

**State Wildlife Grants**  
**T-11-T-1**  
**F13AF01046**

**Landscape Conservation Tools and Technical Guidance**

**Interim Report for Project Year**  
**September 1, 2013 – August 31, 2014**

**NJ Department of Environmental Protection**

**DIVISION OF FISH AND WILDLIFE**  
**ENDANGERED AND NONGAME SPECIES PROGRAM**  
**P.O. BOX 420**  
**TRENTON, NJ 08625**



## PERFORMANCE REPORT

**STATE:** New Jersey

**PROJECT NUMBER:** T-11-T-1

**PROJECT TYPE:** Research and/or Management

**PROJECT TITLE:** Landscape Conservation Tools and Technical Guidance

**STUDY NUMBER AND TITLE:** 1. The Landscape Project

**PERIOD COVERED:** September 1, 2013 to August 31, 2014

**JOB NUMBER AND TITLE:** 1A. Landscape Project Mapping

Prepared by: Patrick Woerner

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

### Key Findings:

- All Landscape Project GIS data continued to be made available in both shapefile and file geodatabase format and are fully documented with Federal Geographic Data Committee (FGDC) compliant metadata. The data is served on the NJDEP Bureau of GIS website for download (<http://www.nj.gov/dep/gis/landscape.html>) as well as on the NJDEP interactive mapping application ([NJ-GeoWeb](#)).
- A new Landscape base layer was completed from a revised version of the 2007 Land Use/Land Cover (LULC).
- Using ArcGIS Model Builder, GIS staff created models to complete all aspects of Landscape Project Mapping. Incorporating all aspects of Landscape creation within the ArcGIS platform will enable a more automated, standardized and efficient process.
- A draft of Version 3.2 of the Landscape Project was completed and will be made available for internal review. Version 3.2 is estimated to be release in early 2015.

### Conclusions:

- Pending internal review, Version 3.1 will be updated to Version 3.2 based on revised 2007 LULC and new species occurrence area (SOA) data.
- Creating a statewide version of the Landscape Project that incorporates Version 3 methodologies continues to be time consuming. If more detailed and species-specific mapping is going to be developed then more staff time and resources must be devoted to Landscape Project mapping.
- ENSP GIS staff dedicated to the Landscape Project has been reduced by half as of the end of this interim reporting period. Additional staff resources will need to be dedicated to continue development and maintenance of the project.

### Recommendations:

- Continue work on developing a plan for releasing the Landscape Project products and, to the extent possible, minimize delays in product updates.
- Begin work on Version 3.3 of the Landscape Project in early 2015 by creating a new Landscape base layer based on the 2012 LULC (not yet available) and updated SOA data.
- Continue to develop modeling within the ArcGIS platform that will speed up the update process.
- Continue the peer review process on new methodologies as they are developed.

- Dedicate additional staff resources and/or funding and refill lost position to support the update and maintenance of the project.

**JOB NUMBER AND TITLE: 1B. Training, Information and Technical Guidance Program**

Prepared by: 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:

- Provided six Landscape Project GIS training/information sessions attended by a total of approximately 275 people.
- Continued to provide the Landscape Project Training and Information Webinar program over Citrix GoToWebinar software to allow users to participate remotely.
- GIS staff met with Atlantic City Electric (ACE) and DEP's Division of Land Use Regulation (DLUR) to review and offer feedback on their cloud-based, Environmental Geospatial Resource and Engineering Tool (EGRET). ACE was in the process of developing EGRET and GIS layers, including Landscape Project data, to use for ROW maintenance projects and associated permitting. EGRET is described here: <http://delawareestuary.org/sites/default/files/S9%20Edelstein.pdf>
- In partnership with the Office of Mosquito Control, ENSP staff met with all the county Mosquito Commissions to present on the use of Landscape Project GIS data field questions about streamlining the permit review process between the commissions and the DEP.
- ENSP GIS staff presented "*Wildlife Habitat Mapping for Community Land-use Planning and Species Conservation*" at the 2014 Esri Mid-Atlantic User Conference held in Baltimore, MD. The presentation focused on GIS methods and ArcGIS Model Builder tools used to develop Version 3.1 of the Landscape Project.
- Staff presented on Landscape Project Version 3.1 at Rutgers University 2014 GIS Day.
- ENSP GIS staff won two 1<sup>st</sup> place awards ("Best Application/Use of GIS" and "Most Informative") at the Burlington County 2014 GIS Day Map Contest for a map entitled, *New Jersey Landscape Project 3.1*.
- Coordinated with Rowan University's Geospatial Research Lab to incorporate Landscape Project data and municipal-level metrics on endangered and threatened species habitat into Rowan's New Jersey Municipal Asset Profiler (NJ MAP) web mapping platform: <http://njmap.rowan.edu/about.html>.
- Staff provided guidance on Landscape Version 3.1 to the NJ Forest Service for incorporation of data in the Whiting Wildlife Management Area Natural Resource Stewardship Plan and in a plan for Double Trouble State Park.
- ENSP GIS staff supported Rutgers University Center for Remote Sensing and Spatial Analysis (CRSSA) on a DEP-contracted "No Net Loss Habitat Conservation Planning" project by providing applicable GIS data derived from the Landscape Project.
- 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.

