



United States Department of Agriculture  
Natural Resources Conservation Service



NEW JERSEY  
AUDUBON  
SOCIETY

## New Jersey Fact Sheet: Forest Stand Improvement

### *Forestry for Water Resources*

#### **Introduction**

New Jersey's forests offer economic and recreational benefits, high aesthetic value, and habitat for rare and unique wildlife. It is important to properly manage forests for these reasons, but a healthy forest ecosystem can also provide high quality water resources. The state's land cover includes about 300,000 acres of water and 1,010,000 acres of wetlands. A great deal of that water is filtered, purified, and stored in forests as well as forested wetlands. This natural process provides clean drinking water for people and wildlife, as well as recreational opportunities and suitable habitats for many wildlife species. Forest Stand Improvement (FSI) can be an excellent tool for enhancing forest habitat while also protecting the integrity of New Jersey's water resources. Through this process, land is managed by cutting and removing unhealthy or competitive trees in order to promote and enhance overall forest health.

#### **How Do Forests Protect Water Resources?**

An important service a healthy forest can provide is filtering and purifying water before it reaches rivers, lakes, and reservoirs. Forest vegetation slows storm water runoff, giving it more time to infiltrate the soil while excess water is stored in the tree tissues and canopy. Trees and other plants also remove pollutants such as agricultural runoff or excess nitrogen by absorbing them through the roots and converting them to useful or less harmful nutrients. Forests along riparian (river or stream) or wetland edges can aid in controlling water temperature, which helps maintain a healthy amount of dissolved oxygen and other nutrients needed to support fish and other aquatic life. These habitats also provide food and shelter for wildlife that use the area and are essential to having high water quality.

#### **Managing Forests along Wetlands and Riparian Edges**

Managing forests that surround wetlands and riparian areas is crucial in maintaining water quality; however, certain additional precautions are needed due to the sensitivity of these habitats. The New Jersey Division of Parks and Forestry has created Best Management



A forested wetland is being managed during the winter months to enhance forest health by using FSI techniques (Tim Dunne, NRCS)

Practices (BMP) for that purpose and incorporating these guidelines into forest stand improvement techniques is critical in protecting water quality. A Forest Stewardship Plan will usually present the best management options:

- Selectively remove unhealthy or competitive trees to enhance the vigor of remaining trees
- Harvest and fell trees away from wetlands or stream corridors
- Protect trees that stabilize banks and shade the water
- Promote forest health on slopes surrounding wetlands to prevent erosion
- Manage for a high diversity of native plants that can tolerate saturated soils (e.g. red maple, swamp white oak, white ash)
- Limit heavy machinery near wetlands or riparian habitats
- Use wetland-approved herbicides and limit fertilizers

Some regulations and special permits may apply to specific sites or projects, so it is important to consult an approved forester or natural resource professional before implementing any management plans.

Incorporating a Streamside Management Zone (SMZ) into a Forest Stewardship Plan is also recommended in the BMP manual for enhancing and protecting forested buffers. The size of the SMZ varies according to the site

condition, but is largely based on the surrounding topography and how erodible the soils are. Within the SMZ there are generally three smaller zones that include:

- **Zone 1** – Directly near the water source; manage for trees and shrubs that control water temperature, create bank stability, and enhance habitat for aquatic organisms
- **Zone 2** – Outward from Zone 1; manage for trees, shrubs, and herbaceous plants that filter and purify runoff water
- **Zone 3** – Outward from Zone 2; manage for herbaceous plants that buffer zones 1 and 2 and filter sediments and pollutants. This zone is typically incorporated into management plans for land that lacks forested buffers (e.g. agricultural fields)

When possible, access roads for all forestry practices should avoid wetland or riparian zones. Attempt to use existing roads when available, but if crossing wet areas becomes necessary, restrict construction and access to dry and frozen conditions. Consider using low-ground-pressure tracked equipment, mats, and log corduroy roads in order to disperse the weight evenly across the soil. Be sure to follow the BMP guidelines for traversing slopes and creating proper drainage. If an access road must cross a stream, arched culverts or bridges are optimal to minimize disruption to water flow.

### Financial and Technical Assistance

With an approved Forest Stewardship Plan that incorporates both FSI and SMZ, a landowner can improve the health of a forest stand while enhancing water quality. A Forest Stewardship Plan should be drafted by an approved forester or natural resource professional and should follow the Best Management Practices developed by the New Jersey Division of Parks and Forestry. The landowner is generally responsible for the cost of development and implementation of a Forest Stewardship Plan. However, qualifying landowners in New Jersey have several options for obtaining technical and financial assistance for forest management.

The Natural Resources Conservation Service (NRCS) offers technical and financial assistance to forest



Log corduroy roads are constructed to cross wetland areas and minimize damage (Don Donnelly, NJA)

landowners through the Environmental Quality Incentives Program (EQIP). Eligible landowners with 10 acres or more of forest land may receive cost-share assistance for the development and implementation of a Forest Stewardship Plan. All management plans cost-shared through EQIP must be prepared by an NRCS approved Technical Service Provider (TSP). A list of TSPs can be found at a local NRCS service center or on the New Jersey NRCS 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/forestry.html](http://www.nj.nrcs.usda.gov/programs/eqip/forestry.html)

#### **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/NJ666.pdf>

#### **NRCS Conservation Practice Standard-Riparian Forest Buffer**

<http://efotg.sc.egov.usda.gov/references/public/NJ/NJ391-9-10-v2.pdf>

#### **NJDEP, Division of Parks and Forestry**

<http://www.stateforesters.org/files/NJ-Assess-Strategy-20100810.pdf>

#### **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)

#### **NJ Forestry and Wetlands Best Management Practices Manual**

[www.state.nj.us/dep/parksandforests/forest/nj\\_bmp\\_manual1995.pdf](http://www.state.nj.us/dep/parksandforests/forest/nj_bmp_manual1995.pdf)



The yellow lady slipper (left) and the longtail salamander (right) are both imperiled species that inhabit forested wetlands or riparian edges (Kristen Meistrell, NJA)

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).