State Wildlife Grants
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Landscape Conservation Tools and Technical Guidance

Interim Report for Project Year
September 1, 2014 – August 31, 2015

NJ Department of Environmental Protection

DIVISION OF FISH AND WILDLIFE
ENDANGERED AND NONGAME SPECIES PROGRAM
P.O. BOX 420
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NEW JERSEY DIVISION OF
Fish and Wildlife

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

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, 2014 to August 31, 2015

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).
- ENSP GIS staff dedicated to the Landscape Project was reduced by half as of the beginning of this interim reporting period (9/1/2015). Additional staff resources have not been dedicated to continue development and maintenance of the project at the level necessary.
- Release of Landscape Version 3.2 has been delayed after internal QA/QC revealed there were errors in the draft dataset. Given limited staff resources, additional GIS work required for the Wildlife Action Plan update (Conservation Focal Area mapping), and the pending release of the 2012 Land Use/Land Cover (LULC), ENSP decided not to make corrections to the draft dataset and instead opted to wait before embarking on the creation of a new version of the Landscape Project based on the 2012 LULC.
- A new Landscape Project base layer incorporating the most recently available (2012) Land Use/Land Cover (LULC), riparian corridor, and updated roads data has been completed.
- Creation of the next version of the Landscape Project is awaiting the completion of an update to species occurrence area (SOA) data.
- Using Python scripting and ArcGIS geoprocessing models, GIS staff continues to work on automating aspects of Landscape Project Mapping. Incorporating all aspects of Landscape creation within the ArcGIS platform will enable a more automated, standardized and efficient process.

Conclusions:

- Refilling lost staff resources will be necessary to continue development and maintenance of the project.
- Pending completion of the species occurrence area (SOA) data, work on creating the next version of the Landscape Project can proceed.
- 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 (in addition to filling the lost position).

Recommendations:

- Refill lost position and dedicate additional staff resources and funding to support the update and maintenance of the project.
- 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 3.2 of the Landscape Project when updated species occurrence area (SOA) data are complete.
- 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.

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:

- Landscape Project GIS training/information sessions were put on hold due to a reduction in staff and the delay of the mapping update.
- Continued to provide the Landscape Project Training and Information Webinar program over Citrix GoToWebinar software to allow users to participate remotely, upon request.
- GIS staff met with the Office of Mosquito Control to offer guidance on the use of Landscape Project GIS data and streamlining the permit review process between the commissions and the DEP.
- ENSP GIS staff provided a presentation, and responded to inquiries, on Landscape Project Version 3.1 to NJDEP upper management and the New Jersey Builder's Association (NJBA).
- Continued to coordinate 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 and support on Landscape Version 3.1 to the Green Acres Program for incorporation of data in the prioritization of acquisition projects.
- ENSP GIS staff supported the Division of Land Use Regulation (DLUR) by providing applicable analysis and GIS data derived from the Landscape Project for regulatory reviews.
- 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:

- Additional staff resources will need to be dedicated to continue development and maintenance of the project.
- 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.
- Maintaining a viable statewide training, information and technical guidance program on the Landscape Project is time consuming. While the level of staff resources has been reduced, the level of demand for such training and guidance has not. For it to be maintained and developed further, more staff time and resources must be devoted to the program.
- Communication and information on the Landscape maps and their limitations are vital as the Department references the mapping in various rules and regulations and continues to incorporate the mapping into policy decisions.