Conclusions:

- Landscape Project data serves as a vital basis for analysis such as habitat prioritization and environmental review.
- Providing Landscape Project GIS training and information sessions is an essential means of disseminating guidance information and proactively addressing potential misinterpretation and misuse of Landscape Project products.
- Communication and information on the Landscape maps and their limitations are vital as the Department incorporates the mapping into rules and regulations.

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 development and use of the GoToWebinar tool to support outreach and dissemination efforts.
- Continue to promote the integration and use of Landscape Project GIS data among and municipal and county planners.
- Continue to meet with public land managers and others as opportunities arise to promote integration of wildlife habitat management into existing or developing management plans
- Produce materials upon the next update to the Landscape Project to support the training and information program including printing of reports, presentations, tutorials, and other supplemental products in order to facilitate use of the Landscape Project's wildlife habitat mapping.

## **JOB NUMBER AND TITLE:** 2. Biotics Database

Prepared by: Gretchen Fowles

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

### **Key Findings:**

- ENSP continued the contract with the Conserve Wildlife Foundation of NJ (CWF) for professional 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 2,241 additional rare animal records during the 2013-14 segment, 467 from the public and 1,774 from ENSP staff. Approximately 2,027 rare animal records were entered into Biotics. There remains a backlog of approximately 636 endangered and threatened species records that have been reviewed and accepted by biologists and are awaiting entry into Biotics.
- Staff exported data, developed, and released Version 10 of the Species Occurrence Area (SOA), Sensitive Area, and Source Features files in December. SOA\_10 will be used to update V. 3.1 of the Landscape Project mapping in early 2015. There were approximately 491 new source feature records with rank 3, 4 or 5 (state or federally endangered or threatened species) included in SOA\_10.
- Staff continued to participate in the pilot roll-out of NatureServe's Kestrel, a mobile observation system that is a component of the next generation of the Biotics database (Biotics 5), and which will allow for online data entry of observation data as well as integrate with the Biotics database. NatureServe has not yet switched their focus to further development of Kestrel.
- Staff have participated in NatureServe-led webinars and worked with a pilot review application of Biotics 5 to become familiar with the new version and understand what preparations will need to be made prior to the conversion.
- New Jersey converted to Biotics 5 in January 2014. Biotics 5 is a cloud-based version which will enable biologists to have direct access to species data. The conversion to Biotics 5 enables automatic data exchanges, unlike the previous system that entailed about a week of staff time. The previous version of Biotics had been in use by ENSP for almost 10 years.
- There were no outreach efforts this reporting period related to the rare species database, procedure for submitting data, and how the data is used.

### **Conclusions:**

- The number of rare animals records received (2,241) was higher than the last reporting period (2,032). Biotics staff entered fewer records into Biotics than were received during this segment. The number of records in the backlog has decreased for the first time in the past three years: 558, down from 889 and 1,134 previously.
- Approximately 39% 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 to avoid releasing an updated version of the SOA immediately prior to the release of the Landscape Project mapping that is based on Version 10.
- A customized NJ system of NatureServe's Kestrel product continues to be used by ENSP staff on a limited basis. It has the potential to be much less costly in the long-term and integrate more seamlessly with the Biotics database than *NJ Wildlife Tracker*. There are known updates NatureServe plans to make to the product, but their focus is on the full release of Biotics 5 first, and new developments on Kestrel have not yet occurred.
- Staff successfully completed the conversion to Biotics 5 in January 2014.

