

WETLANDS, SUB-CATCHMENTS AND INVASIVE PLANTS IN THE ADIRONDACK PARK PORTION OF THE MOHAWK RIVER WATERSHED

Mark Rooks

New York State Adirondack Park Agency

Ray Brook, NY

wmrooks@gw.dec.state.ny.us

Introduction

The Adirondack Park Agency (APA) has recently completed a project which mapped wetlands and watershed sub-catchments in the portion of the Mohawk River watershed within the Adirondack Park. In conjunction with this project, invasive plant infestations were inventoried, monitored and controlled. The mapping and invasive species locations were digitized and made available for use in a Geographic Information System (GIS). This presentation gives background on the project and reports on methods and results. The value and uses of the information are discussed, as well as direction for future efforts.

Background

The Adirondack Park (Park) contains 13 major watersheds, including part of the Mohawk River watershed (Figure 1). The 2.4 million hectare park is a mixture of private property and “Forever Wild” forest preserve land owned by the people of New York State. The Adirondack Park Agency (Agency), along with the Department of Environmental Conservation, oversees the management of the Forest Preserve. In addition, the Agency regulates land use and development on the private land in the Park. The Agency administers three State laws within the Park: the Adirondack Park Agency Act, the Wild, Scenic and Recreational Rivers Act and the Freshwater Wetlands Act.

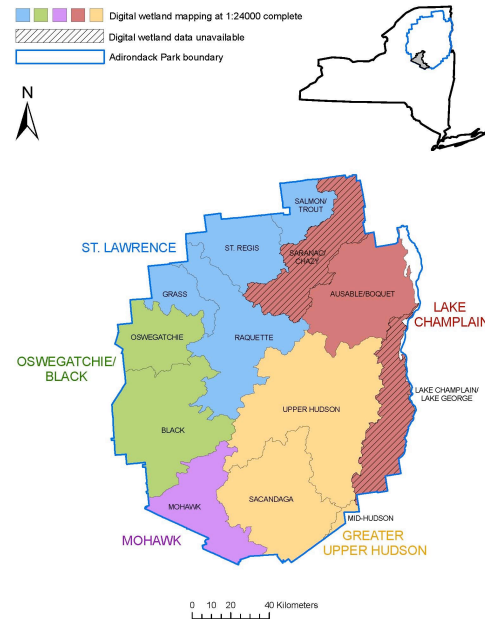


Figure 1. Major watersheds of the Adirondack Park.

Since 1993 the Agency has been undertaking wetland and watershed characterization projects with funding from the United States Environmental Protection Agency (EPA) State Wetlands Protection Program. These projects have been completed on a watershed basis and the final project, which will complete wetlands and watershed mapping for the Park, is now underway (Figure 1). The Mohawk River project was recently completed and submitted to the EPA and the full report will be posted on the APA web site (www.apa.state.ny.us) after it is formally accepted by the EPA.

Wetland Mapping

The Agency purchased color infrared 1:40,000-scale aerial photo transparencies from the National Aerial Photography Program (NAPP) that were flown in 1994-99 and contracted with the Remote Sensing Lab (RSL) of the State University of New York at Plattsburgh (SUNY Plattsburgh). RSL staff performed the initial aerial photo interpretation in their facilities at SUNY Plattsburgh using a stereo zoom transfer scope and the NAPP transparencies, delineating the wetlands on acetate overlays. The wetland polygons were labeled using a modified National Wetlands Inventory (NWI) classification system (Cowardin *et al.* 1979). RSL staff performed field checks at selected sites and Agency staff performed a quality assurance and quality control (QA/QC) assessment on the air photo interpretation.

The Agency then contracted with PAR Government Systems Corporation (PAR) to digitize the mapping. PAR scanned and georectified the acetate overlays and used ESRI ArcGIS software extensions to create and edit wetland polygon and polyline features. Attribute tables were populated with the appropriate NWI labels.

The mapped wetlands are shown in Figure 2. Within the project area of 136,503 ha, 11,444 ha were mapped as wetlands; wetlands, therefore, constitute approximately 8% of the Mohawk watershed's surface area within the Park. Within the Mohawk project area, an additional 3% percent of the watershed area is open water. Ten different NWI wetland cover types (Cowardin *et al.* 1979) were used to classify the wetland polygons for the project; each polygon was labeled with up to two cover types or classes. Class 1 and Class 2 labels and various water regime and special modifiers combined to make 264 different wetland labels in the project area.

