

**Final Report
State Wildlife Grants
T-11-T-2**

Fish and Wildlife Technical Guidance

**Final Report for Project Year
September 1, 2012 – August 31, 2013**

NJ Department of Environmental Protection

**DIVISION OF FISH AND WILDLIFE
ENDANGERED AND NONGAME SPECIES PROGRAM
P.O. BOX 420
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STATE: NEW JERSEY

PROJECT NO.: T-11-T-2

PROJECT TITLE: FISH AND WILDLIFE TECHNICAL GUIDANCE

STUDY TITLE: GUIDANCE AND TECHNICAL ASSISTANCE

PROJECT PERIOD: 9/1/2012 – 8/31/2013

OBJECTIVE: To provide guidance on the projects, proposals, and management plans of others in order to minimize adverse effects and maximize beneficial effects to endangered, threatened, special concern and rare wildlife.

Job 1: Environmental Review on Behalf of SGCN

OBJECTIVE: To provide review and comment on behalf of endangered and rare wildlife to water and land related proposals under the jurisdiction of other governmental agencies. This job will provide review and comment upon such things as Environmental Impact Statements and Assessments, applications for State permits, proposals for State management actions affecting rare wildlife habitats, flood control and dredging projects, highway projects, proposed legislation, water supply projects, federal and interstate actions requiring endangered wildlife review, and county/local projects requiring endangered wildlife review, etc.

Key Findings:

- Within this reporting period over 26 state, federal, and local agencies requested input and guidance from ENSP on projects and activities related to SGCN wildlife and habitats, resulting in 482 reviews completed by ENSP staff. A listing of the reviews by category is found in Table 1.
- ENSP biologists continued to review six major projects required by utility companies that entailed the expansions of and/or upgrades to existing rights-of-way and a metering station, in addition to emergency repairs. 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
 - PSE&G Branchburg-NY Line
 - Tennessee Gas Pipeline, Northeast Upgrade
 - Tennessee Gas - Spectra Energy, Mahwah Metering Station Upgrade
 - Spectra Energy Algonquin Line Emergency Repairs
 - Spectra Energy Algonquin Line Electric Cable Remediation
- Staff worked with NRCS biologists on a new Farm Bill 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 spent an unusual amount of time in managing and planning to maintain a few bald eagle nest sites free from habitat loss and undue disturbance. These were sites for which significant development(s) are planned, requiring ENSP consultation with many sections of NJ DEP as well as with USFWS staff. For the most part, these consultations will continue into the next year.
- Staff spent a significant amount of 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 model allocation methods, and other duties in preparation for bi-annual meetings. For the Adaptive Resource Management (ARM) Subcommittee, staff contributed technical guidance on development of the ARM model and harvest allocation method, implementation of the model to set horseshoe crab harvest quotas in the Mid-Atlantic, and provided red knot data to update annual model harvest predictions.
- Staff provided data and technical guidance for the U.S. Fish and Wildlife Service's red knot listing proposal and critical habitat designation.

Conclusions:

- Within this reporting period over 26 state, federal, and local agencies requested input and guidance from ENSP on projects/activities related to SGCNs and their habitat, with 482 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 on an annual basis job 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.