### **Recommendations:**

- Continue to follow the deadlines and work procedures put in place to ensure an update of the SOA and Source Feature files are ready for release every six months.

- Continue to communicate with NatureServe regarding upgrades to Kestrel so that we may utilize more fully in the future for public submission of data and streamlined integration with Biotics 5.
- Develop new work procedures for data entry and database maintenance as needed to streamline the processes post conversion to Biotics 5.
- Continue to allow a small number of staff in field offices to enter data into Biotics to help with the backlog of data entry and quality control. Hire contract employees and seasonal interns as funding allows to further reduce backlog and increase data entry.
- Continue to work with NatureServe to encourage updates to Kestrel that will make it a good solution for public rare data submittal.

## **JOB NUMBER AND TITLE:** 3. Habitat Connectivity Project

Prepared by: Gretchen Fowles

Objective: To develop a strategic plan for wildlife conservation that will identify key areas and the actions needed for preserving and restoring habitat connectivity for terrestrial wildlife in New Jersey.

### Key Findings:

- ENSP continued to engage the Full Working Group as well as core teams: Mapping, Guidance Document, and Communication, to develop the habitat connectivity project, now called Connecting Habitat Across New Jersey, or CHANJ. There are over 100 individuals in the Full Working Group, over 40 on the Mapping and Guidance Document core teams, and over 20 on the Communication core team made up of partners from both government and non-government agencies. ENSP maintains a working group website with meeting notes and resources and holds two webinars annually to engage the full working group. The Communication team, led by ENSP, has developed a CHANJ Bulletin that is sent out quarterly to the Full Working Group that describes progress being made on the project as well as other habitat connectivity work taking place in New Jersey. ENSP holds in-person meetings bi-monthly for each of the core teams to continue to develop the project.
- ENSP staff organized and led six bi-monthly meetings for the Mapping core team during the reporting period to work on development of the GIS-based map.
  - A list of 127 terrestrial, native species was compiled for which habitat core and corridor mapping will be developed. Ecological information and available location data was compiled for each of the species to inform and validate the mapping.
  - The team decided to use GIS tools made available by the Washington Wildlife Habitat Connectivity Working Group to map the habitat cores and corridors in New Jersey: Core Mapper and Linkage Mapper. A landscape integrity approach, or areas least modified by humans, will be used to identify the base input habitat layers. Given the diverse array of species that the mapping is targeting, the species were grouped by the team into 6 broad guilds representing different habitat associations and movement capabilities for which habitat cores and corridors will be developed.
  - The team decided to develop the mapping methodology in one region of the state first, the Skylands region, and then apply it to the other regions in the state as well as a buffered area outside of the NJ state boundary. Preliminary cores areas for each of the guilds were developed in the Skylands during the reporting period.
  - Documentation of the GIS methods used is occurring as the mapping is being developed.
- ENSP staff organized and led six bi-monthly meetings for the Guidance Document core team during the reporting period to work on development of the guidance document. ENSP staff also organized and led nine monthly meetings for a Roads and Wildlife Working Group made up of CHANJ partners from DOT, USFWS, and DEP (Division of Land Use Regulation and ENSP) to develop roads and wildlife specific guidance document content.
  - The team drafted an outline of the elements to include in the Guidance Document and began fleshing out some of those elements including an FAQ section, a draft economic feasibility report, guidelines for habitat restoration and maintenance, best management practices for wildlife road crossing structure design by species guild.
- ENSP staff have not yet provided technical guidance on CHANJ because the project is not yet complete, but groundwork is being laid to develop tools and materials for providing technical guidance when the products are ready for release.
  - The Communication team began drafting a communication strategy from which a work plan will be generated that includes tools and materials for promoting the project.
  - The Roads and Wildlife Working Group is developing mechanisms and tools for transparent and proactive incorporation of wildlife passage concerns into the road project planning process.



- A draft of the CHANJ products are not yet complete, but projects that enhance habitat connectivity are occurring in New Jersey, through land protection, management and restoration, and road mitigation.
  - ENSP staff continued to prepare and test tools needed for project monitoring, such as remotely triggered cameras as well as collaborate with partners to collect data that will inform the project, such as wildlife on-road data and a culvert inventory.
  - ENSP staff continued to regularly meet with land managers and planners and transportation planners, through the Roads and Wildlife Working Group, to provide critical review and develop project that will enhance habitat connectivity where appropriate.
  - ENSP began developing an offline database to track wildlife/road crossing projects and is researching mechanisms for tracking implementation of CHANJ related projects in anticipation of the release of the products.

