

OFFICE OF RESOURCE CONSERVATION

State of Illinois

Grant Segment

PROJECT NUMBER: T-52 D-1

PROJECT TITLE: Updating the National Wetlands Inventory (NWI) for the State of Illinois

PURPOSE: The purpose of updating the National Wetlands Inventory (NWI) for the State of Illinois is to create a consistent, accurate, and current inventory of wetlands in Geographic Information System (GIS) format that meets the NWI mapping standard and can be widely distributed and used for implementing The Illinois Comprehensive Wildlife Conservation Plan and Strategy.

NEED: This project directly addresses The Illinois Comprehensive Wildlife Conservation Plan and Strategy, Wetlands Campaign, Action 3 (Fill information gaps and develop conservation actions to address stresses), Subaction b (updated inventory of wetland habitat in Illinois). Wetlands provide habitat for over 900 different species of birds, amphibians, mammals, insects, and plants. Many of these plants and animals are threatened or endangered, and rely on wetlands for survival. Knowing the location and type of wetlands in Illinois is critical to any strategic conservation planning effort for wildlife. In addition, having a wetlands layer in a Geographic Information System (GIS) is invaluable when applying wildlife habitat models to large geographic areas.

The U.S. Fish and Wildlife Service's (FWS) National Wetlands Inventory (NWI) is available for the State of Illinois in GIS format. However, the inventory was accomplished using photos from the early to mid 1980s. Recent field studies utilizing the NWI data have indicated many changes in wetland occurrence and type since the 1980s. Documenting changes to and the current status of wetlands could potentially have a major impact on wildlife conservation planning efforts in Illinois. User Surveys from the FWS have documented over 100 different applications of the NWI data. The applications were varied and included uses such as: comprehensive resource management plans, environmental assessments, facility and corridor placement, contingency plans for environmental emergencies, natural resource inventories, and habitat surveys. An updated NWI data set will allow the State of Illinois to utilize current and accurate wetlands information in their comprehensive wildlife conservation plan and strategy. The updated NWI will assist the plan by identifying current wetlands, converted wetlands, and newly created or omitted wetlands. The updated wetlands layer can be used in wildlife habitat models, restoration targeting scenarios, and for easement and mitigation sites. The converted wetland information can be used for identifying potential restoration sites and status and trends of wetlands for the State.

OBJECTIVES: The objective of this project is to develop an updated National Wetlands Inventory (NWI) layer in Geographic Information System (GIS) format that is consistent and accurate for the State of Illinois, meets the current wetland mapping standards of the FWS, and can be used to implement the State Wildlife Action Plan. The specific tasks to meet the objective are:

1. Update the National Wetlands Inventory for the State of Illinois.
 - 1.1 Assemble original NWI and current aerial photos (completed, 0% of budget).

- 1.2 Update the NWI data with the current photos (August 2008 to March 2010, 37% of budget).
- 1.3 Perform quality assurance and quality control on the updated NWI data (August 2008 to May 2010, 7% of budget).
- 1.4 Field verify the NWI update (March 2009 to June 2010, 52% of budget).
- 1.5 Produce final report and documents (May 2010 to July 2010, 3.7% of budget).
- 1.6 Send final product to be incorporated into the official NWI layer (August 2010, 0.3% of budget).

Please note that the first objective (1.1) has already been completed by DU through its existing NWI updates with other states and cooperative agreements with state agencies. This objective was necessary for initiating the project, but is not part of the grant funding or matching funding.

EXPECTED RESULTS OR BENEFITS: This project directly addresses The Illinois Comprehensive Wildlife Conservation Plan and Strategy, Wetlands Campaign, Action 3 (Fill information gaps and develop conservation actions to address stresses), Subaction b (updated inventory of wetland habitat in Illinois). The anticipated result of this project is an accurate and current wetland inventory for the State of Illinois based on the original 1980's U.S. Fish and Wildlife's NWI data and updated using aerial photos from Spring 2005 and Summer 2007. This updated inventory will benefit many federal and state agencies as well as other conservation organizations. For example, the Illinois EPA is currently designing a wetlands monitoring and assessment program that will need an updated wetland inventory for program design and selection of monitoring sites. The IDNR's Critical Trends Assessment Program (CTAP) has a wetland assessment program, but an updated wetland inventory will produce a more accurate determination of the state of wetlands in Illinois. An updated Illinois Wetland Inventory will go a long way to supporting the proposed work of CTAP, which will development of a Wetland - Index of Biotic Integrity for the entire State of Illinois. The Illinois Department of Transportation requires an accurate determination of wetland location to assess potential impacts and mitigation requirements associated with transportation projects and improvements.

An additional outcome of this effort will be an inventory of converted wetlands and the ability to track changes to wetlands into the future. The wetland inventory can be used to identify priority habitats and for developing habitat models for species of greatest need of conservation in Illinois. The converted wetland inventory can be used to identify and prioritize areas for restoration efforts directed towards those species of greatest need. The ability to track the wetlands into the future will be invaluable for future wetland inventory efforts and to identify trends in Illinois's wetlands. Species of greatest need of conservation in Illinois include mussels, fishes, amphibians, reptiles, birds, and mammals. At some point in their life cycle, many of these species require or use wetlands. An updated wetlands inventory for Illinois is critical for developing habitat models for these species, prioritizing restoration and conservation efforts, and developing strategic planning efforts for conservation.