Table 1. Number of reviews and consultations conducted by ENSP by category.	
1. State: reviews	2012-2013
DEP Land Use Regulation Program (Freshwater Wetland Act, CAFRA, Waterfront Development, Stream Encroachment, Highlands Act, Pinelands Act)	109
Division of Watershed Management	2
Office of Program Coordination and Environmental Review	43
Office of Dredging and Sediment Technology	6
Office of Permit Information and Assistance	0
Division of Parks and Forestry	7
NJDEP Review of Activities Proposed for N&HR-Administered Lands and Waters	82
Division of Solid and Hazardous Waste Management	1
Site Remediation Program	0
Bureau of Wastewater Management	0
Bureau of Marine Water Monitoring	0
Office of Water Policy	0
Office of the Commissioner	0
New Jersey Department of Transportation	13
New Jersey Pinelands Commission	0
Office of Policy, Planning and Science	3
Office of Sustainability and Green Energy	0
Bureau of Land Management	11
Division of Fish and Wildlife, Exotic and Nongame Permits Office: Scientific Collecting Permits	96
2. U.S. Government: reviews and consultations	
U.S. Fish and Wildlife Service	20
Army Corps of Engineers	3
Nuclear Regulatory Commission	9
National Marine Fisheries Service	0
National Park Service	6
Natural Resource Conservation Service	25
Environmental Protection Agency	0
Federal Energy Regulatory Commission	2
U.S. Military: Army, Navy, Air Force, Coast Guard	11
3. Interstate Commissions, etc.: reviews and consultations	
Delaware River Basin Commission	0
Atlantic States Marine Fisheries Commission	0
Meadowlands Commission	1
Atlantic Flyway Council	2
US Fish & Wildlife Service, Atlantic Coast Joint Venture	0
Other officially recognized interstate committees and cooperatives	0
4. County and Local Entities: reviews and consultations	
County Mosquito Commissions	8
County and Local Park Commissions	2
Watershed Associations	0
Local and Regional Environmental Commissions	2
5. Private, Non-Profit Conservation Organizations: reviews	
National Fish and Wildlife Foundation	2
State and county Federations of Sportsmen's Clubs	0
The Nature Conservancy, Natural Lands Trusts, NJ Audubon, etc.	10
Other (other direct-contact project reviews)	6
Total:	482

Job 2: Policy and Planning Technical Guidance on Behalf of SGCN

OBJECTIVE: To advise the New Jersey Department of Environmental Protection, the Governor's Office, and others, with respect to State policies affecting endangered, threatened, special concern and rare wildlife and their habitats.

Key Findings:

- ENSP developed detailed plans to minimize harm to snakes and turtles for utility companies to implement at two of the large right-of-way and meter station projects to minimize harm during construction activities.
- ENSP staff completed a "sensitive wildlife areas" GIS layer that was designed for use by contractors, FEMA and DEP staff involved in Hurricane Sandy debris removal activities and reviews. The GIS layer was made available via ArcGIS Online and was used to review areas scheduled for debris removal. If debris removal activities were scheduled to occur within a date range during which the activity may pose a risk to sensitive wildlife species, contractors were instructed to contact ENSP for guidance on how and if they should conduct removal activity at a particular site. ENSP staff was able to minimize harm during the most sensitive nesting periods while helping to streamline debris removal across most of the coastal areas.
- ENSP staff developed a "Threatened and Endangered Animals" GIS tool to screen Hurricane Sandy HUD CDBG projects for potential impacts to endangered and threatened wildlife species. This covered a nine-county area: Atlantic, Bergen, Cape May, Essex, Hudson, Middlesex, Monmouth, Ocean, and Union. The layer is being made available on an Intranet version of NJ-GeoWeb.
- ENSP staff attended and participated in "No Net Loss Habitat Conservation Planning" Stakeholder Group and Science Advisory Panel meetings to guide plan development. Under contract with the DEP, Rutgers University will develop "No Net Loss HCP's," for three counties (Sussex, Ocean, and Gloucester) along with a spreadsheet-based application capable of evaluating alternative conservation protection and mitigation options to meet "no-net-loss" mandates on an individual parcel basis by December, 2013.
- ENSP staff coordinated with Division of Land Use Regulation (DLUR) and the Bureau of GIS (BGIS) to plan 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 reviewed and provided input on ways of implementing recommendations in DEP's Scientific Advisory Board – Ecological Processes Standing Committee (EPSC) report on *Critical Habitat for Flora and Fauna in New Jersey*: <http://www.state.nj.us/dep/sab/>.
- ENSP biologists along with staff from the NHR Office, the Division of Parks and Forestry and Office of Natural Lands Management continued to work on the 5-year plan for Wharton State Forest including a set of "pre-approved" motorized vehicle trails. Although this plan is supposed to eliminate a case-by-case activity review for events, the enduro groups have pushed back on this policy resulting in staff spending hours responding to requests for justification and additional review. NHR administrators plan to develop a similar plan for Brendan T. Byrne State Forest this year.
- ENSP staff participated in the development of the Whiting Natural Resource (forestry) plan. The plan was recently approved and all stakeholders were in agreement. This plan and process will work as a template for large scale management of state lands.

