Invasive Species and Control Workshop

Presented by the

North Central Florida Cooperative Invasive Species Management Area and
Florida Forest Stewardship Program

May 30, 2019; 9:00 am to 3:00 pm ET
Suwannee River Water Management District Office, Santa Fe room
9225 County Road 49, Live Oak, FL 32060

Thank you for joining us to get the latest information and technology for controlling invasive species. **Earn pesticide applicator CEUs and forestry CFEs** and connect with partnership and assistance opportunities!





Agenda:

9:00 am	**Sign-in, meet & greet**
9:15	**Welcome & introduction**, Andi Christman and John Herbert, CISMA co-chairs, and Chris Demers, UF/IFAS School of Forest Resources and Conservation (SFRC)
9:25	**Herbicide safety, new application techniques, and glyphosate update**, Dr. Stephen Enloe, UF/IFAS Center for Aquatic and Invasive Plants
10:15	**Break**
10:30	**Maintenance intervals for invasive grasses**, Dr. Greg MacDonald, UF/IFAS Dept. of Agronomy
11:20	**Identification and treatment of key invasive plant species in the region**, Andi Christman, Alachua County Parks and Conservation Lands
12:00 pm	**Lunch**
12:50	**Exotic tree-killers: Present, approaching, and on the horizon**, Jeff Eickwort, Florida Forest Service
1:40	**Feral swine management**, J.C. Griffin, USDA Animal and Plant Health Inspection Service
2:30	**Landowner assistance**, Jessica Rodriguez, Florida Fish and Wildlife Conservation Commission, and Chris Demers, SFRC
3:00	**Evaluation, CEUs, CFEs, adjourn**

Continuing Ed: A total of 5.0 FDACS CEUs approved: 482/487 CORE, Ag Tree Pest Ctrl, Ag Animal Pest Ctrl, Prvt Appl, Ltd Wildlife Trap, ROW, Nat Area WC, Forest Pest Ctrl. 2.0 Cat. 1 and 2.5 Cat. 2 SAF CFEs are approved.

Funding for this workshop is provided by the USDA Forest Service through the Florida Department of Agriculture and Consumer Services Florida Forest Service and the Florida Sustainable Forestry Initiative Implementation Committee.

Table of Contents

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-listed on the back cover-

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Questions about this or other Forest Stewardship Program activities can be directed to Chris Demers at (352) 846-2375 or by email at cdemers@ufl.edu. More information and events at:

http://www.sfrc.ufl.edu/forest_stewardship

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, 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

FISP
Florida Invasive Species Partnership

Think Locally, Act Neighborly

invasive species know no boundaries!