#### Conclusions:

- Successfully engaging a multi-partner, multi-disciplinary working group to develop Connecting Habitat Across New Jersey, including three core teams: Mapping, Guidance Document, and Communication.
- Several key decisions were made by the Mapping team regarding the modeling of wildlife habitat cores and corridors. The mapping methodology is being developed in the Skylands region of the state first, with preliminary core areas delineated, and will then be implemented in the remaining regions of the state as well as a buffered area outside of the state boundary.
- The Guidance Document team drafted an outline of the document and began expanding on a few of the sections.
- ENSP has not provided technical guidance for CHANJ projects explicitly, but the Communication team and Guidance Document team are working on mechanisms, tools, and materials for the provision of such technical guidance.
- ENSP staff are researching and testing the tools that will be needed for future phases of CHANJ including project monitoring and tracking.

#### Recommendations:

- Continue to engage and lead Full Working Group and Core Team members to develop and seek feedback on Connecting Habitat Across New Jersey.
- Continue to lead the Mapping team and finalize the habitat core and corridor mapping methodology, and the documentation of that methodology, in the Skylands region by the first quarter of 2015, and then work on implementing the methodology to the other regions in the state and to a buffered area outside of the state boundary.
- Continue to lead the Guidance Document team and Roads and Wildlife Working Group and complete a draft of the key sections of the guidance document, as identified by the team, by the first quarter of 2015.
- Continue to lead the Communication and Guidance Document teams in efforts to develop mechanism, tools, and materials that will help with providing technical guidance on CHANJ when it is released.
- Continue to research and tools related to project monitoring and tracking, including continuing to collaborate with partners to collect data that will inform the project.
- Continue to stay abreast of research and ideas on habitat connectivity.

## **JOB NUMBER AND TITLE:** 4. Habitat Change Analysis

Prepared by: Patrick Woerner

Objective: Develop and conduct habitat change analysis that will allow for the ongoing examination of wildlife habitat transition and fragmentation trends over a time.

### Key Findings:

- ENSP continued to collaborate with the Geospatial Research Laboratory at Rowan University on a pilot study that analyzes wildlife habitat change. A GIS analysis methodology was established as well as several reporting components. Preliminary results that included crosstab tables summarizing habitat change, were completed for ten species (Arogos skipper, barred owl, yellow-crowned night-heron, bobcat, bobolink, golden-winged warbler, Indiana bat, northern harrier, timber rattlesnake, wood turtle). ENSP biologists reviewed results, provided input, and decided to expand the analysis for the remaining threatened and endangered species.
- ENSP staff collaborated with GeoLab to develop and execute automated geo-processing and statistical routines to analyze habitat change taking a programmatic, reproducible approach for ongoing examination of wildlife habitat transition and fragmentation trends over time.
- ENSP staff developed habitat base layers from available (1986, 1995, 2002 and 2007) Land Use/Land Cover (LULC) data (2012 LULC is not yet complete) to create a consistent basis for comparative analysis.
- ENSP developed a GIS file of regions bounded by major roads to serve as standard “analysis units” when overlaid by a given species range extent.
- ENSP generated range extents for 59 species covering 66 unique species-occurrence type combinations. Range extents were typically developed by applying minimum bounding geometry in the form of a convex hull to available species occurrence data. Where occurrence data was spatially disparate, separate hulls were generated for a given species-occurrence type combination. Finally, range extent polygons were hand-edited to accurately represent the occupied range and to generally conform to habitat regions bounded by major roads.
- Habitat associations based on 1986, 1995, 2002, and 2007 LULC level III Anderson codes were developed for each of the 66 unique species-occurrence type combinations.
- ENSP staff coordinated with GeoLab to determine reporting components and habitat change summarization formats. For reporting and interpretive purposes LULC codes were grouped into 18 distinct habitat categories.
- ENSP has received 70% of the deliverables from Rowan University’s GeoLab. GeoLab has provided PostgreSQL database and scripts to perform the habitat change analysis as well as geodatabases with feature class outputs for each species analyzed. GeoLab will be providing habitat change analysis reports and user documentation over the course of the next several months.

