

Ecological Land Types of the New Jersey Highlands



BACKGROUND

The U.S. Environmental Protection Agency (EPA) required all State water resources agencies to determine the health of streams and watersheds under the Clean Water Action Plan. The Department of Environmental Protection (DEP) led this effort in New Jersey and invited many State and Federal agencies to provide input. The New Jersey Forest Service (NJFS) was asked to be involved with the DEP's watershed management area characterizations, but was incapable of providing the appropriate information.

Previously, the NJFS had adopted the National Hierarchical Framework of Ecological Units and was committed to delineate and define forest ecosystems in New Jersey. Referred to as ECOMAP, delineation of ecological units and analysis of forest ecosystems have been proven to be valuable tools. The NJFS proposed using ECOMAP to assess and characterize the Lower New England Section of the New Jersey Highlands to provide information needed by the DEP in its ongoing watershed planning efforts. The assessment procedure identifies watershed constraints and forest management action strategies needed to restore, protect, and improve water quality.

LOCATION

The project area is located in the Lower New England Section of the New Jersey Highlands that contains the Upper Passaic, Whippany, Rockaway, and Mid-Passaic Watersheds. These four watersheds are 20 miles from New York City and are referred to as Watershed Management Area 6 (WMA 6), which provides drinking water to nearly one million people. Over 600,000 people also reside in the 416 square-mile area.



ISSUES BEING ADDRESSED

Issues relating to forest health and water quality in urban and rural areas needed to be analyzed to determine where solutions involving forestry best management practices (BMPs) could be applied. This information would then be used as a basis to target funding in such areas and combine funding with the DEP Department of Watershed Management. Additional issues addressed during the assessment included:

- Where to restore vegetation vital to stream quality.

- What information to provide to the DEP.
- How to determine which forestry practices protect stream quality and reduce erosion.
- How to accomplish watershed planning.

GOALS

The project enabled the NJFS to demonstrate its ability to meet clean water goals by integrating ECOMAP with ongoing watershed planning with New Jersey's DEP. One component of this grant developed methodology for assessing and characterizing the forest cover on a watershed basis. The NJFS developed a watershed characterization and assessment procedure that identified watershed constraints and forest management action strategies needed to restore, protect, and improve water quality.

The NJFS also demonstrated that areas in need of restoration could be pinpointed by ECOMAP.

METHODOLOGY

This project demonstrated the use of ECOMAP in a watershed context to identify priority areas for forest stewardship under Federal, State, and local programs. These include Cooperative Forestry programs, the Conservation Reserve Enhancement Program, New Jersey Farmland/Woodland Assessment (FLA), Section 319 funding, and New Jersey Open Space Acquisition funds. WMA 6 was selected as a pilot for detailed assessment and characterization to include the identification of forest management and forest restoration needs. Issues relating to forest health and water quality were analyzed.

- Complete ecological land type (ELT) delineation within the NJ Highlands.
- Draft descriptions for each ELT.
- Characterize current vegetation in WMA 6 through field inventory and use of existing vegetative inventories.
- Digitize property boundaries of landowners participating in Forest Stewardship and Farmland/Woodland Assessment programs.
- Assist in the development of hydrology data sets being developed by the DEP.
- Provide \$10,000 for cost sharing Stewardship Plans and riparian area restoration projects within a watershed.
- Identify riparian areas in need of restoration and management.

Since 1999, the Northeastern Area and the Northeastern Area Association of State Foresters have sponsored a cooperative challenge grants program to promote watershed health and restoration through the conservation, restoration, and sound stewardship of trees and forests.

ACCOMPLISHMENTS

Analysis of vegetation in comparison to potential conditions suggested by ECOMAP demonstrated the value of its use at the State and local level. As a result, the NJFS has been recognized as a source of information by the DEP and other agencies. For example, the DEP Department of Watershed Management now recognizes the need to incorporate forest resource information into watershed planning efforts. Personnel from the NJFS have also recommended to an assistant commissioners panel on land acquisitions that ECOMAP be used at the county and municipal agency level, in addition to or as a replacement for GIS alone. Distribution of the information to public agencies, local municipalities, and the private sector will promote ecologically based land use planning and management outside the DEP.

Additional accomplishments include:

- Completed and printed the ECOMAP publication for the Lower New England Section.
- Demonstrated the value of ECOMAP by incorporating ELT data into the DEP's Watershed Management Planning.
- Produced a linkage of stewardship and restoration opportunities in the watershed to serve as a basis for future funding.
- Produced a professional document that includes descriptions, charts, photos, and maps that help natural resource managers and land use planners identify site potential.
- Produced a CD containing all GIS data used for ECOMAP in New Jersey.
- Provided ECOMAP data, watershed delineations, watershed boundaries, and aerial photos to four Regional Forestry Offices for staff and consulting foresters.
- Provided ECOMAP information and digital data to natural resource managers and municipal, county, and state planners.
- Drafted the forest resource portion of the initial characterization and assessment for WMA 6.
- Promoted ECOMAP and the Watershed Characterization and Assessment project by participating in meetings and conducting formal presentations to Chiefs and team leaders of the Division of Watershed Management, NRCS, RC&D, and Rutgers Cooperative Extension.

PARTNERS

- New Jersey DEP Department of Watershed Management
- New Jersey DEP Office of Science and Research
- NJ Geological Survey
- WMA 6 Technical Advisory Committee
- Cooperative Forestry Program: Forest Stewardship Committee
- New Jersey Forest Service: Farmland/Woodland Assessment
- North Jersey RC&D Area

FUTURE PLANS

Distribution of ECOMAP to public agencies, local municipalities, and the private sector will promote ecologically based land use planning and management outside the DEP. The NJFS will also:

- Continue to participate in meetings to strengthen relationships with the DEP Department of Watershed Management.



A relatively undisturbed stream in the Rockaway Watershed.

- Complete an assessment of each subwatershed in WMA 6.
- Use ECOMAP to pinpoint sites susceptible to erosion and restore these areas.
- Make grants available for stewardship plan development and implementation focusing on water quality and the improvement or establishment of riparian buffers.
- Target funding in areas where BMPs can be applied in areas of high erosion.

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