- ENSP biologists continued to provide recommendations on key policies and aid the Department in developing and revising regulations that resulted in increased protections for rare wildlife and their habitats.

Conclusions:

- The development of the utility right-of-way construction plans to minimize harm to reptiles and amphibians improved communication and understanding between DEP and the permittees and benefited NJ's herptile populations in the work areas.
- The development of a transportation plan for State Parks will decrease impacts to SGCN while expediting permits and decreasing ENSP staff time spent on these permits. This effort continues to inform upcoming plans for additional state lands where these events take place.

Recommendations:

- ENSP staff should develop a template of requirements, procedures and potential timing and activity restrictions for large-area and/or long linear construction projects so permittees are aware of potential issues they may face and could address them within their permit applications and/or communicate with ENSP prior to applying to ensure they will meet the requirements.
- ENSP staff should continue its involvement in departmental planning and maintain its role as advisors to the department on the management and protection of species of greatest conservation need.

JOB 3: Reducing, Minimizing and Mitigating the Effects of Roads on SGCN Wildlife

OBJECTIVE: To identify the major problems that roads present to wildlife in New Jersey and work with partners to develop practical approaches to address these problems.

Job 3A. Roads and Wildlife Working Group:

OBJECTIVE: To establish a group of state and federal agency representative that will work to identify the major problems that roads present to wildlife in New Jersey develop practical approaches to address these problems.

Key Findings:

- ENSP staff organized 10 working group meetings with the core members: ENSP, DLUR, USFWS, and DOT staff in attendance.
- Representatives from Conserve Wildlife Foundation, the Nature Conservancy, Mercer County Community College, DEP's Office of Natural Resource Restoration, and Drexel University were invited and gave talks at different working group meetings over the course of the year on various road/wildlife topics.
- Experts from DLUR have spoken at different meetings to discuss land use regulations (e.g., flood hazard rules) that should be considered when the working group is designing mitigation strategies, as well as the possibility of incorporating language in upcoming rule changes that explicitly mentions "wildlife crossings".
- The core working group discussed potential projects where there were road/wildlife conflicts. There were few projects screened by DOT environmental review staff and brought to the working group during this reporting period mainly because DOT is

focusing on emergency, in-kind repairs from damaged caused by Hurricane Sandy in October.

- ENSP staff has been using motion-triggered cameras to monitor existing structures under four roadways in northern New Jersey and staff met with the South Jersey Transportation Authority (SJTA) about conducting a post-monitoring study using the cameras at newly retrofit structures under the Atlantic City Expressway designed to better accommodate terrestrial wildlife passage. The SJTA staff was interested in assisting with the project. ENSP staff is developing a camera monitoring protocol to standardize the data that are collected and compiled from the photos to make sure the necessary questions about structure effectiveness can be answered and comparable across the different monitoring projects.
 - One of the three wildlife crossing projects for which members of the working group were involved in applying, was awarded Transportation Enhancement Program funding. This is the first time Transportation Enhancement Program funding has been used for a wildlife crossing project in New Jersey.
 - ENSP staff continued to maintain the working group website to house all information related to the working group including road/wildlife literature, upcoming events (e.g., webinars and conferences), and existing and new mitigation projects in the state.
 - Progress on populating the database of existing and proposed road crossing projects continues to be slow because the work being done by the Roads and Wildlife Working Group, particularly the DLUR and DOT members, has not been endorsed by upper management within those agencies and so procedures cannot be developed to more effectively track road/wildlife mitigation projects.
 - Working group members and partners attended four and presented at three roads/wildlife conferences:
 - Northeast Transportation and Wildlife Conference in September 2012
 - DOT Research Showcase in October 2012
 - New Jersey Chapter of the Wildlife Society, with a special topic on the impact of roads on wildlife in April 2013
 - International Conference on Ecology and Transportation in August 2013
- DOT staff was not permitted to attend the Northeast and International conferences, making New Jersey one of few states without DOT representation.
- The working group has developed a template and is working on completing a first draft of road/wildlife best management practices that can be used by transportation planners and engineers to design effective road crossing structures for terrestrial wildlife.

