

Report
State Wildlife Grants
T-9-R-1

New Jersey's Landscape Project

Progress Report for Project Year
September 1, 2009 – August 31, 2010

NJ Department of Environmental Protection

DIVISION OF FISH AND WILDLIFE

ENDANGERED AND NONGAME SPECIES PROGRAM



EXECUTIVE SUMMARY

Project:	New Jersey's Landscape Project
Federal Aid Project:	T-9-R-1 (State Wildlife Grants)
Segment dates:	September 1, 2009 to August 31, 2010
Total Project Expenditures:	\$694,500 (\$347,250 Federal, \$347,250 State)

JOB 1: Wildlife Habitat Mapping

Project Leader: Peter Winkler

OBJECTIVE: Design, refine and make available wildlife habitat designations using the most current data on rare species populations and land cover types.

Key Findings:

- ENSP incorporated approximately 821 new or updated Species Occurrence Areas (SOA) for use in Landscape mapping.
- All Landscape Project GIS data continued to be made available in both shapefile and file geodatabase formats and fully documented with Federal Geographic Data Committee (FGDC) compliant metadata. The data are served on the NJDEP Bureau of GIS website for download as well as on the NJDEP interactive mapping application (NJ-GeoWeb).
- As a result of the review of the Critical Wildlife Habitat (CWH) mapping in the Coastal Areas Facilities Review Act (CAFRA) zone by ENSP and the Division of Land Use Regulation (DLUR), DLUR decided they would continue to use existing mapping and methodologies already in place. The six CWH layers are currently available to DLUR in draft form. No additional work has been completed nor will it be until ENSP and DLUR can commit to an agreement over how these maps will be used within the CAFRA zone.
- GIS staff are leading the next revision of Landscape mapping methodology to improve the accuracy and reliability of mapping. Version 3 methodology is presently in use in the Highlands region only. The method is called Species Based Patches, which uses Level 3 species habitat preferences to create habitat patches, rather than using Level 1 habitat types to create habitat patches.
 - ENSP GIS staff created a report for all listed species comparing occupied habitat to available habitat within species-specific home ranges. These reports were utilized by staff to guide decisions on species-specific attributes for incorporating all species in Version 3 methodology state wide.
 - Species habitat reports and the methodology to create them were documented and will appear as an appendix in the Landscape Project report when Version 3 is completed for the entire state.
 - Staff created an MS Access database to store species habitat requirements for Version 3 Species Based Patch methodology. Worked with the Departments IT group to make this database available to all ENSP field officering utilizing Citrix. This enabled staff to enter and access their species attributes in one centralized database without having to travel to the Trenton office.
- Revised mapping for each of the six Landscape regions was not completed, however all species attributes have been entered and draft mapping can now begin.
- Draft mapping was completed for all State endangered and threatened insects, utilizing Version 3 species based patch methodology.
- ENSP GIS staff is scheduled to attend the Mid-Atlantic Chapter of the Urban and Regional Information Systems Biannual Conference in early October, 2011.
- No peer review committee meetings were conducted because no finalized layers were created for review. However, staff identified potential peer review committee members who have GIS expertise.

Conclusions:

- Pilot projects for new habitat layers, using Species Based Patch methodology, need to be designed and carried out in greater detail prior to being mapped on a statewide level. This will eliminate time spent in developing unnecessary drafts of computer-intensive GIS datasets.
- Creating a statewide version of the Landscape Project that incorporates Version 3 methodologies has proven to be more time consuming than expected. Most ENSP staff will be working on species-specific habitat requirements and patch dynamics to try to meet a 2011 deadline for Version 3 map products.

Recommendations:

- Dedicate sufficient staff to complete habitat protocols to meet a November 2011 deadline for releasing a statewide version of Landscape Project that incorporates Version 3 methodologies, addressing all state-listed species for which we have occurrence data.
- Conduct peer review on new methodologies.
- Develop a plan for releasing the Landscape Project products and, to the extent possible, minimize delays in product updates.

JOB 2: Biotics Database

Project Leader: Gretchen Fowles

OBJECTIVE: Update and maintain the most current data on rare species populations in New Jersey.

Key Findings:

- ENSP contracted with the Conserve Wildlife Foundation of NJ (CWF) for assistance with entering and maintaining records in the Biotics database. All activities described below have been completed with staff assistance from the ENSP and the CWF.
- Biotics staff received approximately 1,223 additional rare animal records from the public (n=670) and from ENSP staff (n=1,742) during the 2009-10 segment. These new records added to a previous backlog of records awaiting entry in Biotics. Approximately 5,462 rare animal records were entered into Biotics and of those approximately 3,840 were updates to previously mapped records. Approximately 2,488 records were reviewed by biologists. There remains a backlog of approximately 1,139 endangered and threatened species records that have been reviewed and accepted by biologists and are awaiting entry into Biotics.
- Staff created and released Species Occurrence Area Versions 5 and 6 (SOA_5 and SOA_6), and Source Features Versions 5 and 6 files in December 2009 and April 2010, respectively. There were approximately 821 (413 and 408 in SOA_5 and SOA_6, respectively) new source feature records ranked 3-5 (state or federally endangered or threatened species) included in these files.
- Biotics staff finished integrating the final source of data that up until now has been maintained outside Biotics, yet included in the SOA/Source Feature files. Several large, species-specific datasets of rare species occurrences had been maintained outside of Biotics when ENSP and NHP were still using the BCD database to manage rare plant and animal data because of lack of staff and the inefficiency of the data entry process. Since the conversion to the more streamlined Biotics database six years ago, at which time ENSP gained more staff resources as well as took over full responsibility for managing rare animal records, we have been working toward integrating the entire backlog that had piled up, including the entry of extraneous data sources. There were approximately 3,550 endangered, threatened, or special concern species records in this final data source.
- Staff continued work with Rutgers University's Center for Remote Sensing and Spatial Analysis (CRSSA) to build a web-based mapping and data submittal application for rare animal occurrences, which will be called *NJ Wildlife Tracker*. It will enable interactive mapping and data submittal of observations made by the general public as well as volunteers for eight species-specific surveys ENSP coordinates. Iterations of a prototype of each of the components have been reviewed by ENSP GIS staff and biologists and each component is now being fine-tuned and tested further. The development of the web-based submittal application was delayed due to lack of personnel at Rutgers to complete the work, so the contract was extended and ENSP has not publicized availability of the website.
- A contract employee and two seasonal interns were hired to assist Biotics staff with entering and quality controlling data.
- A data exchange with NatureServe was initiated in June 2010. The last data exchange occurred in July 2004. Files from NJ's Biotics database were sent to NatureServe and at the end of August, NatureServe had sent back the reconciled and updated files to NJ. The last step is to integrate the files into the NJ Biotics database to complete the exchange process.

Conclusions:

- A large amount of data (5,462 records) were entered into Biotics, reducing the backlog of data entry. Approximately 35% of animal records in Biotics still need to be quality-controlled.
- The last source of data stored outside of Biotics has been integrated into Biotics.
- A schedule of releasing an updated SOA file every six month was achieved for the first time.
- Rutgers University's CRSSA is still completing work on the development of an electronic submittal application, *NJ Wildlife Tracker*, which will streamline review and data entry of rare animal locations. The timeline for completion needed to be extended because of the lack of Rutgers staff to work on the project.

Work should be complete by the spring of 2011. The application will be publicized once it has been thoroughly tested.

Recommendations:

- Continue to allow a small number of staff in field offices to enter data into Biotics via Citrix to help with the backlog of data entry and quality control. Hire contract employees and seasonal interns as funding allows further reducing the backlog.
- Maintain deadlines and work procedures to ensure an update of the SOA and Source Feature files will be ready for release every six months.
- Continue working with CRSSA to complete the development of the electronic data submittal application. The application will streamline the data submittal, review, and entry process and thus enable Biotics staff to enter and update many more records in Biotics than is currently possible. Once complete, publicize the electronic sighting submittal website so as to transition as quickly as possible to a more streamlined system and educate the public about the importance of reporting rare species observations.
- Complete the final step of the data exchange with NatureServe by integrating the reconciled and updated files from NatureServe into the NJ Biotics database. This is the first data exchange ENSP has participated in since taking over control of the animal data within Biotics six years ago. The exchange will update the global element data in our New Jersey Biotics database as well as update the central database with rare animal data in New Jersey enabling NatureServe to maintain an up-to-date representation of biodiversity elements in North America.

JOB 3: Landscape Project Implementation

Project Leader: Patrick Woerner

OBJECTIVE: Build knowledge of critical habitat locations and disseminate Landscape Project data and training to guide land management, habitat conservation and acquisition, and land planning at all levels of government and non-government organizations.

Key Findings:

- Staff provided 12 Landscape Project GIS training/information sessions attended by a total of approximately 200 people.
- Staff coordinated and conducted GIS training and provided guidance to these organizations and agencies:
 - Municipal agencies and environmental commissions including Bass River Township, Branchburg Township Environmental Commission, Mantaloking Environmental Commission, Montville Environmental Commission, Robbinsville Township Environmental Commission, Vineland Planning Division, West Long Branch Environmental Commission;
 - County agencies including Cumberland County Department of Planning and Development, Gloucester County Soil Conservation District, Somerset County Planning Division;
 - State organizations including NJ Department of Agriculture, NJDEP AmeriCorps NJ Watershed Ambassador Program, NJDEP Division of Parks and Forestry, Jacques Cousteau National Estuarine Research Reserve, NJ Pinelands Commission, NJ Department of Transportation;
 - NGOs including NJ Audubon Society, Barnegat Bay Estuary Program, Delaware Valley Regional Planning Commission, NJ Farm Bureau, Friends of Cape May National Wildlife Refuge, The Land Conservancy of NJ, NJ State Federation of Sportsmen's Clubs, Ocean Institute;
 - Federal agencies including Environmental Protection Agency;
 - Educational institutions including Drexel University, The Richard Stockton College of NJ, Rowan University, Rutgers University; and private consulting firms as well as the general public.
- ENSP GIS staff conducted a workshop on the Landscape Project for environmental educators at the Alliance for New Jersey Environmental Education's 25th Annual Environmental Education Conference held in Plainsboro, NJ, January 29, 2010.
- ENSP GIS staff presented the "Landscape Project in New Jersey's Highlands Region" at the 66th Annual Northeast Fish and Wildlife Conference held in Newton, MA, April 27, 2010.
- ENSP GIS staff conducted a session and offered guidance on using Landscape Project data to screen activities on rights-of-way spans to Jersey Central Power and Light, a subsidiary of First Energy Corporation on June 10, 2010.
- ENSP biologist staff continued development of a landscape ecology presentation to be made available on the ENSP website.
- ENSP GIS staff provided an update on the Landscape maps to the Endangered and Nongame Species Advisory Committee as they continue to provide guidance to the Department in its effort to evaluate the use of Landscape maps in existing land use regulations.
- Staff continued to provide guidance and information on the Landscape maps in the Department's effort to evaluate the development and modification of mapping of environmentally sensitive areas (including endangered or threatened wildlife species habitats derived from the Landscape Project) where extensions of sewer service are not appropriate according to adopted amendments to Water Quality Management Planning rules (N.J.A.C. 7:15-5.24).
- Staff continued to update mapping for Division of Land Use Regulation (DLUR) to support implementation of new Flood Hazard Area Control Act (FHACA) rules (N.J.A.C 7:13). Mapping was derived from the Landscape Project and additionally included habitat of threatened and endangered animal species not represented in Landscape that are considered "critically dependent on regulated water for survival."
- Staff continued to provide support to the Division of Natural and Historic Resources' (NHR) *Standard Operating Procedure* for screening management and other actions to determine if they will have an adverse impact on threatened and endangered species habitat.

- ENSP GIS staff participated in a newly formed “Biodiversity Working Group” within the Division of Natural and Historic Resources charged with reviewing forestry stewardship plans and identifying flora and fauna management objectives for Berkeley Triangle. Staff incorporated forest stand and treatment GIS data with rare species data derived from Landscape maps and the Biotics database for review of proposed forestry activities and to ensure consistency with biodiversity management objectives. GIS staff also coordinated the development of a draft database schema, containing attributes relevant to biodiversity concerns that will facilitate additional reviews by the Biodiversity Working Group. The attribute schema is to be incorporated into future Department RFPs for the development of forestry stewardship plans.
- Staff participated in, and provided guidance to, the NJ Geospatial Forum Preserved Lands/Open Space Task Force as members of the research and attributes subgroups that aim to develop a statewide preserved lands/open space GIS layer and associated database.

Conclusions:

- Providing Landscape Project GIS training and information sessions is an essential means of disseminating guidance information and proactively addressing issues of misinterpretation and misuse of Landscape Project products. Workshops on using Landscape mapping continued to be well attended.
- Communication and information on the Landscape maps and their limitations is vital as the Department incorporates the mapping into rules and regulations. Staff were regularly called on to help interpret and define mapping in policy and permit decisions.
- Development of a GIS layer depicting habitat of threatened or endangered animal species that are “critically dependent on regulated waters for survival” continued to facilitate more efficient screening and expedited reviews of FHACA applications by the Division of Land Use Regulation. The layer also continued to assist DLUR to determine the extent of the regulated area under FHACA by identifying sites that need to be screened for endangered and threatened species concerns, potentially leading to a larger area of jurisdiction.
- Incorporating Landscape Project and other rare species data into forestry stewardship plan reviews expanded our ability to develop biodiversity objectives benefiting at-risk species. The development of a standard database schema containing attributes relevant to biodiversity concerns has been an effective and efficient way of reviewing forestry management activities and setting objectives for flora and fauna management.

Recommendations:

- Continue to provide guidance to state, federal, and municipal agencies and conservation groups.
- Continue to promote the integration and use of Landscape Project GIS data among municipal and county planners.
- Produce materials to support the training and information program including map book, data CDs, printing of reports, presentations, tutorials, and other supplemental products in order to facilitate use of the Landscape Project’s wildlife habitat mapping.
- Continue to incorporate Landscape Project and other rare species data with forestry stand and treatment data and continue to develop a standard database schema to facilitate forestry stewardship plan reviews and ensure biodiversity management objectives are being met.
- Continue to provide assistance and GIS data updates to DLUR in support of FHACA application reviews.
- Complete the development of a landscape ecology presentation and make available on the ENSP website.
- Assess both Landscape Project GIS products and current information and education efforts based on feedback from various user groups. Produce a report responding to user feedback that includes recommendations for revision of mapping products as appropriate. Apply report recommendations to update information and education plans.