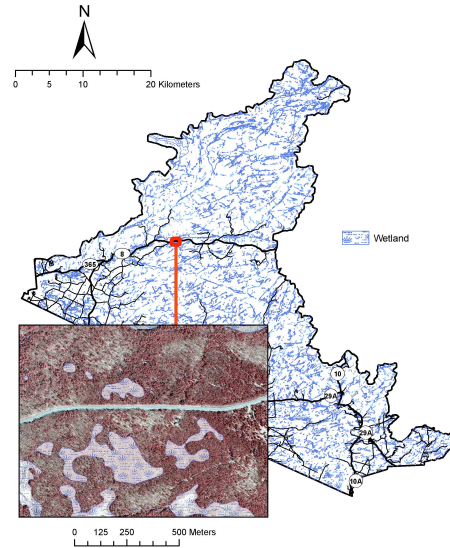


Figure 2. Wetlands, with detail.

Sub-catchment Mapping

Sub-watersheds of the study area were delineated for major rivers and their named tributaries. Sub-catchments for ponds with unique pond identification numbers assigned by the Adirondack Lake Survey Corporation (ALSC) and the New York State Bureau of Fisheries were also delineated. Watersheds were delineated on USGS 1:24000 or 1:25000 topographic maps using conventional methods (USDA 1977) and QA/QC procedures were used. Sub-catchment boundaries were digitized, edge-matched, and joined into a seamless coverage. Flow patterns between sub-catchments were determined and the information stored in the shape file attribute table.

A total of 428 sub-catchments were mapped for the project area (Figure 3). The sub-catchments ranged in size from a minimum of 1.0 ha to a maximum of 10,492 ha. The smaller sub-catchments are those associated with the ALSC ponds while the larger sub-catchments are riverine.

Invasive Plant Inventory and Management

The Agency contracted with the Adirondack Invasive Plant Program at the Adirondack Nature Conservancy to conduct the invasive plant portion of the project. One hundred fifty nine invasive plant infestations were inventoried in 2006 and 64 of these were controlled in the 2006 and 2007 field seasons (Figure 4). All of these sites are in need of current follow-up efforts.

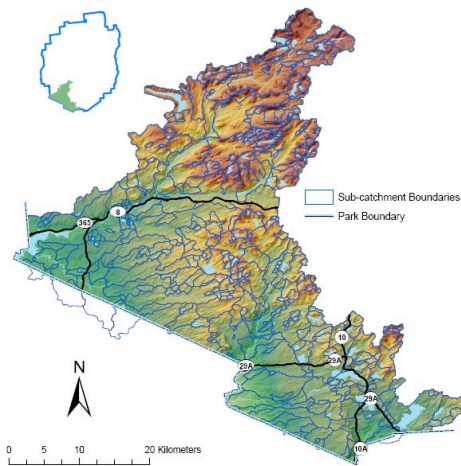


Figure 3. Sub-catchments in the Adirondack Park portion of the Mohawk River Watershed.

Summary and Future Efforts

The project produced digital wetland maps based on the detailed and current aerial photo interpretation of the Adirondack Park portion of the Mohawk River Watershed. The project has benefits to the understanding of the Mohawk River Watershed within the Park and the wetlands protection program of the Adirondack Park Agency because it has provided the first ever watershed-wide look at the wetland resources of the Mohawk River Watershed. This project adds to the landscape scale natural resource database being developed through previous EPA grants for the Adirondack Park and helps in refining the

process for providing consistent inputs for wetlands Geographic Information Systems database development.

The project provides an initial baseline of wetlands data upon which future wetland mapping and research projects will be based. Future wetland mapping should use new digital air photos and the interpretation should be done with hardware and software that allows a heads-up screen digitization of wetland polygons.

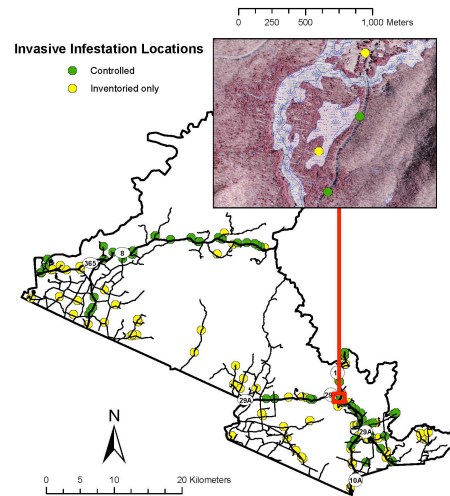


Figure 4. Invasive Species Locations and Controlled Infestations.

Literature Cited

Cowardin, L.M., Carter V., Golet, F.C., and LaRoe, E.T. 1979. Classification of wetlands and deepwater habitats of the United States. Washington, D.C.: U.S. Fish and Wildlife Service FWS/OBS-79/31. 103pp.

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