Hurricane Preparation & Recovery Webinar: Building a Resilient Operation

Chris Demers, CF
Extension Program Manager – Florida Land Steward
UF/IFAS School of Forest, Fisheries, & Geomatics Sciences
cdemers@ufl.edu
Hurricane Preparation & Recovery Webinar: *Building a Resilient Operation*

Please **use the Q & A** to ask questions, not the Chat. Questions will be answered after the presentation is complete.
Hurricane Preparation & Recovery Webinar: 
*Building a Resilient Operation*

Please complete **the very short evaluation** at end of the webinar – *Thanks!*

Presentation slides and other reading materials for this series are available online at:

[https://programs.ifas.ufl.edu/florida-land-steward/](https://programs.ifas.ufl.edu/florida-land-steward/)

Find recordings, links, and materials for upcoming and past **Florida Land Steward Events and Webinars.**

“2021 Hurricane Preparation & Recovery Webinars”
FLORIDA LAND STEWARD

The Florida Land Steward Program is an extension program of the UF/IFAS School of Forest, Fisheries, and Geomatics Sciences. The mission of the Program is to help and encourage private landowners to manage their lands for long-term environmental, economic and social benefits. Read more about the Florida Land Steward Program.

See our Events Calendar and News page for upcoming events, webinars, webinar and event materials, and the latest news on assistance programs and other opportunities and information.

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RECENT STORMS

Hurricane Irma

- September 2017
- $261 million timber damage
RECENT STORMS

Hurricane Michael

- October 2018
- 2.8 million acres
- $1.3 billion timber damage
POLL QUESTIONS – ABOUT YOU
SOURCES

• USDA Hurricane Preparation and Recovery in the Southeastern United States: Pine Forest Landowners Guide

• EDIS publication: Prepare Your Property for Hurricane Season (also printed as article in quarterly Florida Land Steward Newsletter article in Spring-Summer 2020)
  • Hurricane preparation pubs for agricultural operations
  • Tips and feedback from the field
Section 1
Building a Resilient Operation

Section 2
Long-Term Operation Maintenance
(Annual to Monthly)

Section 3
Short-Term Preparedness
(1-7 Days Pre-Hurricane)

Section 4
Post-Hurricane Recovery

Figure 1. Flowchart for Pine Forest Landowners Guide
INITIAL SITE PLANNING

Return period for a major hurricane
(winds 111 mph or higher)

Return period = The frequency, in number of years, a location will likely be affected by a major hurricane.
INITIAL SITE PLANNING

• Site Characteristics
  • Topography and drainage
    • What is the risk of surface flooding or coastal storm surge? Property elevated or low-lying?
    • Gently sloping with adequate drainage?
    • Forest community? 
      • Scrub, sandhill, upland or mesic hardwoods, flatwoods, cypress, bottomland hardwoods, riparian, ravines?
    • Is the property drained with ditches or channels? These should be well-installed and maintained.
INITIAL SITE PLANNING

• Site Characteristics
  • Flood risk and storm surge
    • Assess historic patterns - which areas are risk of surface flooding or coastal storm surge?

Federal Emergency Management Agency (FEMA) Flood Map Service Center: https://msc.fema.gov/portal/home


National Oceanic and Atmospheric Administration (NOAA): National Storm Surge Hazard Maps (arcgis.com)
EXISTING FOREST

• Need a Forest Inventory?
  • Provide documentation of forest condition and value prior to storm damage
    • Help estimate losses that may occur for tax, insurance, and/or assistance program purposes
    • Help guide management - determine if a harvest now is best or other management activities should be done (outside of hurricane season) to improve forest health and resilience
  • Measurements:
    • tree species
    • number of trees per acre
    • tree diameters and heights.
  • UF/IFAS Extension Publications on forest inventory: https://edis.ifas.ufl.edu/fr426, https://edis.ifas.ufl.edu/fr131
EXISTING FOREST

• Determine Your Financial Basis
  • **Casualty loss**: damage, destruction or loss of property that is sudden, unexpected or an unusual event that causes property damage or destruction (hurricane, tornado, fire, earthquake).

  • **Deductible casualty loss** for timber held mainly for *business or investment purposes* is the smaller of the adjusted basis of timber and the difference of the fair market value immediately before and after the loss.