### Conclusions:

- Implementing a programmatic approach to analysis has proved an effective and efficient way of obtaining nuanced multi-level estimates of habitat change for an extensive list of species.
- The development of species range extent data products can have ancillary benefits for other conservation planning projects (e.g., no-net-loss habitat conservation plans).
- ENSP review of preliminary outputs confirmed that analysis results will be a useful component to determine trends in habitat loss and conversion and for development of species status assessments/recovery plans.

### Recommendations:

- Continue to collaborate with GeoLab to research and develop GIS and statistical routines to analyze wildlife habitat change and fragmentation utilizing a programmatic approach.

- When available, incorporate the 2012 LULC into database, analysis routines and report outputs.
- Update species range extents as new data becomes available.
- Gain proficiency in leveraging PostgreSQL and PostGIS in order to manage habitat change database and run automated scripts to produce data outputs and reporting components.
- Coordinate with GeoLab to develop municipal-level metrics on habitat change and fragmentation to be displayed using Rowan's "NJ MAP" web mapping platform.
- Develop guidance documents and interpretive products to package with analysis outputs to guide use and application of change data.

## **JOB NUMBER AND TITLE: 5. Technical Guidance on Behalf of SGCN**

Prepared by: John Heilferty

Objectives: To identify opportunities and potential impacts to SGCN populations and habitat essential for the long term viability of rare species populations. Provide guidance and generate applicable GIS data for projects, proposals, and management plans in order to minimize adverse effects and maximize beneficial effects to endangered, threatened, special concern and rare wildlife.

### **JOB 5A. Project Review**

Key Findings:

- Within this reporting period over 39 state, federal, and local agencies requested input and guidance from ENSP on projects and activities related to SGCN wildlife and habitats, resulting in 508 reviews completed by ENSP staff. A listing of the reviews by category is found in Table 1.
- ENSP biologists conducted an extensive preliminary review of the Pilgrim Pipeline; a pipeline that may potentially be submitted for formal review through the Land Use Permit application process.
- ENSP biologists have continued to review and provide technical assistance on three major projects proposed by utility companies that entailed the expansions of and/or upgrades to existing rights-of-way and a metering station. The scope and extent of these applications has continued to demand a major time investment from ENSP staff in order to fully assess the potential impacts to threatened and endangered (T&E) species and advise the Division of Land Use Regulation and the applicants on concerns about habitat loss to T&E wildlife and, where appropriate, provided suggestions on how to avoid or mitigate these impacts. These major reviews were still counted as one review each (in Table 1), but like most long, linear projects, the rights-of-way projects required a lead review biologist and assistance from other biologists to protect state-listed species. These projects included:
  - PSE&G Roseland-Susquehanna Line
  - Tennessee Gas Pipeline, Northeast Upgrade
  - Tennessee Gas - Spectra Energy, Mahwah Metering Station Upgrade
- Staff provided comments a wide range of projects, for example:
  - Proposed developments within the Coastal Areas Facilities Review Act (CAFRA) zone.
  - Dam repair at Yards Creek Reservoir, Warren County, NJ.
  - Proposed expansion of sewer service area in Manchester Twp.
  - Habitat management strategies to benefit rare wildlife on land acquired by the NJ Conservation Foundation (Tranquility Ridge).
  - An informal review of a proposed parking area on state lands within rare snake habitat; Splitrock Reservoir/Wildcat Ridge.
- Staff participated in meetings regarding and provided comments on the proposed plan for the Mullica River Wetland Mitigation Bank, Township of Evesham, Burlington County, NJ.
- Staff assisted NJ DEP Emergency Response and private/nonprofit staff (Tri-State Animal Rescue) staff following an oil spill in Washington Township, Gloucester County, NJ.
- Staff worked with NRCS biologists on a new program, Working Lands for Wildlife, which focuses on managing early successional habitat specifically to benefit golden-winged warblers. ENSP staff worked with NRCS biologists to assess and provide guidance for applicants interested in participating in this program.
- Staff spent extensive time addressing questions and concerns about the proposed Weldon Brook WMA Forest Stewardship Plan and the need for young forest management in the northern part of the state for golden-winged warblers and other species.
- Staff continued to consult with other DEP agencies and the USFWS on bald eagle nest area protections in the face of utility line upgrades and proposed developments. ENSP biologists worked with USFWS to develop conditions included in Bald and Golden Eagle Protection Act permits in two utility situations. Biologists also

spent time considering critical habitat protection at two other bald eagle nest sites where intensive developments are planned. These consultations will continue into the next year.