Conclusions:

- Regularly scheduled monthly working group meetings are sufficient.
- Agency representation within the core working group is adequate to cover the current range of issues we have needed to discuss to move projects forward.
- Invited guest speakers are important to be able to address specialty topics/issues that arise and to reach out to other organizations within the state that are also working on reducing road/wildlife conflicts.
- Only slow progress has been made in incorporating wildlife mitigation measures in road projects during the reporting period, likely as a result of all the emergency road repair needs after Hurricane Sandy.
- ENSP staff is piloting monitoring projects at existing road structures using motion-triggered cameras to evaluate the effectiveness of the structures in passing terrestrial wildlife. A standardized protocol is being developed for collecting and compiling these

data and once finalized, more cameras will be deployed for both pre and post crossing construction monitoring surveys.

- Transportation Enhancement Program funding was sought and awarded for the first time for a road/wildlife project in New Jersey.
- Tracking road/wildlife mitigation projects can only be accomplished through effective inter-agency cooperation. Engaging upper management is necessary to move forward with creating a comprehensive road-crossing/barrier structure database.
- Working group members and partners represented New Jersey and wildlife-related topics at four roads/wildlife conferences during this reporting period, including the DOT Research Showcase, where in previous years there have been no wildlife-related topics. DOT staff was not permitted to attend the large, well-respected regional and international roads and wildlife conferences, making New Jersey one of few states without DOT representation.
- Road/wildlife best management practices are being developed by the working group as a simple reference guide for transportation planners and engineers, which will offer solutions by species group for effective crossing design based on the best available science, help inform them of the issue with roads and wildlife, and help make consideration of terrestrial wildlife passage a standard practice.

Recommendations:

- Continue to organize monthly working group meetings.
- Continue to invite guest speakers to address specialty topics and as an outreach mechanism.
- Continue to push for ways in which we can incorporate consideration of wildlife crossing in existing regulations.
- Continue to ensure that the pre-screening mechanisms for roads projects are occurring by DOT and DLUR using the tools we developed previously to identify potential road/wildlife conflicts and are being brought to the working group. Consider drafting a Standard Operating Procedure for this process. Ensure that the slow progress on incorporating wildlife mitigation measures in road projects are a result of the emergency clean-up needs after Hurricane Sandy and not a result of the pre-screenings not happening.
- Finalize the standardized protocol for collecting and compiling motion-triggered camera data as a mechanism of both pre and post monitoring, and continue to deploy cameras at road crossing structures for this purpose.
- Continue to consider and pursue funding for road/wildlife mitigation efforts.
- Consider developing an MOA between DEP and DOT to legitimize the work being done by the working group and to work with the respective information technology staff in the agencies to come up with better long-term collaborative tools. In the meantime, continue to maintain the working group website.
- Continue to attend road/wildlife conferences and strongly encourage DOT staff to attend.
- The working group should continue to explore mitigation efforts that have been effective both within and outside of NJ. Developing an MOA between DEP and DOT might enable DLUR and DOT review staff to devote time to establishing procedures for documenting roads/wildlife mitigation efforts considered in road projects that can more seamlessly populate the database of existing and proposed road crossing projects.
- Complete a draft of the road/wildlife best management practices and encourage feedback from transportation engineers and planners to ensure it is as useful and possible for providing information on how to design effective terrestrial wildlife crossing structures.