Recommendations:

- Dedicate additional staff resources and/or funding and refill lost position to support the update and maintenance of the project.
- 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 2,542 additional rare animal records during the 2014-15 segment, 465 from the public and 2,077 from ENSP staff. Approximately 2,042 rare animal records were entered into Biotics. There remains a backlog of approximately 956 endangered and threatened species records that have been reviewed and accepted by biologists and are awaiting entry into Biotics.
- Staff exported data, developed, and are finalizing for release Version 11 of the Species Occurrence Area (SOA), Sensitive Area, and Source Features files. SOA_11 will be used to update V. 3.1 of the Landscape Project mapping. There will be approximately 1,472 new source feature records with rank 3, 4 or 5 (state or federally endangered or threatened species) included in SOA_11.
- 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.
- 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 (2,542) was higher than the last reporting period (2,241). Biotics staff entered fewer records into Biotics than were received during this segment. The number of records in the backlog has increased by close to 400 records.
- Over 40% 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 due to staff changes and uncertainty about which version of the SOA would be used to update Landscape Project mapping.
- 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 been made.

Recommendations:

- Work to get back on track following 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 and encourage upgrades to Kestrel so that we may utilize it 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.

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 one to 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 approximately bi-monthly for each of the core teams to continue to develop the project. ENSP also gave presentations on CHANJ at the Northeast Transportation & Wildlife Conference and the Passaic River Institute Conference during the reporting period.
- ENSP staff organized and led four bi-monthly meetings for the Mapping core team during the reporting period to work on development of the GIS-based map. The two most recent meetings were held jointly with the Guidance Document core team.
    - The team used 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, were used to identify the base input habitat layers. The team had previously grouped the species that the mapping is targeting into 6 broad guilds representing different habitat associations and movement capabilities. Three of the guilds represented water dependent species and three represented more generalist species. Habitat core areas were developed for each of the 6 guilds, but upon review it was decided to proceed with mapping for just the three generalist species guilds because the mapping of aquatic connectivity was outside the realm of the goal of CHANJ, which is to identify habitat cores and corridors that are critical for the long-term viability of terrestrial wildlife populations. Mapping aquatic connectivity for the water dependent species will need to be done in a future phase and it was decided should not hold up progress on the current mapping. The team then modeled corridors between the core habitat areas for two of the generalist species guilds: high mobility and moderate mobility. Corridors were not developed for the low mobility guild because there was extensive overlap between the moderate and low mobility guild habitat cores and thus there would have been for the corridors for the two guilds as well. The low mobility habitat cores areas, though, will likely be one of the end mapping products released to assure connectivity needs for that guild are considered by implementers.
    - The draft habitat core mapping for the three generalist guilds: high, moderate, and low mobility captured a minimum of 70% of the validation set of species location data per species guild. The draft habitat core and corridor mapping for the high mobility guild captured 84% of the species location data for that guild. The draft moderate mobility habitat core and corridor mapping captured 91% and 93% of the species location data for the moderate and low mobility guilds respectively. The draft moderate mobility habitat core and corridor mapping also captured between 83% and 97% of the species location data for the three water dependent species guilds for which mapping was not developed.
    - The team decided to develop the mapping methodology in one region of the state first, the Skylands region, which represented a smaller area and thus less intensive computationally within

which to develop the mapping methodology. The draft mapping of habitat cores and corridors in the Skylands region will serve as a pilot project for the working group to review the draft products and provide feedback on how to make them more useable and effective for implementers. Once the review is complete, the team will then develop statewide mapping that incorporates that input and also uses newly available 2012 land use land cover data.
    - Documentation of the GIS methods used is occurring as the mapping is being developed.
- ENSP staff organized and led four approximately bi-monthly meetings for the Guidance Document core team during the reporting period to work on development of the guidance document. The two most recent meetings were held jointly with the Mapping core team. ENSP staff also organized and led six bi-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 introductory chapters to the Guidance Document and materials for the appendix, which will include for pilot release a FAQ, guidelines for habitat protection and, best management practices for wildlife road crossing structure design by species guild, and mapping methodologies for cores and corridors.
- ENSP staff has 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 is being generated that includes tools and materials for promoting the project including a public website for the project.
    - The Roads and Wildlife Working Group continues to develop mechanisms and tools for transparent and proactive incorporation of wildlife passage concerns into the road project planning process.
- A draft of the statewide 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.
- Draft mapping methodology was developed and implemented in the Skylands region for the habitat core and corridor modeling of the state. The mapping will serve as a pilot for review by the working group to provide feedback on how it could be improved to make the end products most useable by implementers of habitat protection, management, restoration, and road planning. The input will then be incorporated into the development of the statewide habitat core and corridor mapping.
- The Guidance Document team drafted various chapters and appendices that will be released with the Skylands Region draft mapping for review by the working group as part of the pilot.

