bluestems (*Andropogon* spp.) which facilitate ignition and spread of periodic fires (Landers 1991).

More on Longleaf Pine Regeneration: <https://edis.ifas.ufl.edu/fr064>

Opportunities for Uneven-Aged Management in Second Growth Longleaf Pine Stands in Florida: <https://edis.ifas.ufl.edu/fr132>

Thinning Southern Pines

Many landowners plant pines with the intention of harvesting them at some point in the future. When pulpwood markets are favorable, a complete stand harvest within 15 to 20 years is possible and may bring an acceptable return. However, longer rotations can bring higher financial returns on larger diameter trees if landowners are willing to begin thinning their pine stands when trees are 10 to 15 years old. Pine sawtimber, poles, and/or plylogs are most often the forest products with the highest value and, if economic returns are a priority, the most desirable products to come out of a timber stand. Thinning is a partial tree harvest in an immature stand to maintain or accelerate diameter growth of the remaining trees. If it is done properly, thinning can bring substantially higher revenues when trees are harvested at 25 to 40 or more years of age. Trees will respond to thinning best if they are thinned before 16 or 17 years of age.

The increased diameter growth after thinning results from the greater availability of light, water, and nutrients to the remaining trees. Ideally, the best and biggest trees should be retained to assure the most rapid increase in timber value. For best results, thinning should favor the tallest, best-formed trees over those that are overtopped, crooked, forked, diseased or otherwise undesirable. Timberland owners who wish to harvest high-value sawtimber-, plylog-, or pole-sized products at the end of the rotation should consider thinning a necessity.

For the landowner, thinning can bring

1. increased return on investment from the sale of higher-value forest products;
2. periodic income from the multiple harvests that lead to those higher-value forest products;
3. improved access for equipment, people, and wildlife;
4. a healthy, vigorous forest with less risk of insect infestation, destructive fire, and wind damage; and
5. enhanced wildlife habitat with increased herbaceous ground cover

More on thinning: <http://edis.ifas.ufl.edu/fr159>

Marking First Thinnings in Pine Plantations: Potential for Increased Economic Returns: <http://edis.ifas.ufl.edu/fr410>

http://edis.ifas.ufl.edu/TOPIC_Forest_Management_and_Stewardship

- [Assessing the Economic Feasibility of Short-Rotation Woody Crops in Florida](#)
- [Assessment and Management of Hurricane Damaged Timberland](#)
- [Beyond the Trees: A Systems Approach to Understanding Forest Health in the Southeastern United States](#)
- [Carbon Stocks on Forest Stewardship Program and Adjacent Lands](#)
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