Job 3B. Amphibian Crossing Project

This job was inactive.

Job 3C. Crossing Structures Pilot Project

OBJECTIVE: To investigate the potential of installing under-the-road culverts in a few test locations to serve as a means for wildlife to safely cross under the road.

Key Findings:

- We originally identified five pilot projects, discussed here.
 - Bedminster Township, Somerset County, was awarded funding by the Transportation Enhancement Program to construct an eco-passage system for terrestrial wildlife. ENSP staff has been informing the culvert and barrier fencing design and working with Montclair State University to perform additional pre-monitoring as well as post-monitoring of the project once construction has occurred.
 - ENSP staff involvement with the monitoring of a runway mitigation project on the Warren Grove Gunnery Range in the Pinelands National Reserve, in partnership with Drexel University and the New Jersey Air National Guard has ended and equipment was not contributed to the project this reporting period.
 - Grant funding is being sought for the construction of culvert and fencing at a high priority amphibian crossing site in Byram Township, Sussex County that has been monitored for three annual migration seasons by the Conserve Wildlife Foundation. The Conserve Wildlife Foundation has taken the lead on the project with funding from another source.
 - Obtaining grant funding for engineering and construction of culverts under a township road in Sparta Township, Sussex County that has been identified as a hotspot of bog turtle mortality has not been successful during this reporting period. ENSP staff continues to pursue funding options.
 - ENSP staff continues to partner with Mercer County Community College to perform the second year of pre-monitoring of an area in Waretown, Ocean Township, where a roadway has been permitted to be constructed. The roadway will cross sensitive habitat for Northern pine snakes and many other species. The approved design for the roadway includes specially designed tunnels and barrier walls that will be placed at regular intervals along the roadway (pursuant to Land Use Regulation Permit requirements) to enable reptiles, amphibians and other animals to move successfully from one side of the road to the other and to minimize the potential for road-induced mortality. A detailed monitoring plan was developed by members of the Roads & Wildlife Working Group partnering with Mercer County Community College. Pre and post monitoring will occur for a total of four years. Sixteen different species of reptiles and amphibians, including a Northern Pine Snake nest, and 5 mammals have been identified on the site so far.

Conclusions:

- ENSP staff continued to be actively involved in three of the five pilot mitigation projects initiated under this Job. The on-going wildlife crossing projects are ones where funding for construction of eco-passages under and existing roadway has been awarded and pre and post-monitoring are/will be performed, where there is an existing roadway with known high mortality rates of bog turtles and funding is still being sought, and where pre monitoring is being performed where new construction of a road incorporating several

eco-passages has been permitted through areas with habitat and occurrence of rare wildlife species.

- Projects are being documented and all information related to designs, permitting decisions, structure materials, and costs are being posted on the Roads & Wildlife Working Group website and in the road crossing/barrier structure database.

Recommendations:

- Continue to pursue funding for the one remaining unfunded road mitigation project.
- Complete the documentation of all aspects of the three existing pilot projects.
- Continue to implement pre and post monitoring at the pilot project sites.
- Continue to identify project sites through the working group and proceed through the process of implementing those projects.
- Work with state regulators to facilitate road mitigation projects.

Job 3D. Crossing Structures BMP

OBJECTIVE: Develop a set of guidelines that assemble the best management practices by species/species group for use by regulatory and transportation agencies. The guidelines will assist in the design, planning, and placement of wildlife mitigation techniques aimed at minimizing the impact of roads on fish and rare wildlife passage and movement.

Key Findings:

- This job task is being addressed and performed in Job 3A.

Job 3E. Road Mortality Hotspot Detection:

OBJECTIVE: To partner with the Department of Transportation to collect dead-on-road wildlife observations that can be used for research and planning purposes.

