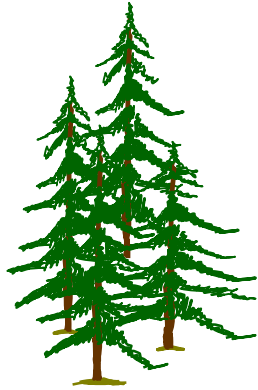


The Coniferous Wetland Forest Bird Inventory



Brian R. Bub
Research Scientist, EIM
&
Loren Ayers
Terrestrial Ecologist, EIM



Funding Sources:

- Wildlife Conservation and Restoration Program, CJS, U.S. Department of Interior.....**\$40,000**
- State Wildlife Grants Program, U.S. Department of Interior.....**\$80,000**
- Aquatic and Terrestrial Resources Inventory, WDNR.....**\$30,900**

Partner Agencies & Organizations:

- Wisconsin Bird Conservation Initiative
- Natural Heritage Inventory, ER, WDNR
- Wildlife and Forestry Research, ISS, WDNR
- Golden-winged Warbler Atlas Project

Coniferous wetland forests have historically been overlooked and remain poorly understood by current management standards. They are very slow to regenerate, have long rotation lengths, and generally do not respond well to management prescriptions which has prompted the US Forest Service to discontinue the harvest of coniferous wetland timber on national forest lands. A comprehensive inventory of coniferous wetland forests and related biota has never been conducted in Wisconsin. This project is a survey of birds and plants that are associated with tamarack swamps, northern white-cedar swamps, and black spruce bogs.

Wisconsin has more coniferous wetland forest acreage than upland boreal forest, thus these wetlands are important for boreal bird species

whose ranges extend into Wisconsin. Coniferous wetland forests are used by Neotropical migrants like warblers and flycatchers, which spend the winter in the tropics, and by resident species which are typical of more extensive boreal habitats in northern Minnesota and Canada. Coniferous wetlands also contain some of the State's more rare or habitat-specific plant species.

This project will directly support the Wisconsin Comprehensive Wildlife Conservation Plan, forest management guidelines, and land-use planning. It will help prioritize, and assess habitat restoration and conservation projects in coniferous wetland forests.

Objectives:

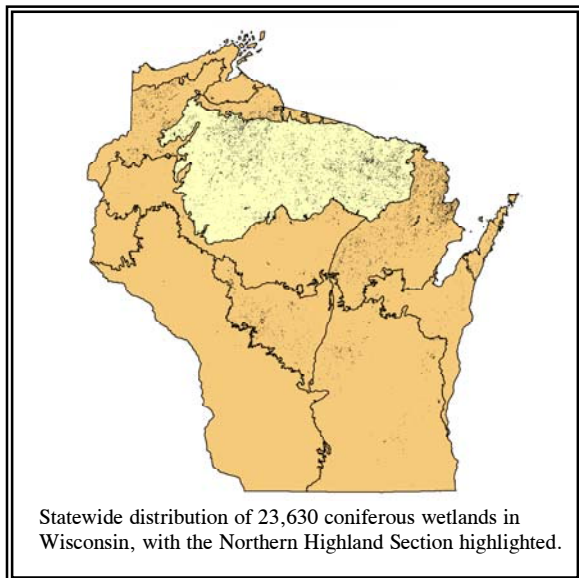
1. Determine bird use of coniferous wetland forests.
2. Determine plant composition and distribution in coniferous wetland forests.
3. Map local and regional bird distributions, and determine bird-habitat associations.
4. Predict bird occurrence and distribution patterns based on forest structure and composition, forest patch size, and adjacent habitat in unsurveyed coniferous wetland forests.
5. Produce a management reference manual with bird occurrence data.
6. Produce an atlas of coniferous wetland forests in Wisconsin.

Methods: We identified and mapped 23,630 coniferous wetland sites ≥ 5 acres in Wisconsin using satellite imagery from WISCLAND. In

general, coniferous wetland sites were comprised of acidic black spruce bogs, intermediate tamarack swamps, nutrient rich white cedar swamps, or some combination of the three. We used the “Section” level of the National Hierarchical Framework of Ecological Units (NHFEU) to divide the State into ecologically meaningful strata. Coniferous wetland forests within each Section were categorized by size class, assigned a random number, and then sorted to determine sampling priority. USGS topographic maps showing the site boundaries were compiled for each priority site, and bird and vegetation survey routes were planned prior to field visits.

We used standardized 5-minute point counts adapted from Howe et al. (1995) and Ralph et al. (1995) to survey birds. Vegetation sampling was conducted at bird point count stations in each stand based on methods adapted from the California Native Plant Society (1998).

Preliminary Results: The Northern Highland Section contains 54% of all coniferous wetland forests in the State and is the focus of our 2002 and 2003 fieldwork. We completed bird and plant surveys at 53 coniferous wetland sites in 2002 and surveys will continue between May and July 2003, providing a total sample of approximately 160 sites from the Northern Highland Section, or 1.3% of all coniferous wetlands for that section.



Upcoming Products: Data and results from the project will be publically available, and metadata will be housed in WDNR’s Aquatic and Terrestrial Resources Inventory.

A management reference manual will be produced for the Northern Highland Section. A statewide distribution map of coniferous wetland forests will accompany the manual. Habitat and distribution models that estimate the probability of occurrence for 25 bird species will be described and demonstrated. Definitions of coniferous wetland forest types, illustrations of their vegetation profiles, and lists of their associated bird and plant species will be detailed for the Northern Highland Section.

This project will provide information on more than 20 bird species identified as conservation priorities in the Partners in Flight Bird Conservation Plan for the Boreal Hardwood Transition Region, and will document Working List plant species for the Wisconsin Natural Heritage Inventory database.

Management Applications:

1. Results of this inventory will allow resource professionals to determine which bird species occur in varying types of coniferous wetlands by providing them with simple, useable models.
2. The management reference manual and atlas of coniferous wetland forests containing maps, GIS layers, attribute data for 23,630 sites statewide, and bird and plant associations will be available for use in resource planning.
3. Direct support of the Wisconsin Bird Conservation Initiative (landscape level bird conservation planning) through the documentation of 58 bird species, and habitat and distribution modeling of 25 bird species (7 of which are Species of Special Concern for WDNR).
4. Documentation of Working List plant species will be added to the NHI Database to help track threatened, endangered, and special concern species.

Timeline:

2002 - Identify, map, and stratify coniferous wetland forests statewide. Begin bird and plant surveys in Northern Highland Section.

2003 - Continue bird and plant surveys in Northern Highland Section. Design relational database and enter field data. Begin summary and analysis.

2004 - Build predictive models of bird occurrence and produce management reference manual and atlas for distribution.