- Staff reviewed projects on the behalf of HUD (action agency) relating to the rebuilding of Hurricane Sandy homes in the coastal zone to determine if the proposed plans had the potential to negatively impact federally listed species piping plover and red knots and whether consultation with USFWS would be initiated. Staff also reviewed projects relating to state listed species to determine what, if any, impacts were expected and how to mitigate or prevent those impacts.
- Staff performed 25 project reviews (see T-11-T-1 table) related to Hurricane Sandy Housing and Urban Development (HUD) Community Development Block Grant (CDBG) environmental assessments. Taken together, the projects reviewed involved 125 parcels totaling approximately 405 acres.
- Staff spent significant time working on two committees of the Atlantic States Marine Fisheries Commission. For the Delaware Bay Ecosystem Technical Committee, staff conducted data analysis, reviewed reports, stock assessments and harvest allocation recommendations, and other duties in preparation for bi-annual meetings. For the Adaptive Resource Management (ARM) Subcommittee, staff contributed red knot data (aerial survey, resightings of marked birds) and technical guidance for developing annual harvest allocation with ARM Model (implemented in 2013).
- Staff continued to provide annual data to update red knot status on Delaware Bay and technical guidance and data for the U.S. Fish and Wildlife Service's red knot listing proposal and critical habitat designation.
- Staff spent significant time reviewing coastal development projects, related to Superstorm Sandy, for potential impact to federal species. Reviews covered elevation of existing structures to new state/FEMA standards, new coastal hardening projects (private landowners), extensive coastal beach-fill projects (USACE), and debris removal (NJDEP).
- In August, staff began to spend significant time on review of permits for intertidal oyster aquaculture in Delaware Bay. This activity is likely to continue to require involvement of several ENSP staff, both permit review and development of guidance.

#### Conclusions:

- Within this reporting period over 39 state, federal, and local agencies requested input and guidance from ENSP on projects/activities related to SGCNs and their habitat, with 509 reviews completed by ENSP staff. As such, ENSP clearly serves an instrumental role in representing the needs of rare wildlife on behalf of the NJDEP.
- Interstate and Flyway organizations, particularly when sanctioned by state agencies, have a high likelihood of producing near-term, population-scale benefit for SGCN via standardized methods, comparable trend and other data, prioritized conservation action and regional implementation.

#### Recommendations:

- This job should continue to be funded continuously since it allows ENSP staff to thoroughly consider impacts to endangered, threatened, special concern and nongame wildlife habitat in the course of permit and environmental review.

<b>Table 1. Number of reviews and consultations conducted by ENSP by category during 9/1/13-8/31/14.</b>	
<b>1. State: reviews</b>	
DEP Land Use Regulation Program (Freshwater Wetland Act, CAFRA, Waterfront Development, Stream Encroachment, Highlands Act, Pinelands Act)	126
Sandy Related: HUD/CDBG/Debris removal Reviews	54
Division of Watershed Management	2
Division of Water Quality, Surface Water Permitting	4
Office of Program Coordination and Environmental Review	29
Office of Dredging and Sediment Technology	2
Office of Permit Information and Assistance	
Division of Parks and Forestry	2
NJDEP Review of Activities Proposed for N&HR-Administered Lands and Waters	57
Division of Solid and Hazardous Waste Management	2
Site Remediation Program	1
Bureau of Wastewater Management	
Office of the Commissioner	1
New Jersey Department of Transportation	6
New Jersey Pinelands Commission	
Office of Policy, Planning and Science	2
Office of Sustainability and Green Energy	
Bureau of Land Management	11
Division of Fish and Wildlife, Exotic and Nongame Permits Office: Scientific Collecting Permits	125
<b>2. U.S. Government: reviews and consultations</b>	5
U.S. Fish and Wildlife Service	10
Army Corps of Engineers	1
FEMA	1
Nuclear Regulatory Commission	1
National Marine Fisheries Service	
National Park Service	4
Natural Resource Conservation Service	16
Environmental Protection Agency	1
Federal Energy Regulatory Commission	1
U.S. Military: Army, Navy, Air Force, Coast Guard	4
<b>3. Interstate Commissions, etc.: reviews and consultations</b>	1
Delaware River Basin Commission	1
NY/NJ Port Authority	1
Atlantic States Marine Fisheries Commission	3
Meadowlands Commission	
Atlantic Flyway Council	2
US Fish & Wildlife Service, Atlantic Coast Joint Venture	5
Other officially recognized interstate committees and cooperatives	3
<b>4. County and Local Entities: reviews and consultations</b>	
County Mosquito Commissions	5
County and Local Park Commissions	
Watershed Associations	
Local and Regional Environmental Commissions	4
<b>5. Private, Non-Profit Conservation Organizations: reviews</b>	
National Fish and Wildlife Foundation	1
State and county Federations of Sportsmen's Clubs	
The Nature Conservancy, Natural Lands Trusts, NJ Audubon, NJ Conservation Foundation, etc.	13
Other (other direct-contact project reviews)	1
<b>Total:</b>	<b>508</b>