- 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 release and get feedback on the draft habitat core and corridor mapping in the Skylands region by the fourth quarter of 2015, and then work on implementing the methodology across the whole state to develop the final statewide CHANJ mapping products.
- Continue to lead the Guidance Document team and Roads and Wildlife Working Group and finalize draft documents for release with draft Skylands Region mapping.
- 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 Project (HCAP)
Prepared by: Patrick Woerner

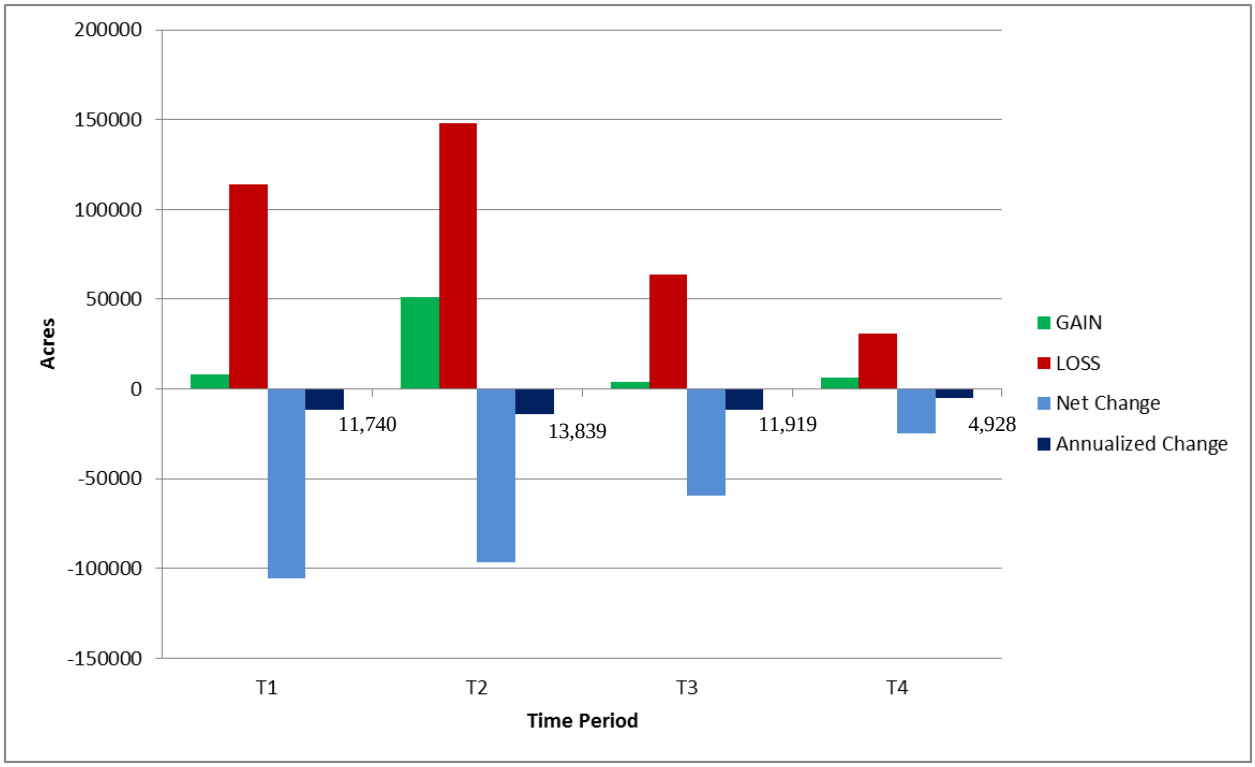
Objective: Develop and conduct habitat change analysis that will allow for the ongoing examination of wildlife habitat transition and fragmentation trends over a time.