Florida Fish and Wildlife Conservation Commission-Landowner Assistance Program

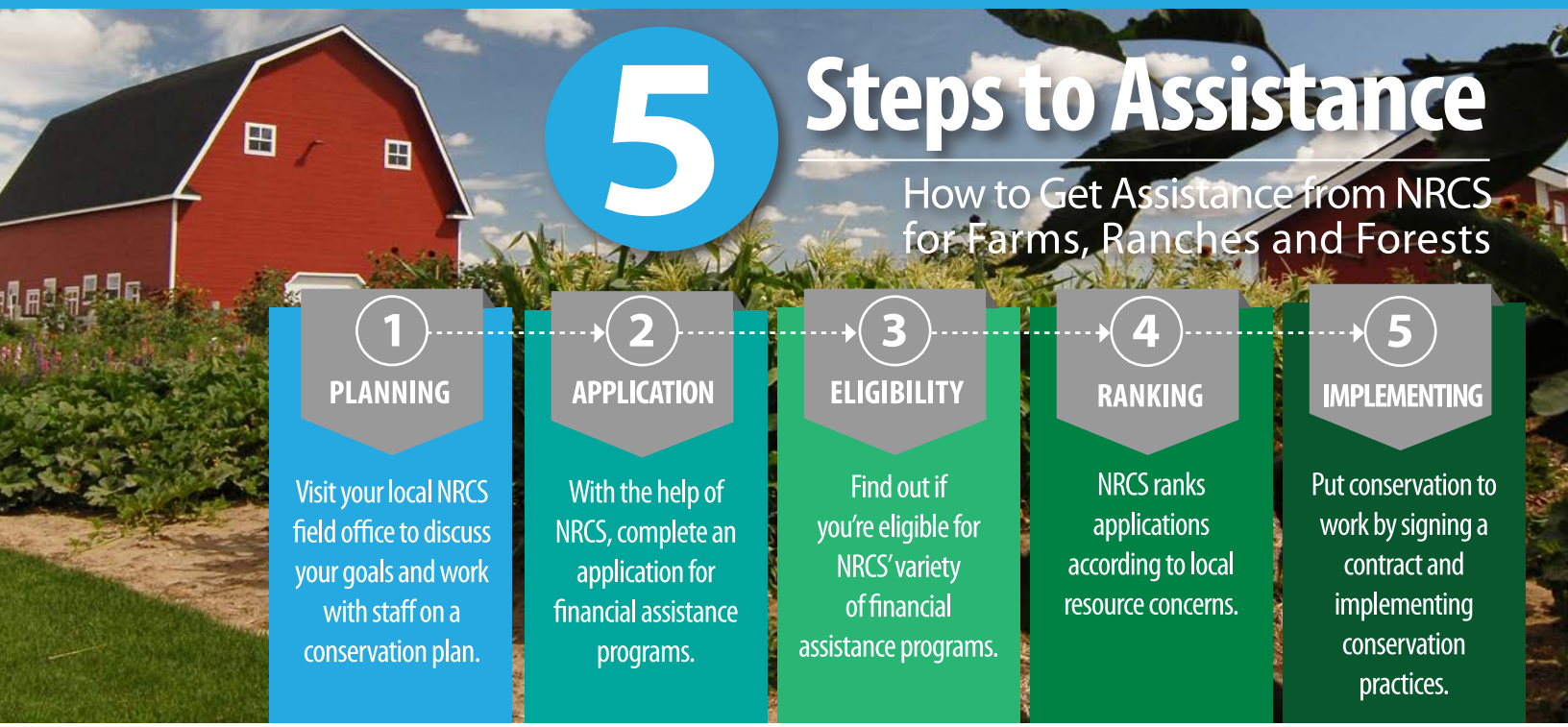
The FWC Landowner Assistance Program assists private landowners to manage their land for fish and wildlife by:

- Providing fish and wildlife related technical assistance including invasive plant management.
- Supporting locally-led conservation efforts.
- Providing information about cost-share programs.
- Developing habitat-based management plans.
- Providing educational workshops for landowners and partners.
- Providing landowner recognition opportunities.

http://www.MyFWC.com/LAP

USDA United States Department of Agriculture

Natural Resources Conservation Service



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.

USDA is an equal opportunity provider and employer.

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.

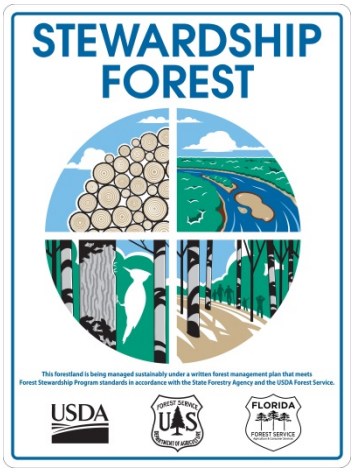
5 Implementing

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.

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

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, tours and the quarterly Florida Land Steward newsletter developed and distributed 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://FreshFromFlorida.com/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 this 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. 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, tours 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 here:

https://www.treefarmsystem.org/florida

University of Florida position

"UF/IFAS is committed to safety and supports integrated pest management as the first line of defense against weeds and other pests, including the use of glyphosate and other pesticides."

