



## Patuxent Wildlife Research Center Science Brief for Resource Managers

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*Science Brief PWRC 2003-30*

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## Effects of impoundment management on vegetation change on Moosehorn NWR wetlands

### Description:

Intensive counts of waterfowl broods were performed by quiet observation during June and July of 1984 and 1985 (J.R. Longcore, unpubl. data). At that time all managed wetlands on Moosehorn National Wildlife Refuge were classified with the National Wetlands Inventory System (Cowardin et al. 1979) and amount of surface water was determined along with hectares of life forms of vegetation. Nearly 200 (152 to 192) waterfowl broods (mostly Canada geese 147 and 50 and American black duck 53 and 44) were counted those years. Since that time vegetation in Howard Mill Pond, Lower Magurrewock, and Lower Barn Meadow has been manipulated, and two new wetlands have been constructed (i.e., Hatton, Seeley Flowages). Marsh bird use data are available for 32 of the largest impoundments along with basic water chemistry (Gibbs et al. 1991). Refuge managers have an interest in evaluating the effects of habitat manipulation on use by duck broods and other marsh birds (e.g., herons, bitterns, grebes, shorebirds). It is of interest to document changes in vegetation during the past 15 years of management at the refuge. It is timely inasmuch as water control structures on the larger impoundment complexes were replaced in 1999-2000 and a study of invertebrates and shorebirds is being initiated. Abundance of aquatic invertebrates is influenced by vegetative structure, stem density, and differences in plant species, thus this study to update impoundment vegetation maps is relevant to other ongoing work at the refuge.

### Progress to Date:

The plant collection at Moosehorn NWR was reviewed and a specimen list of holdings compiled. To georeference wetland maps for GIS work most maps of refuge wetlands were updated with UTM values at 3 or 4 points around the wetland margin. Wetlands within Moosehorn were remapped. Rainfall, temperature, and water level manipulation

data from refuge records have been summarized to attempt to relate these variables to changes in the vegetation. GPS readings were obtained for all impoundments to georeference these wetlands to general maps and to digitize maps to enter in a GIS. In 2003 two part-time technicians were hired to work on completing the wetland mapping. I worked with these technicians to complete the mapping and obtain the necessary GPS points to georeference all wetlands. I collected plants on wetlands that I mapped and I identified plants on those wetlands mapped by the technicians. Most plants were prepared as herbarium specimens and verification of some identifications are underway now. A catalog of herbarium specimens was prepared in accordance with the Flora of Maine state authority on plants. Technicians began digitizing field maps, which are not completed yet. The summarization of refuge water level and rainfall records were completed and entered into data bases.

### Management Implications:

When complete this assessment of change, or lack thereof, in vegetation in impoundments at the Moosehorn National Wildlife Refuge will allow managers to evaluate if long-term water level management has achieved goals established for these marshes to enhance migratory bird breeding and use.

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