Key Findings:

- ENSP staff continues to collaborate with Rowan University 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 received the deliverables from Rowan University's GeoLab covering three time periods 1986-1995 (T1), 1995-2002 (T2), 2002-2007 (T3). 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 also provided habitat change analysis reports and user documentation.
- ENSP staff completed a new habitat base layer from the 2012 Land Use/Land Cover (LULC) to create a consistent basis for comparative analysis across all five available LULC datasets (1986, 1995, 2002, 2007, and 2012).
- ENSP entered a new service agreement to continue the Habitat Change Analysis Project (HCAP) initialized by the Division of Fish and Wildlife in partnership with Rowan University. Building upon previous habitat change analysis work, Rowan will work with the Endangered and Nongame Species Program (ENSP) to incorporate the 2012 Land Use/Land Cover (LULC)-derived habitat base layer into the existing change analysis.
- ENSP collaborated with the Bureau of Lands Management (BLM) to develop analysis and reporting components for endangered and threatened species by each Wildlife Management Area (WMA). BLM provided Rowan University with a WMA feature class to conduct the analysis.
- An additional component of the analysis will include regulated areas (Highlands, Pinelands, CAFRA) and will be reported for each time period of LULC. ENSP provided Rowan University with Open Space and Regulated Areas feature classes to conduct the analysis.
- Based on the 2012 Land Use- Lands Cover and updated roads data, ENSP updated a GIS file of road-bounded blocks to serve as standard "analysis units" when overlaid by a given species range extent.
- ENSP continues to maintain 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 maintained for each of the 66 unique species-occurrence type combinations and new associations were made based on the addition of two new LULC classes in the 2012 dataset.
- ENSP staff continues to coordinate with Rowan University to determine reporting components and habitat change summarization formats. For reporting and interpretive purposes, LULC codes were grouped into 18 distinct habitat categories.
- ENSP and Rowan University are embarking on a pilot project for the development of an interactive dashboard that enables non-technical staff to explore the analysis findings in a guided way and end-user documentation that explains how the dashboard and/or reports can be used to answer land-use/land-management related questions.
- ENSP and Rowan are scheduled to present on the Habitat Change Analysis Project (HCAP) at the upcoming 30th Northeast Arc Users (NEARC) Conference in Burlington, VT.

- Based on draft preliminary results for the four time periods, combined habitat change for the 59 endangered and threatened species is detailed in the chart below.

Statewide Endangered and Threatened Species Habitat Change Summary
1986-1995 (T1), 1995-2002 (T2), 2002-2007 (T3), 2007-2012 (T4)



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., Focal Species mapping for Wildlife Action Plan development, no-net-loss habitat conservation plans).
- Results can be used for secondary analysis of Wildlife Management Areas (WMA), preservation areas (Highlands, Pinelands, CAFRA) and regulated areas.
- 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 Rowan to research, develop and implement GIS and statistical routines to analyze wildlife habitat change and fragmentation utilizing a programmatic approach.
- Update species range extents and habitat associations as new data becomes available.
- As they are updated, incorporate the latest Land Use/Land Cover (LULC), range extents, species-habitat associations and road-bound blocks into the HCAP database, analysis routines and report outputs.
- Utilize analysis results in development of species status assessments and recovery plans.
- Explore leveraging analysis results to guide and monitor effectiveness of habitat conservation planning, land-use regulation and planning, land management, restoration and preservation efforts.