- Integrated Pest Management means using all reasonable options in concert to control pests

https://pested.ifas.ufl.edu/wp-content/uploads/2018/09/ICS_GlyphosateFactSheet03-9-17-18.pdf

Options if you choose not to use glyphosate in FL

- Glyphosate - $15-26/gal;
  - No odor, no soil activity, controls grasses and forbes, upland or aquatic sites, no irrigation restrictions.
- Imazapyr - $18/gal
  - No odor, controls grasses and forbs, significant soil activity. Upland and aquatic sites.
  - Can't be used near desirable trees, 120d irrigation restriction
- Tigr – $320/gal
  - Distinct odor, grasses only, no soil activity
  - Upland or aquatic, 30d irrigation restriction

CENTER FOR AQUATIC AND INVASIVE PLANTS

Options if you choose not to use glyphosate

- Triclopyr – $30-40/gal
  - 4 different formulations: some for aquatic, some upland
  - Forbes only no grass; some formulations smell, some are volatile. Irrigation restriction – 120d

CENTER FOR AQUATIC AND INVASIVE PLANTS

Questions? Contact us:

sfenloe@ufl.edu
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CENTER FOR AQUATIC AND INVASIVE PLANTS

Maintenance Intervals for Invasive Plant Management

North Central Florida CISMA
Forest Stewardship Workshop
Greg MacDonald
pineacre@ufl.edu

Terms of Endurement?

- Harm
- Damage
- Injury
- Impairment
- Destruction
- Loss

** Exotic species invasions mean different things to different clientele*

Potential Strategies

- ✓Start on perimeter and work inwards
- ✓Start in one area and work outwards
- ✓Most invasive to least invasive
  - ✓Coverage – area infested
  - ✓Rapidity of spread
- ✓Most easily controlled vs. difficult
- ✓Ecologically sensitive areas first
- ✓Funding potential and demonstrate impact

Overall Goals

1) determine threshold levels that would constitute control (current or predicted)
2) determine the effectiveness of control methods and frequency to maintain thresholds
3) developing a framework to construct integrated management plans

Presentation will focus on grasses

"Maintenance Control"

How do you define (parameters) maintenance control?

- impact – functional
- impact – diversity, ecological
- cost – loss of services
- cost – control measures

Ultimately cost vs. impact

Types of Grasses

- Annual, short lived perennials
- Clumping, moderate perennials
- Rhizomatous perennial, long-term
- Aquatic perennials, rhizomes and/or seed spread

Developing a Plan

- Natalgrass
  - treat early in spring
  - monitor for escapes within 2-3 weeks
  - allow native species to recolonize
  - seed source nearby, watch for issues in disturbed open areas
  - Possible selective control options
- KEY is prevention of flowering and seed

Developing a Plan

- Guineagrass
  - Treat early summer, prior to flowering
  - Within 1-2 months monitor regrowth - retreat
  - Revisit area for 3-4 years for re-infestation from seed
  - Possible pre-emergence selective control options
- KEY is prevention of flowering and seed

