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## Wetlands Evaluation Project

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# **Wetlands Evaluation Project**

## **A Final Report to New Hampshire Estuaries Project**

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# Executive Summary

This New Hampshire Estuaries Project (NHEP) grant funded a study to identify and evaluate significant wetlands within the six towns that comprise Moose Mountains Regional Greenways (MMRG): Brookfield, Farmington, Middleton, Milton, New Durham and Wakefield. The goals of the study were to heighten awareness of the wetland areas in each town, educate Conservation Commission members and key town officials of the functional values of each selected wetland, and provide educational outreach toward the preservation of the quality of these wetlands using proven planning tools such as outright land purchase, easements, master planning, Prime Wetland designation in zoning, wetlands of special importance in zoning and inclusion of evaluated wetlands in natural resource inventories.

The project area is located on the boundary of the heavily developed southern tier of NH and contains the headwaters of several regional waterways, including twelve major stratified drift aquifers. Moose Mountains Regional Greenways, with the help of Wetlands Scientist Nancy Rendall, researched, evaluated and documented more than 60 significant wetland areas using the NH Method and used the information gathered to create maps, NH Method data sheets, and a User's Guide to address voluntary and regulatory methods of protecting significant wetland resources.

These tools, along with the final report results, were presented by Nancy Rendall and Moose Mountains Regional Greenways staff and volunteers to the Conservation Commissions of all six subject communities at workshops in each town.

# Introduction

Moose Mountains Regional Greenways (MMRG) is a non-profit organization established in 1999 to help create a network of permanently protected public and private conservation lands in a six-town region in southern Carroll and northern Strafford counties. The mission of the MMRG is to identify and protect important natural resources, to educate others about these efforts, and to join protected lands to form greenways.

The MMRG Board of Directors pursued the grant to fund this study as a means to further the identification of significant natural resources within the region, including drinking water quality and important wildlife habitat. MMRG is particularly interested in water resources and methods of protecting them. In this study, wetlands are targeted as an important natural resource which has not been previously well documented or protected within the region.

This study helped further the goals of NH Estuaries Project by:

- Providing towns with training and project assistance in the use of the NH Method for the Evaluation of Non-Tidal Wetlands
- Enhancing local land and water conservation programs through public outreach and education of local municipal officials and local landowners
- Encouraging Prime Wetlands as an option for protection of wetlands

The subject communities' conservation commissions benefited from having MMRG and NH Estuaries Project provided detailed information about local wetland areas pursuant to RSA 36-A:2, which charges conservation commissions with indexing all marshlands, swamps and all other wet lands and recommending protection, development and better utilization of all such areas.

# Project Goals and Objectives

The goals of this study were:

- To identify significant wetlands within each of the six MMRG member towns using selection criteria and GIS mapping data;
- To train two volunteers in the use of Trimble Global Positioning Satellite (GPS) system;
- To evaluate the functions and values of the selected wetlands;
- To map one wetland in detail using GPS tools;
- To prepare a Technical Appendix for each member town that presents wetland functions and values/data collected for wetland studied in that town;
- To develop a User' Guide to summarize the study process and present alternatives for the use of data collected in this study;
- To present the study findings to town officials within each MMRG member town; and
- To proposes Prime Wetlands designation as an option for protection.

# Methods and Activities

To complete the study, MMRG undertook and completed the following tasks:

## Hired wetlands scientist

Moose Mountains Regional Greenways contracted certified Wetlands Scientist Nancy Rendall of Blue Moon Environmental, Inc. (BME) to assist with wetland investigation and evaluation.

## Identified candidate wetlands for study

With guidance from BME, MMRG established a set of seven criteria to identify approximately 10 wetlands in each community with the most significant potential to protect surface and ground water resources. These selection criteria were used as the primary guide to narrow the study list from all known wetlands in each town to those wetlands that exhibited the potential to provide exceptional function and value to their respective communities. The selection criteria included attributes that could be analyzed and mapped using data layers that were readily available through the NH GRANIT system. The following criteria were used:

- The wetland must be located in the Cochecho or Salmon Falls watershed.
- The wetland must be greater than 5 acres in size.
- The wetland must contain very poorly drained soils over at least 50% of its area.
- The wetland must be located over or upstream of an aquifer.
- The wetland must be located along a perennial stream.
- The wetland must be located within the protective radius of drinking water sources (wellhead protection areas) or be located in watersheds that are dedicated to surface water drinking supplies for communities.
- The wetland must be located within, or in close proximity to, the MMRG proposed greenway.

Using GIS data, maps were created for each of the six towns showing the wetland areas in each town and how well each of these wetland areas fulfilled the selection criteria.

A series of meetings were held with the conservation commissions in each town to explain the study and the NHEP grant and to confirm that the wetlands selected via this filtering process were considered to have local importance. Approximately 10 wetlands from each town were selected for further study using this process. Conservation commission members were encouraged to discuss the project with other municipal land use boards.

Each of the 10 selected wetlands within the six MMRG member towns was then evaluated using the 14 different functions defined by the New Hampshire Method.

## Conducted field assessments

Property owners of parcels that included all or a portion of the wetland to be studied were identified using local tax maps. MMRG mailed letters requesting permission to access the subject property were sent to each landowner. Property owners as well as local conservation commission members were invited to participate in the field assessment to see how the collection of data for the NH Method was conducted.