- Gain proficiency in leveraging PostgresSQL and PostGIS in order to manage habitat change database and run automated scripts to produce data outputs and reporting components.
- Coordinate with Rowan to develop an interactive dashboard that enables non-technical staff to explore the analysis findings.
- Develop guidance documents and interpretive products to package with analysis outputs to guide use and application of change analysis 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 32 state, federal, and local agencies requested input and guidance from ENSP on projects and activities related to SGCN wildlife and habitats, resulting in 650 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 be submitted for formal review through the Land Use Permit application process.
- Staff performed 28 project reviews related to Hurricane Sandy Housing and Urban Development (HUD) Community Development Block Grant (CDBG) environmental assessments. Taken together, the projects reviewed involved 44 parcels totaling approximately 215 acres.
- ENSP biologists have continued to review and provide technical assistance on three major projects proposed by utility and oil companies that entailed or will entail the expansions of and/or upgrades to existing rights-of-way. The scope and extent of these applications and pre-permitting submittals have 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 the concerns about habitat loss to T&E wildlife. 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:
    - Pilgrim Pipeline
    - Penn East Pipeline
    - Transco Pipeline – Northeast Supply Link
- Staff provided comments and/or has continued to provide comments on:
    - NJ Department of Transportation's Cross Harbor Freight Project.
    - NJ Department of Transportation's Rt. I-80 Rockfall Project (pre-permitting).
    - Habitat management strategies to benefit rare wildlife on lands (Tranquility Ridge) acquired by the NJ Conservation Foundation.
    - National Park Service dam repairs.
    - Habitat management to minimize harm to rare wildlife and, when possible, enhance habitat, for Mercer County Park Commission in partnership with the Friends of Hopewell Valley Open Space (FOVoS) at Baldpate Mountain.
    - The removal of cabins and surface grading surface to minimize harm to rare wildlife for Stillwater Township.
    - Beach and marsh habitat restoration projects on Delaware Bay and the Atlantic Coast; including experimental coastal stabilization projects using oyster castles (Delaware Bay)
- Staff spent extensive time reviewing and addressing questions and concerns about the proposed Double Trouble State Park Forest Stewardship Plan.
- 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. Biologists continued reviewing critical habitat protection at two bald eagle nest sites where intensive developments are planned, and for which federal permits will be required. These consultations will continue into the next year.

- Staff biologists revised our guidance for companies with nesting ospreys and eagles on communication towers, and provided technical guidance throughout the year. Birds ranging from ospreys and eagles to ravens have used such towers to nest, and results in many questions from both tower owners and multiple cell companies that are co-located on each tower.
- 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).
- Staff continued to review 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 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 in preparation for bi-annual meetings. For the Adaptive Resource Management (ARM) Subcommittee, staff annually collects, compiles and contributes red knot data (aerial survey, re-sightings of marked birds, radio survey of marked:unmarked birds) and technical guidance for developing annual harvest allocation with ARM Model, implemented in 2013.
- Staff provided review and guidance on: 1) an assessment of potential impacts to red knots by the proposed expansion of intertidal structural oyster aquaculture in Delaware Bay, and 2) development of conservation measures in coordination with the US Fish and Wildlife Service. Staff also began coordination with Shellfisheries staff to create a Programmatic Biological Assessment for structural aquaculture, to be submitted to USFWS.
- 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.
- In light of the April 2015 federal listing of the northern long-eared bat, and the implications of this species' occasional use of buildings as roosts, the ENSP worked with NJDEP's Blue Acres Program and Sandy Recovery EHP staff as well as the USFWS's NJ Field Office to create interim guidelines for Section 7 compliance on building demolition and renovation projects funded by HUD, FEMA, and other federal programs.
- The ENSP provided field trainings for NJDEP Blue Acres building inspectors in order for them to conduct bat surveys at FEMA-funded building demolition sites, per the interim guidelines for Section 7 compliance.
- 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 32 state, federal, and local agencies requested input and guidance from ENSP on projects/activities related to SGCNs and their habitat, with 650 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 as 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.

