Report
State Wildlife Grants
T-9-R-2

New Jersey's Landscape Project

Interim Report for Project Year
September 1, 2010 – August 31, 2011

NJ Department of Environmental Protection

DIVISION OF FISH AND WILDLIFE

ENDANGERED AND NONGAME SPECIES PROGRAM

NEW JERSEY DIVISION OF
Fish and Wildlife

Conserve
Wildlife

New Jersey Division of Fish & Wildlife
Endangered & Nongame Species Program

<u>EXECUTIVE SUMMARY</u>

Project:	**New Jersey's Landscape Project**
Federal Aid Project:	T-9-R-2 (State Wildlife Grants)
Segment dates:	September 1, 2010 to August 31, 2011
Total Project Expenditures:	$287,000 ($143,500 Federal, $143,500 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 1,395 new or updated Species Occurrence Areas (SOA) into the Biotics database for use in Landscape habitat mapping.
- We continued to make all Landscape Project GIS data available in both Shapefile and file geodatabase format, and fully documented with Federal Geographic Data Committee (FGDC) compliant metadata. The data is served on the NJDEP Bureau of GIS website for download as well as on the NJDEP interactive mapping application (NJ-GeoWeb).
- Utilizing Citrix, Version 3 methodologies were developed and documented in an MS Access database for all listed species. This enabled biologist staff to enter and access their species' attributes in one centralized database without having to travel to the Trenton office.
- We completed draft revised mapping for each of the six Landscape regions for all listed species with an anticipated release in January, 2012. This release will correspond with the adoption of amendments to the list of endangered wildlife and statuses of nongame wildlife of New Jersey. This mapping incorporates the previously eight GIS layers per Landscape region into one GIS layer per Landscape region, which should eliminate some user error.
- All listed mussel occurrences were mapped in a new statewide streams layer.
- Biologists conducted QA/QC on interim mapping products that use Version 3 Species-based habitat patches, and biologists will review the final mapping prior to release.
- ENSP staff met with the Division of Land Use Regulation (DLUR) and performed a review of new mapping methodologies for some of the most controversial species for certain land use regulations. We worked with DLUR to collaboratively produce a mapping product for those species so we were both satisfied with the end result.
- A meeting will be set up with the U.S. Fish and Wildlife Service to present and review the new mapping methodology for all Federally Listed species occurring in New Jersey.
- ENSP GIS staff is scheduled to attend the Mid-Atlantic Chapter of the Urban and Regional Information Systems Biannual Conference in early October.
- No peer review committee meetings were conducted during the reporting period.
- Potential GIS-specific peer review committee members were identified.

Conclusions:
- Creating a statewide version of the Landscape Project that incorporates Version 3 methodologies has proven to be more time consuming than previously thought. However, the Version 3 product will create a more precise and biologically correct mapping product, incorporating species-based habitat patches using updated Land Use/Land Cover mapping, and implement a better user interface that provides more information than Version 2.
- If more detailed and species specific mapping is going to continue then more staff time and resources need to be devoted to Landscape Project mapping.

Recommendations:
- By January 2012, release a statewide version of the Landscape Project that incorporates Version 3 methodologies, addressing all state-listed species for which we have occurrence data, and using updated species occurrence database and updated mapping.
- Continue the peer review process 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

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

Key Findings:
- ENSP contracts 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 2,098 additional rare animal records from the public (n = 1,267) and from ENSP staff (n = 831) during the 2010-11 segment. These new records added to a previous backlog of records awaiting entry in Biotics. Approximately 4,579 rare animal records were entered into Biotics and of those approximately 825 were updates to previously mapped records. Approximately 2,298 records (of the 4,579) were reviewed by biologists. There remains a backlog of approximately 558 endangered and threatened species records that have been reviewed and accepted by biologists and are awaiting entry into Biotics.
- Staff created Species Occurrence Area Version 7 (SOA_7), Sensitive Area, and Source Features Version 7 files in May 2011. There were approximately 1,395 new source feature records ranked 3, 4 or 5 (state or federally endangered or threatened species) included in these files. The files were created for the development of V. 3.1 of the Landscape Project mapping and include species statuses that are proposed and not officially adopted yet, so the products were not released during the reporting period.
- Staff suspended 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, named *NJ Wildlife Tracker*. The next generation of the Biotics database is expected to be rolled out by NatureServe in the summer of 2012. One component of this next generation is a mobile observation system, Kestrel, which will allow for online data entry of observation data and will integrate with the Biotics database. Staff has decided to participate as a pilot program in the roll-out of the Kestrel system in the fall of 2011 to evaluate it and decide if it will provide most of the same functionality that was being developed in *NJ Wildlife Tracker*.
- One seasonal employee was hired to assist Biotics staff with entering and quality-controlling data. At least one staff in a field office also has been successfully entering data on a few select species via Citrix.
- The data exchange with NatureServe was completed. The reconciled and updated files from NatureServe were integrated into the NJ Biotics database in January 2011.