  • IRS will not recognize casualty loss until basis established.
EXISTING FOREST

• Financial Basis

  • **Basis**: amount of money invested in the timber itself (excluding the amount in the land on which the timber stands).

  • **Adjusted Basis**: the “original basis” reduced or increased by adjustments over the term of the ownership (e.g., an increase by new purchase or a decrease by timber sales).
EXISTING FOREST

• Financial Basis
  • Basis is calculated differently depending on how you acquired the timber property
    • For **purchased property**, your timber basis is its **purchase cost** (not fair market value), allocated separately from that of land.
    • For **inherited property**, it is the timber’s **fair market value** (stepped-up basis) on the decedent’s date of death (or 6 months thereafter).
    • For **gifted property**: for timber property that has appreciated, the basis is the donor’s adjusted basis (also known as carryover rule)
  • Keep records to verify your timber basis calculation.
EXISTING FOREST

• Financial Basis
  • Example:
    A storm damaged Mrs. Smith’s timber tract. Before the storm, the fair market value of the timber was $10,000. After the storm, the timber is worth only $1,000. So the fair market value loss of her timber is $9,000 ($10,000 - $1,000). Her timber basis is $5,000. The amount of casualty loss deduction is limited to $5,000.

  • Deductible casualty loss for timber held mainly for business or investment purposes is the smaller of the adjusted basis of timber and the difference of the fair market value immediately before and after the casualty.
EXISTING FOREST

• Financial basis, timber taxes, casualty loss
  • Resources:
    • National Timber Tax website: https://www.timbertax.org/
    • North Carolina Cooperative Extension - Understanding Your Timber Basis: https://content.ces.ncsu.edu/understanding-your-timber-basis
    • Your forester or tax accountant
NEW FOREST
NEW FOREST

• Soils?
  • Soil will help guide which tree species are best suited to the site.
    • UF/IFAS Using Soils to Guide Fertilizer Recommendations for Southern Pines: https://edis.ifas.ufl.edu/fr053
    • Use the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey to help determine soil types on your property: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
# Soil Drainage Classes

<table>
<thead>
<tr>
<th>VP</th>
<th>P</th>
<th>SP</th>
<th>MW</th>
<th>W</th>
<th>SE</th>
<th>E</th>
</tr>
</thead>
</table>

### General Indicator Species

- **Titi**
- **Cypress**
- **Sphagnum**
- **Bloodroot**
- **Pitcher Plant**
- **Loblolly Bay**
- **Fetterbush**
- **Chalky Bluestem**
- **Wax Myrtle**
- **Gallberry**
- **Runner Oak**
- **Saw Palmetto**
- **Bluejack Oak**
- **Turkey Oak**
- **Staggerbush**
- **Cactus**
- **Reindeer Moss**

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From: UF/IFAS Using Soils to Guide Fertilizer Recommendations for Southern Pines: [https://edis.ifas.ufl.edu/fr053](https://edis.ifas.ufl.edu/fr053)

NEW FOREST

• **Tree Species?**
  - Select the best tree species to manage on your site (soils, drainage, etc).
  - Best fit with your management goals – Got a plan? Are you going to use fire to manage the stand?
  - Trees native to our region tend to be more resilient to high winds and flooding associated with hurricanes.
# NEW FOREST

<table>
<thead>
<tr>
<th>Pine Species</th>
<th>Site Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loblolly pine</strong></td>
<td><em>(Pinus taeda)</em> Grows very well on fertile and moist sites, including loamy soils that occur in drainages and lands suitable for agriculture. Does not do well on eroded or low-fertility sites. Small or young trees are not fire tolerant. Less resistant to breakage and uprooting than longleaf and slash pines.</td>
</tr>
<tr>
<td><strong>Longleaf pine</strong></td>
<td><em>(Pinus palustris)</em> Grows across a broad range of sites from wet to dry, can be competitive with slash and loblolly pines on drier upland soils. Young trees are fire tolerant, and the use of prescribed fire is necessary for successful management. Among the most resilient to strong wind damage.</td>
</tr>
<tr>
<td><strong>Sand pine</strong></td>
<td><em>(Pinus clausa)</em> Grows best on drought-prone sandy soils that rarely, if ever, are saturated with water. Poor wind resistance.</td>
</tr>
</tbody>
</table>
## Pine Species