Table 1. Number of reviews and consultations conducted by ENSP by category during 9/1/14-8/31/15.	
1. State: reviews	
DEP Land Use Regulation Program (Freshwater Wetland Act, CAFRA, Waterfront Development, Stream Encroachment, Highlands Act, Pinelands Act)	144
Sandy Related: HUD/CDBG/Debris removal Reviews	78
Division of Watershed Management	1
Division of Water Quality, Surface Water Permitting	8
Office of Program Coordination and Environmental Review	31
Office of Dredging and Sediment Technology	6
Office of Permit Information and Assistance	10
Division of Parks and Forestry	42
NJDEP Review of Activities Proposed for N&HR-Administered Lands and Waters	51
Division of Solid and Hazardous Waste Management	6
Site Remediation Program	3
Bureau of Surface Water Permitting	2
Bureau of Wastewater Management	0
Bureau of Marine Water Monitoring	0
Office of Water Policy	0
Office of the Commissioner	7
New Jersey Department of Transportation	9
New Jersey Pinelands Commission	0
Office of Policy, Planning and Science	6
Office of Sustainability and Green Energy	0
Bureau of Land Management	13
Division of Fish and Wildlife, Exotic and Nongame Permits Office: Scientific Collecting Permits	113
2. U.S. Government: reviews and consultations	
U.S. Fish and Wildlife Service	30
Army Corps of Engineers	6
FEMA	1
Nuclear Regulatory Commission	0
National Marine Fisheries Service	0
National Park Service	4
Natural Resource Conservation Service	9
Environmental Protection Agency	0
Federal Energy Regulatory Commission	0
U.S. Military: Army, Navy, Air Force, Coast Guard	8
3. Interstate Commissions, etc.: reviews and consultations	
Delaware River Basin Commission	0
NY/NJ Port Authority	0
Atlantic States Marine Fisheries Commission	3
Meadowlands Commission	0
Atlantic Flyway Council	1
US Fish & Wildlife Service, Atlantic Coast Joint Venture	0
Other officially recognized interstate committees and cooperatives	0

(Continued on next page)

Table 1. (continued) Number of reviews and consultations conducted by ENSP by category during 9/1/14-8/31/15.	
4. County and Local Entities: reviews and consultations	
County Mosquito Commissions	1
County and Local Park Commissions	4
Watershed Associations	1
Local and Regional Environmental Commissions	3
5. Private, Non-Profit Conservation Organizations: reviews	
National Fish and Wildlife Foundation	0
State and county Federations of Sportsmen's Clubs	0
The Nature Conservancy, Natural Lands Trusts, NJ Audubon, NJ Conservation Foundation, etc.	10
NJ Conservation Foundation	1
Other (other direct-contact project reviews)	38
Total:	**650**

JOB NUMBER AND TITLE: 5B. Policy and Planning
Prepared by: John Heilferty

Key Findings:

- ENSP reviewed two state forest parcels (Wharton and Stokes State Forests) for rare snake occurrences and provided the foresters from the Division of Parks & Forestry a summary of critical habitat locations and potential restrictions to be applied on forestry practices, for reference as they develop forest stewardship plans for these areas.
- ENSP biologists continued to provide technical assistance to the Division of Parks and Forestry regarding policy and planning for motorized access within State Parks (Wharton State Park, in particular), as well as with use of State Park roads, plow lines and/or user created trails by enduro groups.
- ENSP staff provided technical assistance to Department rule-writing staff to develop mechanisms for incorporation of State or federally listed endangered and threatened species habitat protections within revised sewer service area regulations.
- ENSP staff 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 staff contributed to updating the NOAA Northern New Jersey coast Environmental Sensitivity Index (ESI) atlas that is used for oil spill response and planning by NOAA, USCG, and state agencies. ENSP staff provided guidance on compiled abundance and distribution data for species likely to be affected by a spill, and we reviewed draft map products. The NOAA contractor anticipated completion of the updated atlas by end of 2015. The updated atlas data will be available at: http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html#NewJersey