Key Findings:

- Discussions continued with regional supervisors of Division of Fish & Wildlife's Bureau of Land Management to pilot a dead-on-road data collection project. Due to a shortage of staff time, the pilot project has not yet been implemented. ENSP staff have decided to try out the cameras among a couple of within-program staff first to determine the usefulness of the data for the purposes of building a database of dead-on-road data and design a protocol and database for storing the resultant data so it can be easily queried and reported on. The protocol and database have not been developed, but it is expected that it will be similar to the one being developed to store motion-triggered camera data (Job 3A).
- ENSP staff collaborated with Montclair State University on a standardized wildlife on-road survey project, called the Wildlife Guardian Project led by Montclair. ENSP staff provided data on road segments likely to be road/wildlife conflicts for places to target the surveying effort. ENSP staff also developed a customized form on an online submittal application that ENSP staff is currently testing. The application is NatureServe's Kestrel, a mobile observation system that is a component of the next generation of the Biotics database (Biotics 5) (reported on under the T-9-R-2 SWG). Volunteers for the Wildlife Guardian Project successfully entered data in the online application.
- Staff is investigating, and will pursue, adding a feature on the existing Division of Fish and Wildlife mobile phone app that could capture dead-on-road data from the general public. Data security and compilation issues need to be worked out.

Conclusions:

- A pilot project with Bureau of Lands Management staff to collect dead-on-road data has not yet begun. As time allows, ENSP staff plan to develop a protocol and database and pilot the project first and if successful will roll-out to BLM staff.
- In collaboration with Montclair State University, ENSP staff has successfully tested an online submittal application for collected wildlife on-road data from volunteers involved with a Wildlife Guardian Project led by Montclair. The application will be developed more thoroughly by NatureServe in 2014-2015.
- Staff has continued to explore adding a feature for the public to collect dead-on-road data via an existing Division of Fish and Wildlife mobile phone app.

Recommendations:

- Develop a protocol and database to collect wildlife dead-on-road data using GPS enabled digital cameras, and test among ENSP staff. If successful, pursue a pilot project with staff from the Bureau of Lands Management.
- Continue to explore the option of developing a NJ wildlife dead-on-road online submittal application within NatureServe's Kestrel.
- Continue to explore the addition of a feature for the public to collect dead-on-road data on the existing Division of Fish and Wildlife mobile phone app.

Job 3F. Connectivity Mapping:

OBJECTIVE: Develop a map that identifies the key habitat corridors that link existing state lands together and serve a critical role in connecting these large "secured areas" together for wildlife in New Jersey.

Key Findings:

- ENSP initiated the Habitat Connectivity Project with a Kickoff Working Group meeting in October 2012. The meeting was attended by 75 individuals representing close to 40 different agencies across the state. At the meeting, individuals were recruited to participate in the Full Working Group as well as core teams: Mapping, Guidance Document, and Communication. Recruitment has continued throughout the reporting period and 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.
- ENSP staff have organized and led monthly meetings for each of the core teams beginning in December to work on developing the Habitat Connectivity Project. Each of the core teams have reviewed what has been done in other states that have similar Habitat Connectivity Projects, developed goals for each respective team and the end products they are charged with developing, and have begun making decisions and completing steps toward developing the end products of a habitat connectivity map, an accompanying guidance document, and a communication strategy. ENSP staff also hosted a webinar in April to update the Full Working Group on progress to date and sends out monthly emails to the Full Working Group summarizing the team meetings to keep all members updated.
- ENSP staff were not able to meet with the Commissioner of the DEP until after the Kickoff meeting due to scheduling conflicts, but did meet with him in March and he was supportive of the project and offered to set up a meeting with his counterpart in the DOT once had economic feasibility report together proactively addressing likely economic

concerns DOT has regarding installing wildlife crossing structures. The guidance document team is drafting the report and plans to have it complete in early 2014.