Two MMRG volunteers received training in the use of Trimble Global Positioning Satellite (GPS) system at an all-day course held in Concord, NH.

The MMRG project director, BME staff, and volunteers delineated and documented wetlands. For each of the approximately 60 wetlands, wildlife, plants, soils and hydrology were studied, identified and recorded. Detailed questionnaires were completed in the field describing wildlife, soils, vegetation, human disturbance, recreational and educational potential, etc. Numerous photos of each wetland were taken using a digital camera.

## Mapped subject wetlands and surrounding environs

Two maps were created for each wetland to be studied using ArcView digital ortho-photos and topographical maps. (Appendix G) Both maps featured an approximate wetland boundary that determined digitally using the digital ortho-photos, topography, NRCS soils and hydrography. The approximate wetland boundary was field confirmed at the time of data collection.

The field maps with the digital ortho-photos were printed at the largest scale possible to show the entire wetland and a 500' upland boundary around the wetland while maintaining good photo image quality.

The topographical map displayed the location of the wetland relative to roads, parcel boundaries, streams and topographic features. The topographical field maps were printed at a scale sufficient to show the wetland to be studied as well as the watershed for that particular wetland. Watershed boundaries for each wetland were digitized on-screen using the digital topography GIS layer.

## Selected one wetland per town for GPS delineation

Meetings were held in each town to review the fieldwork, completed data sheets from the NH Method, photographs and maps for each wetland studied in that town. Community conservation commission members identified one wetland in each community whose boundary would be accurately delineated using a Trimble Pro XR GPS Unit available from the University of New Hampshire Cooperative Extension. This was completed during the spring and summer of 2003.

Poorly drained and very poorly drained soils were delineated in the field and then downloaded to ArcView in the office so that the points could be added to the maps. The software with the GPS unit also allowed for comments to be recorded in the field, such as animal sign, dominant plant species and wetland type.



## Documented conclusions of field assessments

After all data was collected on the wetland, BME staff, with MMRG staff and volunteers, reviewed, analyzed and documented the field data. Summary tables were completed for each of the towns, highlighting which of the wetlands had the highest value for each of the functional values highlighted in the NH Method. For each town, the results of the fieldwork were recorded in a Technical Appendix specific to each community. Each Technical Appendix included a summary, a description of each wetland, the New Hampshire Method data sheet for each wetland, aerial and topographical maps showing each wetland and associated watershed boundary, and labeled photographs of each wetland. (Appendix H)

## Developed User's Guide

BME staff also developed a User's Guide to accompany the Technical Appendices given to each town. (Appendix I) The User's Guide served as an explanatory guide to the study process and as a reference source for uses of the data contained in the Technical Appendices. The User's Guide also provided a detailed overview of potential regulatory and non-regulatory uses for the data collected, including Prime Wetlands designation.

## Shared final results with municipal stakeholders

MMRG invited town selectmen and planning board members to attend a dinner function at which MMRG and BME staff overviewed the results of the Wetlands Study, described regulatory and non-regulatory wetlands protection measures, and discussed advocacy strategies for municipal bonding and other land conservation strategies. The function was held on October 14, 2003; approximately 40 people attended. MMRG staff drafted and distributed a press release to local newspapers and environmental journals describing the event. (Appendix E)

BME staff presented six two-hour workshops to the subject communities' conservation commissioners and other land use board members to present findings and tools, including maps, a Technical Appendix in which the findings for each of the 10 wetlands studied were documented, and a User's Guide, which explained and recommended specific applications for the data contained in the Technical Appendices, and to answer questions. The workshops took place on the following dates:

Milton:	February 10, 2004
Brookfield:	March 3, 2004
Farmington:	March 17, 2004
Middleton:	March 18, 2004
New Durham:	March 23, 2004
Wakefield:	March 30, 2004

MMRG staff drafted and distributed a press release to local newspapers and environmental journals describing the completed project. (Appendix F)

# Results

Study results are detailed in the User's Guide (Appendix I) and in the Technical Appendices (Appendix H) for each subject community:

- Brookfield
- Farmington
- Middleton
- Milton
- New Durham
- Wakefield

# Final Summary

The goals of the study were met, and the study results were enthusiastically received by local conservation commissioners. MMRG gathered a tremendous amount of data that will not only be invaluable to the subject communities' natural resource-based planning efforts, but that will also assist MMRG in its efforts to target for preservation those areas that possess some of the most significant conservation features.

Not only did the study raise local awareness of wetlands values, but the subject communities also gained a deeper understanding of both MMRG and NHEP and our organizations' respective missions.

While we consider the project a success and would encourage other organizations to emulate this initiative, the resource intensity of this project was tremendous, and the amount of time required to complete it was grossly underestimated. Therefore, we would like to offer the following suggestions in the spirit of, "what we would do differently if we had to do it all over again:"

- 1) Distribute an RFP and collect proposals from no less than three wetlands scientists in order to more accurately gage the scope of services required to complete the project.
- 2) Select three to five rather than 10 significant wetlands to evaluate within each community in order to make the project realistically affordable and capable of being completed within a one-year time frame.