

## New Jersey Fact Sheet: Forest Stand Improvement

### *Forestry for the Trees*

#### Introduction

Forest Stand Improvement (FSI) is the process in which land is managed to promote a healthier forest community while increasing environmental and economic values. Well-managed forest land provides habitat for rare and unique wildlife, enhances environmental quality, and reduces risk of wildfire and disease. The major purpose of FSI is to promote forest vigor and allow healthy regeneration by removing competitive, invasive, and non-native species as well as unhealthy or dead material.

#### The History of New Jersey's Forests

Over the past few centuries, land use and development in New Jersey have put a heavy strain on the health of the state's forests. Historically, New Jersey's land included approximately 4.7 million acres of forest land. However, by 1900, industry, development, and agriculture had depleted forest resources to about 2.2 million acres, reducing it by 46 percent. Between 1995 and 2002, New Jersey lost about 41,000 acres of forest while urban development increased by approximately 105,000 acres. Today, 42 percent of New Jersey's land is forested habitat and two thirds of that is privately owned. In order to protect the state's unique resources and habitats, the remaining forests need to be managed to create a healthy and sustainable ecosystem.

#### What are the Benefits of Forest Stand Improvement?

By restoring a forest stand to a healthier state, a landowner can benefit from increased economic value, improved aesthetics and environmental quality, and protection from wildfires and other hazards. Numerous results can be accomplished through FSI, including:

- Increase resistance to disease and insect outbreaks by promoting healthy tree growth
- Increase timber value by promoting healthy tree growth
- Improve recreational opportunities



This forest is being managed to enhance vertical structure by using Forest Stand Improvement techniques. (Don Donnelly, NJA)

- Improve water quality and increase carbon sequestration
- Remove non-native or invasive species
- Decrease the risk of wildfires
- Improve habitats for wildlife and native plant species

Under many circumstances, the by-products of FSI treatments can be used as alternative energy sources or sold for timber and firewood. Some of these practices require permits, so it is important to contact a forester or natural resource professional for proper guidance.

#### Management Options

Depending upon the landowner's goals and objectives, a Forest Stewardship Plan can be drafted by an approved forester or natural resource professional. Several techniques can be used to enhance the overall health and production of a forest, including:

- Selective cutting and felling
- Herbicide application
- Prescribed burning
- Girdling

Each method can be used independently or can be integrated with others to create the desired outcome.

Every acre of land has only enough resources to support a set number of trees of any given size. By removing poor quality and undesirable trees, the remaining stems have ample space and resources to grow to their full potential. In some FSI situations, reduction of the forest canopy allows more sunlight to reach the shrub layer and forest floor. This enhances new seedling growth and helps develop vertical structure in the mid-canopy layer.

Cutting and felling are the most common applications of FSI, which can also reduce the spread of disease and pests more quickly than other methods. Herbicides are applied to treat smaller unwanted trees, vegetation, and invasive species. Herbicide can be used as a non-selective broadcast treatment that will remove unwanted vegetation from large areas, or as spot treatments that can be used to target individual stems, while allowing other trees and plants to grow freely. Girdling is typically used to kill unwanted trees while leaving these dead trees standing. Reasons for leaving standing dead trees (or snags) can vary from minimizing damage to nearby live trees that might have occurred from felling, to creating wildlife habitat while providing food and shelter for many species. Prescribed burning, when applicable, can help reduce the amount of fuel in a forest and restore plant communities that are dependant on frequent natural disturbances. This technique involves special training and requires a specific set of conditions in order to prevent wildfires.

The NJDEP, Division of Parks and Forestry, maintains a list of approved foresters who can provide guidance to landowners who are interested in Forest Stand Improvement. FSI is typically prescribed as part of a Forest Stewardship Plan that is prepared by the forester. The landowner is generally responsible for all costs and fees. Landowners with 10 acres or more of forested land may be eligible for financial assistance for plan



This forested area has not been managed, so vertical structure is lacking. (Don Donnelly, NJA)



Girdling will kill unwanted trees but leave them standing for other purposes (Jean Lynch, NJA)

preparation and FSI implementation through the Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP). Under EQIP, all stewardship plans must be completed by an approved Technical Service Provider (TSP); TSPs can be found at a local NRCS service center or through the website.

[NRCS office locations and more detailed information about NRCS assistance and the EQIP program can be found at: www.nj.nrcs.usda.gov/](http://www.nj.nrcs.usda.gov/)

#### **For More Information:**

**General Information on NRCS Forestry Programs**  
[www.nj.nrcs.usda.gov/technical/forestry/index.html](http://www.nj.nrcs.usda.gov/technical/forestry/index.html)

**Information on NRCS EQIP Program**  
[www.nj.nrcs.usda.gov/programs/eqip/documents/EQIPForestryFactSheet08FB.pdf](http://www.nj.nrcs.usda.gov/programs/eqip/documents/EQIPForestryFactSheet08FB.pdf)

**Locating an NRCS TSP**  
<http://techreg.usda.gov/CustLocateTSP.aspx>

**NRCS Conservation Practice Standard: Forest Stand Improvement**  
<http://efotg.sc.egov.usda.gov/references/public/NJ/NJ66.pdf>

**NJDEP, Division of Parks and Forestry**  
[www.state.nj.us/dep/parksandforests/forest/index.html](http://www.state.nj.us/dep/parksandforests/forest/index.html)

**List of NJDEP-Approved Consulting Foresters**  
[www.state.nj.us/dep/parksandforests/forest/ACF.pdf](http://www.state.nj.us/dep/parksandforests/forest/ACF.pdf)

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