Conclusions:
- Biotics staff entered over twice as many records into Biotics as were received during this segment. In addition, staff biologists reviewed more records than were received.
  - There was a push to review and enter records in anticipation of the creation of the SOA file (SOA_7) that would be used to value habitat in the new version of the Landscape Project mapping that is under development.

- There are over 41% more new source feature endangered and threatened species records in SOA_7 compared to SOA_6 than in the last two revisions combined, even though the time frame between revisions was comparable.
- Approximately 37% of animal records in Biotics still need to be quality-controlled.
- A schedule of releasing an updated SOA file every six months was not achieved during this segment and it will likely be closer to two years between releases when staff are able to release SOA_7 in conjunction with V. 3.1 of the Landscape Project mapping. SOA_7 needed to reflect species statuses that were proposed, but not officially adopted for the purposes of the Landscape Project development. The timeline for adoption of the statuses and thus ability to release SOA_7 has been repeatedly delayed, but is expected in early 2012.
- Rutgers University's CRSSA has suspended work on the development of an electronic submittal application, *NJ Wildlife Tracker*, until ENSP staff can review NatureServe's Kestrel product and determine if it will meet the needs that *NJ Wildlife Tracker* was meant to meet. It has the potential to be much less costly in the long run and integrate more seamlessly with the Biotics database.
- The longer the time between data exchanges with NatureServe, the more complicated they are due to the number of changes that occur. NJ's last data exchange prior to the one completed during this segment was six years ago. Future exchanges should be less complicated and more efficient if done on an annual or semi-annual basis henceforth. The technology associated with the next generation of Biotics will enable these exchanges to occur automatically because NatureServe will host the database rather than it being hosted individually by each program.

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 to further reduce backlog.
- Re-establish deadlines and work procedures to ensure an update of the SOA and Source Feature files are ready for release every six months once SOA_7 is cleared for release. Work within the program to align status reviews and status adoption timelines with SOA and Landscape Project mapping updates to avoid delays of product releases in the future if possible.
- Review NatureServe's Kestrel system and make a decision about whether or not it will replace *NJ Wildlife Tracker* for our program's online data submittal/integration with Biotics database needs and inform CRSSA of this decision. Continue open lines of communication with NatureServe so that proper preparations can be made for the roll-out in NJ of the next generation of Biotics.
- Establish a regular data exchange schedule with NatureServe.

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 ten Landscape Project GIS training/information sessions attended by a total of approximately 200 people.
- Staff coordinated and conducted GIS training and provided guidance to representatives of municipal agencies, environmental commissions, county planning agencies, state agencies, NGOs, private consulting firms, and the general public.
- In partnership with the Endangered and Nongame Species Advisory Committee (ENSAC), ENSP conducted an evaluation of the Landscape Project and its use, culminating with a special meeting that included a cross-section of stakeholders. At the meeting ENSP presented on the Landscape Project maps and heard seven presentations from Landscape Project map end-users representing federal agencies, county governments,

environmental commissions and the consultant community. Throughout the Landscape map stakeholder process, ENSP staff took detailed notes, complied main points, summarized the major issues raised, and made recommendations in a report that was reviewed by ENSAC and submitted to DEP management.

- NJDFW hosted a special stakeholder meeting for consultant foresters to discuss the Landscape Project mapping in the context of forestry management plans and activities. ENSP prepared a summary of the major issues raised during the stakeholder meeting along with ENSP responses and proposed action items.