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<tr>
<td><strong>Shortleaf pine</strong> (<em>Pinus echinata</em>)</td>
<td>Competitive with loblolly or slash pine on upland sites. The use of prescribed fire is necessary for successful management. Low susceptibility to wind damage over most of its range, but uprooting can occur when root systems are shallow.</td>
</tr>
<tr>
<td><strong>Slash pine</strong> (<em>Pinus elliottii var. elliottii</em>)</td>
<td>Grows on moist, sandy flatwoods (spodosols) and savanna sites. Native to coastal areas. Young trees are not fire tolerant. More wind resistant than loblolly pine, but less than longleaf pine.</td>
</tr>
<tr>
<td><strong>South Florida Slash pine</strong> (<em>Pinus elliottii var. densa</em>)</td>
<td>Keys into central FL. Similar to northern variety but has smaller cones and longer needles that are mostly in fascicles of two. It is also different from the northern variety in that it goes through a juvenile &quot;grass phase&quot; similar to that of longleaf pine. Well adapted to wind.</td>
</tr>
</tbody>
</table>
NEW FOREST

• Which tree species are most wind resistant?
  • Research after Hurricane Opal found these trees to be most resistant:
    • Dogwood
    • Live oak
    • Sabal palm
    • Sand live oak
    • Southern magnolia
NEW FOREST

• What about pines?
  • Research after Hurricane Katrina:
    • loblolly pine: 26% mortality
    • slash pine: 14%
    • longleaf pine: 7%
NEW FOREST

• Cat. 4 or 5 Hurricane winds?
  • Not much standing....

Photo by Jim Karels
NEW FOREST

• **Planting Density?**
  • Higher stand density allows trees to lean on each other, and buffer each other against the wind.
  • However, high stand density can increase wildfire risk and southern pine beetle outbreaks
  • Also, as density increases, individual stem volume growth rates decrease.
  • Better hurricane resiliency must be weighed against these other factors.
  • Tree density should be guided by your management objectives and resilience considerations.
Ordering seedlings

- Place your order for tree seedlings early to get the best selection.
- Tree planting often occurs between December and March, so place your order for seedlings the summer before.
- Try to buy from a nursery in your region, latitude, or a local seed source.
  - For example, if your property is in north Florida, then seedlings sourced from north FL, southern GA, southern AL, or southern MS could all be good choices.
NEW FOREST

• Preparing the site
  • Site preparation is key to the successful establishment and early survival of tree seedlings, allowing for the best root growth to give trees a strong anchor in high winds.
  • Fire, mechanical, and/or herbicide treatments may be needed in areas with heavy woody vegetative cover.
NEW FOREST

• Preparing the site
  • Subsoiling techniques such as “scalping” (which provides a furrow in which to plant the seedling) may be needed if planting in heavy grass sod like Bahia or Bermuda grass.
  • Ripping provides a deeper furrow into the ground to fracture hardpans that can limit deep root growth
    • Ripping is a good technique in clay soils or areas that have been in agriculture or grazing rotations in the past.

• Bedding needed?
  • Consider site and objectives carefully.

Scalping, Edward L. Barnard, Florida Department of Agriculture and Consumer Services, Bugwood.org
NEW FOREST

• **Planting considerations**
  
  • Be on-site during the planting process to check planting quality, density, etc.
    • Seedlings that are planted at the correct depth, and not j-rooted or drastically root pruned, have better chances of survival and forming healthy root structures in the long term.
  
  • Contact your planting contractor immediately if you have any concerns.
  
  • For more information, see:
    • North Carolina Cooperative Extension Steps to Successful Pine Planting [https://content.ces.ncsu.edu/steps-to-successful-pine-planting](https://content.ces.ncsu.edu/steps-to-successful-pine-planting)

By Tyler Jones, UF/IFAS
NEW FOREST

• Fertility
  • Soils supporting southern pine stands in the South tend to be deficient in some nutrients and nutrient additions can boost production.
  • Fertilization (N, P, K) can promote early site occupancy and the development of a large and functioning canopy leaf area.
  • See:
    • UF/IFAS Using Soils to Guide Fertilizer Recommendations for Southern Pines: https://edis.ifas.ufl.edu/fr053

  • Prescribed fire is one of the best tools for reducing plant competition and pests, releasing nutrients back to the soil, and controlling wildfire fuel accumulation.
INFRASTRUCTURE

• Roads and Drainage
  
  • A slow moving hurricane can produce large amounts of rainfall in a very short period which can cause erosion, undermine roads, and wash away culverts.
  