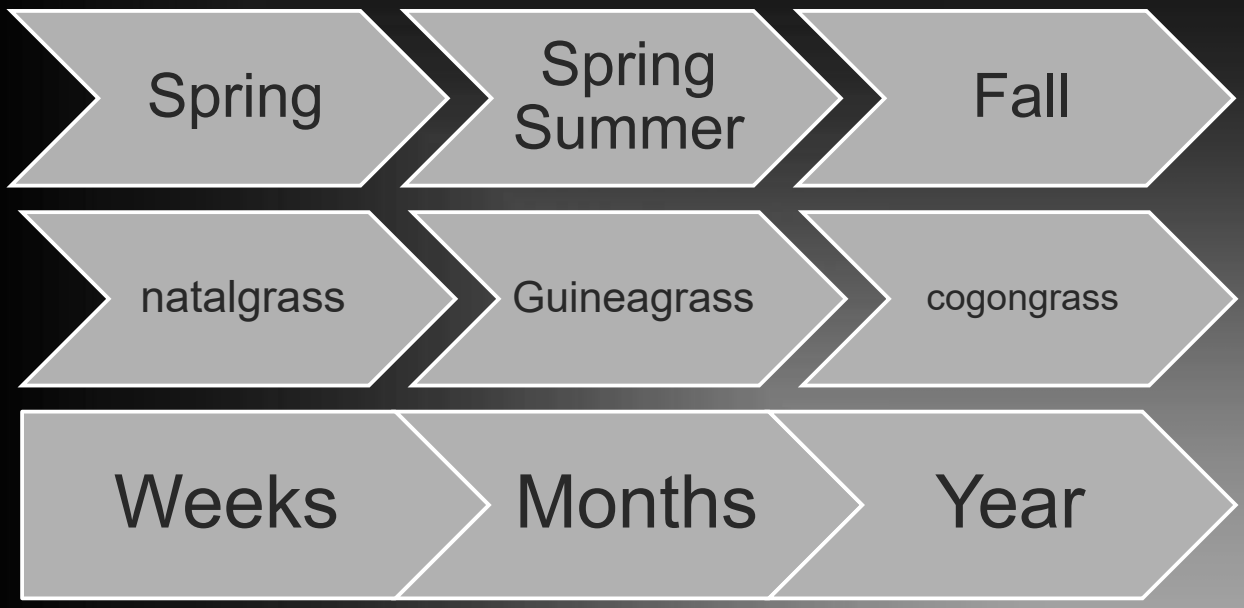
Developing a Plan

- Cogongrass
  - Treat early fall prior to frost
  - Within 1 year monitor regrowth - retreat
  - Revisit area for 2-3 years for re-infestation
- KEY is complete removal of rhizome biomass prior to allowing native species recolonization

Developing a Plan

- Torpedograss
  - Treat on dryland whenever possible
  - Monitor regrowth – retreat when runners reach 2-3 feet of new growth
  - Revisit area for 2-3 years for re-infestation
- KEY is complete removal of rhizome biomass prior to allowing native species recolonization

Timeline



Predicted control for aquatic grasses 9 to 12 months after treatment

Grass	Glyphosate Dry land	Gly + Imaz Dry land	Imazapyr Dry land	Glyphosate Flooded	Gly + Imaz Flooded	Imazapyr Flooded
Torpedograss	80	87	90	20	40	55
West Indian marshgrass	90	95	95	30	45	60
Tropical American watergrass	90	95	95	30	45	60
Limpograss	90	95	95	30	45	60
Paragrass	85	93	95	25	45	60

Predicted control and retreatment interval in months for upland grasses

Grass	Glyphosate Control	Imazapyr Control	Glyphosate retreatment	Imazapyr retreatment
Bermudagrass	80	90	6-12	8-12
Cogongrass	80	90	6-12	8-12
Burmareed	80	90	6	8
Golden bamboo	75	85	2-4	3-6
Elephantgrass	80	90	6-12	8-12
Green fountaingrass	95	95	2-4	4-6
Missiongrass	95	95	2-4	4-6
Pampasgrass	90	95	2-4	4-6
Guineagrass	95	95	2-4	4-6

Invasive plants and control techniques

Management of invasive vegetation in natural areas requires control methods that will minimize damage to non-target vegetation and soil. Control methods include cultural, preventative, manual, and mechanical removal, biological control, physical controls, and herbicides. Generally, these tools are utilized as part of a comprehensive management plan that considers a wide range of issues to control invasive plants and protect the native plants of a given natural area. These tools are not silver bullets and cannot be expected to solve invasive plant problems with a one-time shot. Eradication, which is the complete elimination of all living propagules of a species, is extremely difficult and often infeasible for well-established invasive plants. Without a clear management plan and long-term commitment, most single invasive plant control efforts result in short-lived success.

Herbicide Application Techniques for Woody Plant Control:
https://edis.ifas.ufl.edu/ag245

Integrated Management of Nonnative Plants in Natural Areas of Florida:
http://edis.ifas.ufl.edu/wg209

Controlling Invasive Plants in North Florida Forests:
https://edis.ifas.ufl.edu/fr133

Invasive Landscape Plants and Trees:
https://edis.ifas.ufl.edu/topic_invasive_landscape

Biology and Control of Cogongrass (Imperata cylindrica) in Southern Forests:
https://edis.ifas.ufl.edu/FR411

Cogongrass (Imperata cylindrica) Biology, Ecology, and Management in Florida Grazing Lands: https://edis.ifas.ufl.edu/WG202

Efficacy of herbicide active ingredients against aquatic weeds:
https://edis.ifas.ufl.edu/ag262