A third outcome of this effort will be a database of the field verified wetlands. A point location of the wetland that was field verified will be created along with a database of the wetland type, location information, digital photo, and comments. This database can be used in conjunction with the NWI data to supplement future monitoring and inventory activities. A fourth outcome of this effort will be documentation on the methods for tracking the wetland status. This documentation will be important in the future as additional updates are performed. Following the methodology will allow for consistent reporting and wetland tracking in the future.

APPROACH: The following description is a summary of the methodology for updating the NWI for the State of Illinois. For a more detailed description of the methods, please see the work plan available at:

http://glaro.ducks.org/nwi/documents/Updating_NWI_Great_Lakes_Workplan.pdf.

The first step in the NWI updating process for the State of Illinois is to gather all of the data needed to perform the update. The original NWI data will be exported from the USGS NWI Master Geodatabase (MGD) and imported into DU's Geodatabase (DU MGD). The aerial photos that will be used for the updating process will be the Statewide Spring 2005 photos and the NAIP Summer 2007 photos if available. If the 2007 NAIP photography is not available, the 2004 and 2006 NAIP photos will be used.

The second step will be to update the NWI data based on the current photos. The updating process will involve displaying the original NWI layer on top of the aerial photos on a section-by-section basis. The photos will be interpreted as to whether the wetland still exists, if it has changed class, has been spatially modified, or remains in the same condition as the original. A photo interpretation key and the existing NWI data will be used to assist the interpreter in determining the wetland condition and class. Any wetlands that were either missed by the original NWI or have since been created will be digitized and attributed. All existing wetlands that do not spatially register with the photos will be modified to match the photo.

The third step will be to perform quality assurance/quality control (QA/QC). The first QA/QC process involves having a different interpreter visually verify 10% of the county. The second process is to run DU's 14-step attribute verification tool that checks for any errors in the attributes that were added in the DU MGD. The third step is to run the USGS NWI attribute and verification tool to check for NWI attribute errors and spatial errors. The counties must pass the USGS attribute and verification tool in order for the USGS to accept the update.

The fourth step will be to perform the field verification of the NWI update. The NWI field verification will be an assessment of the wetland status (converted, still existing, additional) and wetland class (open water, emergent, aquatic bed, etc.). The goal of the field assessment is to sample 1% of the wetlands, stratified on wetland class and status. The Illinois Natural History Survey and Ducks Unlimited will work together to develop the field verification methodology. Volunteers will be used to perform the field verification. Ducks Unlimited will provide the Volunteers with training and maps of the wetlands to be field verified. Volunteer time will be recorded using the "Volunteer Time Sheet." The Volunteer rate of \$16.17/hour (effective 1/1/08) is based on like work performed under the IDNR job classification of Natural Resources Technician I, with no benefits allowed, as specified in the Labor Agreement between American Federation of State, County and Municipal Employees (AFSCME), Council 31, AFL-CIO and the State of Illinois, Dept of Central Management Service, 7/1/04 - 6/30/08.

The fifth step will be to create the final report and documentation. A final report will be created documenting the methods and reporting the results of the update. A detailed workplan will be created that explains the details of the methodology so that the process can be duplicated for future updates. The reporting will document the changes in wetland types on a county-by-county basis as well as a statewide basis. An assessment of the photo interpretation will also be produced from the field verification data. Along with the final data, FGDC compliant metadata will be created.

The sixth and final step will be to send the updates to the U.S. Fish and Wildlife Service (FWS) for incorporation into the official NWI database (NWI MGD). The FWS will then run its QA/QC procedures on the data set before inclusion in the NWI MGD. Access to the documentation will be through the FWS NWI web site and Ducks Unlimited's web site.

LOCATION: The location of this project is the entire state of Illinois.

PROJECT SCHEDULE: The project is anticipated to start in August 2008 and be completed in two years (August 2010). The update of the NWI will begin in August 2008 with the fieldwork beginning in March of 2009. Most of the update will be completed by July 2010 with the final products and documentation completed by August 2010.

| Objective | Aug-08 to Feb-09 | Mar-09 to Mar-10 | May-10 | Jun -10 | Jul -10 | Aug-10 |
|--|------------------|------------------|--------|---------|---------|--------|
| Assemble original NWI and current aerial photos. | X | | | | | |
| Update the NWI data with the current photos. | X | X | | | | |
| Perform quality assurance and quality control (QA/QC) on the updated NWI data. | X | X | X | | | |
| Field verify the NWI update. | | X | X | X | | |
| Produce final report and documents. | | | X | X | X | |
| Send final product to be incorporated into the official NWI layer. | | | | | | X |

RELATED GRANTS: DU has received a grant from the U.S. Environmental Protection Agency – Great Lakes National Program Office (EPA) to begin the NWI update process for the Great Lakes. The EPA funding for Illinois is \$12,518 and will not be shown in the total project cost or be used as part of the non-federal match for this grant agreement. This funding will be used for assembling the original NWI and current aerial photos (Step 1.1) which is not included in the budget for this grant.

ESTIMATED COSTS: A detailed list of the estimated costs for this project is displayed in the following table. In general, the federal costs will be applied to DU staff for performing the updated NWI data layer and to Illinois Natural History Survey (INHS) staff for assisting with the methodology and implementation of the field assessment. The non-federal cost will be generated from DU, State of Illinois, and volunteer time for performing the field verification. A list of the personnel and their responsibilities are displayed in a table under the personnel section of this document.