  • Consider upgrading roads?
    • Crowned and graveled roads have better drainage and access during wet weather.
INFRASTRUCTURE

• Roads and Drainage
  • Check roads for any signs of erosion and fill in any holes or ruts with gravel or compacted fill.
  • Check culverts and bridges to make sure they are sound and are sized to provide adequate drainage.
  • Daylighting - remove trees and vegetation that are within 6 to 10 feet of the road edge
    • allows roads to dry more quickly after rains
    • reduces the number of trees that might fall across forest roads during high winds.
INFRASTRUCTURE

• Roads and Drainage
  • Make sure that stream crossings meet your State’s best management practices (BMPs) and culverts are properly sized to prevent blowouts during periods of high water flow.
  
  • For more information on constructing and maintaining forest roads, see:
• Get organized - the importance of pre- and post-hurricane documentation cannot be overstated.
• Assistance for disaster recovery may not be available until months or years after a hurricane.
  • For purposes of insurance compensation and recovery assistance - thorough recordkeeping of the damages and losses sustained on your forest land as well as your cleanup and recovery efforts.
• Insurance
  • Review your insurance policies with your agent to be sure you have adequate coverage, including flood insurance, for your property, vehicles, equipment, and forest stands.
    • Be aware that there are limitations on how soon insurance coverage will take effect - Generally, insurance policies will not cover damage if the policy was not in place before a hurricane has formed.
  
• 2 general types of timber insurance:
  • Standing timber insurance that can help offset losses in mature timber stands that are merchantable and due to be harvested.
  • Reforestation insurance that can be used to help a landowner replant nonmerchantable stands lost to wind and fire events.
RECORDS, DOCUMENTATION, INSURANCE

• Inventories and documentation
  • A recent forest inventory is useful:
    • determining pre-hurricane fair market value of your forest land,
    • assessing loss after the hurricane, and
    • filing for casualty loss with the IRS.
  • Keep copies of your inventory in multiple places such as on your computer, water-proof file box, and on a cloud-based server.
  • Take pictures of stands before and after the storm.
• Hurricane tracking
  • Bookmark websites or download computer and mobile device applications (apps) that model hurricane track predictions, send alerts, and track hurricane impacts.
  • The NOAA National Hurricane Center website is a good source of current information on existing storms: https://www.nhc.noaa.gov/
  • For more on connecting to emergency alerts, see https://www.ready.gov/alerts
CONNECT WITH PROFESSIONALS

• Florida Forest Service County Forester
• Florida Forest Service BMP Forester – roads and drainage
• UF/IFAS County Extension Agent (Ag/Natural Resources Agent)
• Florida Fish and Wildlife Commission Landowner Assistance Program Biologist
• USDA Natural Resources Conservation Service District Conservationist
• USDA Farm Service Agency Agent
  • **You can get your forms filled out ahead of time!....
CONNECT WITH PROFESSIONALS

• USDA Farm Service Agency
  • Complete your farm records ahead of time!
    • Don’t wait until after a disaster to get your paperwork done – avoid application backlog!
    • EFRP application backlog after Hurricane Michael – still not caught up 3 years after that storm
    • You’ll receive E-notifications about recovery programs from FSA after the storm
  • Already have farm records in?
    • Review and make sure they are complete and up-to-date
  • [https://www.farmers.gov/connect](https://www.farmers.gov/connect)
CONNECT WITH PROFESSIONALS

Consulting Forester

• Assistance in all phases of management
  • Management plan preparation, inventory, planting, site prep, nutrition, prescribed burning, thinning, marketing timber

• UF/IFAS pub on Selecting a Consultant - https://edis.ifas.ufl.edu/fr125
CONNECT WITH PROFESSIONALS

Local Timber Industry

• Florida Forestry Association
  http://floridaforest.org/
CONNECT WITH PROFESSIONALS

Get Certified!

• American Tree Farm System
  https://www.treefarmsystem.org/

• Florida Tree Farm Program
  https://www.treefarmsystem.org/florida
QUESTIONS?

• Please use the Q&A function for questions
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Please fill out the Evaluation for this Webinar
https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_e5m9dzbyjfCVeui

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THANKS FOR JOINING US!