UF/IFAS Center for Aquatic and Invasive Plants: http://plants.ifas.ufl.edu/

Invasive wildlife

Many invasive wildlife species are opportunistic and this leads to many problems with the habitats and native wildlife they impact. They can directly compete with many native species and some have become a significant limiting factor for native populations. Some can consume young domestic livestock including poultry, lambs, and goats. When natural foods are scarce or inaccessible, some will readily forage on almost any agricultural crop and feed set out for livestock and wildlife, leading to significant losses. Some will also feed on tree seeds and seedlings, causing significant damage in forests, orchards, and plantations. In Florida and the Southeast, this may be a serious impediment to regenerating and restoring longleaf pine forests.

Invasive Wildlife: https://edis.ifas.ufl.edu/topic_invasive_animals

Wild Hogs in Florida: Ecology and Management: http://edis.ifas.ufl.edu/uw322

USDA Animal and Plant Health Inspection Service Feral Swine Management Program:
https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/operational-activities/feral-swine

University of Florida Wildlife Extension: http://ufwildlife.ifas.ufl.edu/index.shtml

Options for Unwanted Exotic Pets: http://edis.ifas.ufl.edu/uw353

Invasive insects and diseases

Our rural and urban landscapes are increasingly suffering from emerging invasive pests and diseases with important economic, ecological, aesthetic and cultural impacts. Introduced tree diseases, like laurel wilt fungus vectored by wood boring ambrosia beetles, have nearly eradicated a number of tree species and are threatening crops such as walnuts, avocados and mangoes.

Though it has not yet been found in Florida, there is tremendous potential for emerald ash borer (EAB) to establish directly or via movement of infested wood into the Florida. Since first recorded in Michigan in 2002, the EAB has broadened its range in the United States and has killed millions of ash trees.

Emerald Ash Borer: https://edis.ifas.ufl.edu/in1141

Redbay Ambrosia Beetle and Laurel Wilt Fungus:
https://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Forest-Insects/Redbay-Ambrosia-Beetle-and-Laurel-Wilt-Forest-Insects

University of Florida Emerging Threats Research and Extension:
http://sfrc.ufl.edu/emergingthreats/

Florida Forest Service Forest Health:
https://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health

UF IFAS Extension UNIVERSITY of FLORIDA

Forest Management and Stewardship Publications:

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
- Cooperation and Communication: Benefits for Non-Industrial Private Forest Landowners
- Dead Wood: Key to Enhancing Wildlife Diversity in Forests
- Florida's Forest Stewardship Program: An Opportunity to Manage Your Land for Now and the Future
- Forest Management in the Interface: Forest Health
- Forest Management in the Interface: Practicing Visible Stewardship
- Forest Resource Information on the Internet: Connecting to Today's Online Resources
- Genetically Improved Pines for Reforesting Florida's Timberlands
- Improving, Restoring, and Managing Natural Resources on Rural Properties in Florida: Sources of Financial Assistance
- Improving, Restoring, and Managing Wildlife Habitat in Florida: Sources of Technical Assistance for Rural Landowners
- Longleaf Pine Regeneration
- Making the Most of Your Mast
- Management Practices to Support Increased Biodiversity in Managed Loblolly Pine Plantations
- Marking First Thinnings in Pine Plantations: Potential for Increased Economic Returns
- Opportunities for Uneven-Aged Management in Second Growth Longleaf Pine Stands in Florida
- Ownership Succession: Plan Now for the Future of Your Land
- Selecting a Consulting Forester
- Steps to Marketing Timber
- Stewardship Ecosystem Services Study Series: Assessing Forest Water Yield and Regulation Ecosystem Services in the Lower Suwannee River Watershed, Florida
- Ten Tips for Encouraging the Use of Your Pine Plantations by Game Species
- Ten Tips for Increasing Wildlife Biodiversity in Your Pine Plantations
- Thinning Southern Pines—A Key to Greater Returns
- Tips for Integrating Land and Wildlife Management: Deer in Forests
- Tips for Integrating Land and Wildlife Management: Quail and Timber
- What is in a Natural Resource Management Plan?
- What to Expect in a Forest Inventory

NOTES

NOTES

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