**JOB NUMBER AND TITLE: 5B. Policy and Planning**

Prepared by: John Heilferty

Key Findings:

- ENSP completed development of two sets of GIS layers to screen Hurricane Sandy HUD CDBG projects for potential impacts to endangered and threatened wildlife species that covers a nine-county area: Atlantic, Bergen, Cape May, Essex, Hudson, Middlesex, Monmouth, Ocean, and Union. The first set of layers were specifically designed to conduct screening for HUD Tier 2 activities in order to avoid potential impacts to nesting and non-breeding concentration areas of piping plover (Federally listed) and red knot (Federally proposed). A second set of layers were specifically designed to conduct screening as part of environmental assessments for HUD non-tiered activities in order to avoid potential impacts to Indiana bat (Federally listed), Northern long-eared bat (Federally proposed) and State-listed animal species. All GIS layers were made available to DEP contracted reviewers via an ArcGIS Online application called NJDEP HUD Environmental Review Tool 2.1. The tool is available at: <http://www.arcgis.com/home/item.html?id=ac492b24c7cc472ea5cf2f57cfaf65ab>
- ENSP staff reviewed and commented on deliverables received from Rutgers University on a DEP-contracted “No Net Loss Habitat Conservation Planning” project. Deliverables included a white paper entitled “Creating a More Effective Protection of Endangered and Threatened Species Habitat through Conservation Banking” and partial GIS outputs of “habitat value” for a subset of endangered and threatened species. The GIS modeling to determine habitat value and the proposed no-net-loss process was found to have limited utility.
- Continued to coordinate with the Division of Land Use Regulation (DLUR) and the Bureau of GIS (BGIS) to carry out GIS data development work for the migration of information from the Department’s wetland mitigation database (WETMIT) to its centralized NJEMS database and creation of GIS data layers of wetland mitigation site locations, bank locations and bank service areas for use by Department staff, Federal agencies and the general public via the Department’s interactive mapping website.
- ENSP contributed to updating the NOAA Delaware Bay and Southern NJ Environmental Sensitivity Index (ESI) atlas that is used for oil spill response and planning by NOAA, USCG, and state agencies. ENSP reviewed final mapping products and offered guidance on compiled distribution and abundance data for species likely to be impacted during a spill in the project study area. The updated atlas data is available at: <http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html#NewJersey>
- Developed a GIS file of road-bounded blocks on state lands to facilitate coordination between ENSP and the Division of Parks and Forestry. The Forest Fire Service and ENSP will use the block data to propose spatially explicit management activities that benefit, and/or minimize adverse impact to, endangered and threatened species populations.
- ENSP GIS staff provided species data to NJDEP, Division of Fish and Wildlife’s Bureau of Law Enforcement (BLE) to assist Conservation Officers in preventing and deterring illegal collection of endangered and threatened wildlife species. The spatial data provided contain bog turtle, freshwater mussel, and snake sites potentially susceptible to illegal collection. Spatial data were incorporated into BLE’s Environmental Police Conservation Enforcement and Management System (EPCEMS) so that Conservation Officers can access digital species maps in their vehicles while conducting patrols. This initial effort to programmatically share endangered and threatened species site data with BLE has served as a basis for increased coordination between ENSP and BLE.