- ENSP staff completed the development of a website for the Working Group on the Conserve Wildlife Foundation site prior to the Kickoff meeting. The website has been updated over the course of the reporting period and contains meeting schedules and notes, background material on habitat connectivity, relevant resources such as upcoming conferences and webinars, as well as media stories related to the effort. The website has some limitations such as alerting members when content has been updated, and also doesn't have the capacity to serve as a file sharing service, so other options are being examined.
- ENSP staff presented information on the Habitat Connectivity Project at various meetings to inform and recruit individuals to participate in the Working Group: the Annual NJDOT Research Symposium, the Northeast Transportation and Wildlife Conference, a series of Division of Fish and Wildlife Staff meetings, the NJ Land Conservation Rally, the New Jersey Open Space and Farmland Preservation Coordinators' Meeting, and the NJ Chapter of the Wildlife Society Meeting.
- ENSP staff continues to research and stay abreast of ideas and GIS tools developed by other states that have developed statewide connectivity projects.
- ENSP staff continue to prepare and test tools needed for validation work, such as remotely triggered cameras (see Job 3A) as well as collaborate with partners to collect data that will inform the project, such as wildlife on-road data (see Job 3E) and a culvert inventory. ENSP staff continues to partner with the Nature Conservancy and University of Massachusetts's River and Stream Continuity Project and have finalized a draft of a New Jersey specific culvert inventory protocol. NJ has been added to the regional culvert database hosted by University of Massachusetts so that data collected in New Jersey can now be entered online into that database. ENSP staff and the Nature Conservancy continue to work on developing a strategy to implement the culvert inventory statewide.

Conclusions:

- Successfully formed a multi-partner, multi-disciplinary working group to develop the Habitat Connectivity Project, including three core teams: Mapping, Guidance Document, and Communication.
- Development of the project has begun and is progressing steadily. Two ENSP staff members are leading the project as well as the actions of the three core teams, which is proving difficult to sustain and work on other jobs for which they are responsible. The ENSP staff members also do not expertise in communication and outreach so the tasks would be better suited to an individual with those skill sets. ENSP have begun pursuing finding an individual interested and able to take the lead on the Communication team and take over some of the associated tasks such as website maintenance.
- The DEP Commissioner was supportive of the project and offered to reach out to the DOT Commissioner to pursue upper management support in that agency, which is critical to the successful implementation of the project.
- The Working Group website has been a valuable tool for keeping the group informed about meetings, progress being made with developing the project, as well as serving as a resource for learning more about the subject and of our accomplishments. It has limitations in terms of functionality, such as file sharing capability, so other options are being pursued.
- ENSP staff presented the Habitat Connectivity Project at several different venues over the course of the reporting period. Staff has decided to back off on presentations due to a

shortage of staff time and instead concentrate on getting the project developed. Working group recruitment has continued as opportunities arise.

- ENSP staff are preparing and testing the tools that will be needed for future phases of the connectivity mapping project including validation procedures and a culvert inventory protocol.

Recommendations:

- Continue to engage Full Working Group and Core Team members to develop and seek feedback on the Habitat Connectivity Project.
- Continue to lead the project and working group teams, and continue to pursue assistance leading the Communication team.
- Continue to engage upper management in DEP on progress in the development of the project. Finalize the economic feasibility report so we can seek the DEP Commissioner's help in engaging the upper management in DOT in the project.
- Continue to update the Working Group website, while also pursuing other mechanisms of communication and file sharing among working group members.
- Be selective in taking on speaking engagements related to the project and focus more on development of the end products.
- Continue to prepare and test the tools needed for future phases of the project and collaborate with partners to collect data that will inform the project.

JOB 4: Mitigating Bat Mortality at Wind Farms

This job continued to be inactive because the New Jersey Audubon mortality report still has not been finalized and the managers of the ACUA wind farm are not willing to make any adjustments until that report is released and reviewed. ENSP has reached out to New Jersey Audubon on many occasions and the report is not forthcoming.