- ENSP produced a "frequently asked questions" (FAQ) report available on the Department's website at: http://www.state.nj.us/dep/fgw/ensp/landscape/landscape_faqs.pdf. FAQs were identified primarily through feedback ENSP has received from the public through Landscape Implementation efforts and evaluation forms completed by attendees of Landscape Project training/information sessions conducted over the past seven years. Additional FAQs were identified as a result of the Landscape Project evaluation and stakeholder process described above. The FAQs report responds to some of the more common questions, concerns and criticisms raised about the Landscape Project and describes planned revision of mapping products to address concerns where appropriate.

- Staff presented on the Landscape Project at the request of the NJDEP Science Advisory Board's Ecological Processes Subcommittee as a starting point in their effort to craft a definition of "critical habitat."

- Staff presented on the Landscape Project at a Water Quality Management Planning (WQMP) stakeholder meeting hosted by the Department and provided county planners with a status update on the development of the Landscape maps in the Department's effort to coordinate county planning activities with adopted amendments to WQMP rules (N.J.A.C. 7:15-5.24) that designate environmentally sensitive areas (including endangered or threatened wildlife species habitats derived from the Landscape Project) where extensions of sewer service are not appropriate.

- ENSP GIS staff conducted two Landscape Project GIS training/information sessions at the "2011 Pinelands Short Course" sponsored by the NJ Pinelands Commission and Burlington County College's Pinelands Institute for Natural and Environmental Studies.

- The completion of a landscape ecology presentation to be made available on the ENSP website was delayed in order to incorporate new information that will be made available upon update of the Landscape Project mapping.

- Staff continued to update mapping for Division of Land Use Regulation (DLUR) to support implementation of 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 continues to participate in the "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 continues to coordinate 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 incorporate into future Department RFPs for the development of forestry stewardship plans.

- ENSP GIS staff has completed participation in the NJ Geospatial Forum Preserved Lands/Open Space Task Force as members of the research and attributes subgroups and are now working within the methodology subgroup that aims to develop protocols for the creation and management of 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.
- Communication and information on the Landscape maps and their limitations is vital as the Department incorporates the mapping into rules and regulations.
- The Landscape Project evaluation and stakeholder process yielded constructive feedback and advanced understanding of the Landscape Project in the various contexts in which it is applied. Four key lessons emerged from the process. First, the Landscape maps are a valuable tool for a wide range of users. While regulatory implications of the mapping tend to pervade discourse, it is also true that consultants, environmental commissions, planners and other stakeholders are applying the Landscape Project voluntarily in contexts other than land-use regulation, such as conservation planning. Second, while use of Landscape Project in land-use regulation was the most controversial issue raised, such use *is appropriate* provided that rules do not treat maps as determinative and allow for closer examination of habitat values to further clarify or even dispute any presumption provided by the maps. Third, many of the perceived problems with the maps and their use are the result of misunderstanding and misinformation. Lastly, many of the specific issues raised on the design of the mapping will be addressed when ENSP completes the version 3.0 approach on a statewide scale and through further research and development carried out by ENSP.
- The FAQs report was an effective way to address many of the common questions, concerns and criticisms raised about the Landscape Project and will be a useful information and education tool.
- Maintaining a GIS layer depicting habitat of threatened or endangered animal species that are "critically dependent on regulated waters for survival" continues 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 will expand our ability to develop biodiversity objectives benefitting at-risk species. The development of a standard database schema containing attributes relevant to biodiversity concerns has been and 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 appropriate application of Landscape Project maps to land-use regulation and conservation planning. In doing so, the Department will continue to afford transparency and predictability to the land-use permitting and development process.
- Continue to promote the integration and use of Landscape Project GIS data among and municipal and county planners.
- Produce materials upon the next update to the Landscape Project to support the training and information program including map book, data CDs, printed reports, presentations, tutorials, and other supplemental products in order to facilitate use of the Landscape Project's wildlife habitat mapping.
- Continue to provide assistance and GIS data updates to DLUR in support of FHACA application reviews.
- 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.