**Northeast Regional Wildlife Conservation**

**Project Summaries**

*Regional Conservation Needs, Competitive State Wildlife Grants and North Atlantic Landscape Conservation Cooperative Projects*

**NE Report Cover Image 2.tif**

**Prepared for the Northeast Fish and Wildlife Diversity Technical Committee**

**By**

**Terwilliger Consulting, Inc.**

**December, 2013**

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**Citation:** **Terwilliger Consulting, Inc. and the Northeast Fish and Wildlife Diversity Technical Committee. 2013. Northeast Regional Wildlife Conservation Project Summaries for State Wildlife Action Plans: Regional Conservation Needs (RCN), Competitive State Wildlife Grants (SWG) and North Atlantic Landscape Conservation Cooperative (NALCC) Projects. Locustville, VA.**

**Northeast Regional Conservation Synthesis for State Wildlife Action Plan Revisions (RCN2011-07) was supported by State Wildlife Grant funding awarded through the Northeast Regional Conservation Needs (RCN) Program.  The RCN Program joins thirteen northeast states, the District of Columbia, and the U.S. Fish and Wildlife Service in a partnership to address landscape-scale, regional wildlife conservation issues.  Progress on these regional issues is achieved through combining resources, leveraging funds, and prioritizing conservation actions identified in the State Wildlife Action Plans.  See RCNGrants.org for more information.**

# Introduction

The Northeast region has a long and productive history of collaboration and coordination among natural resource agencies. A key component of these efforts has been the Regional Conservation Needs ([RCN](http://rcngrants.org/)) grants program. Since 2007, the RCN grants program has funded almost $3 million to support regional scale conservation projects and research. The State Wildlife Grants ([SWG](http://wsfrprograms.fws.gov/Subpages/GrantPrograms/SWG/SWG.htm)) program and the North Atlantic Landscape Conservation Cooperative ([NALCC](http://www.northatlanticlcc.org/)) have also spear-headed a variety of region-wide conservation initiatives. All together, these programs have resulted in volumes of information, tools and other products related to wildlife conservation in the Northeast. As states revise their State Wildlife Action Plans (SWAP) for 2015 approval, there is a need to synthesize this information in a way that is most useful and efficient for that process. This document represents the first step in that direction by concisely summarizing all current and ongoing RCN, SWG and NALCC projects funded in the Northeast region. Hopefully, this information will assist state wildlife agencies in integrating these regional data and tools into their SWAP revision and other planning processes.

This summary report is a component of the [Northeast Synthesis](#synthesis) project initiated in December 2012. All regional projects were reviewed and condensed into short summaries intended to capture relevant information for each of the 8 required SWAP elements. The table below summarizes the information captured in each project summary. This summary document provides easy indexing and links to each project for use in State Wildlife Action Plans as a companion guide to the Northeast Regional Synthesis (Terwilliger Consulting, Inc. and the Northeast Fish and Wildlife Diversity Technical Committee. 2013. Taking Action Together: Northeast Regional Synthesis for State Wildlife Action Plans. A report submitted to the Northeast Fish and Wildlife Diversity Committee. Locustville, VA.)

|  |  |
| --- | --- |
| **General Project Information** | A list of general information common to each project including project status (completed or ongoing), principal investigator and contact information, and the URL of the project website |
| **Summary** | A concise summary of each project’s key goals and outputs |
| **States** | Geographic extent of the project- states included are listed |
| **Species – SWAP Element 1** | A list of the species or taxonomic groups covered by the project |
| **Habitats – SWAP Element 2** | A list of the habitats covered by the project as classified using the [Northeast Terrestrial Wildlife Habitat classification System](#NETHCS) |
| **Threats – SWAP Element 3** | A list of the threats identified or measured by the project classified using the TRACS and IUCN threat taxonomy ([Appendix 2](#app2)) |
| **Actions – SWAP Element 4** | A list of regional actions identified by the project and classified using the TRACS and IUCN Actions taxonomy ([Appendix 3](#app3)) |
| **Monitoring – SWAP Element 5** | Data on monitoring actions and protocols identified by the project |
| **Review and Coordination – Element 6-8** | Description of regional review and coordination recommendation made by the project |
| **Project Tools** | Description of regional tools generated by the project including GIS data, tabular databases and monitoring protocols |

For ease of use and navigation, this document has both internal and external hyperlinks. Text in underlined blue fonts will direct users to relevant websites on the internet. Text with underlined, black fonts are internal links within the document that refer users to the selected RCN Topic or to a specific project. In the PDF version, bookmarks have been included to help with navigation.

Regional Habitat Classification and Mapping

## NETWHCS: Northeast Terrestrial Wildlife Habitat Classification System

|  |  |
| --- | --- |
| **Status** | Completed (December 2008) |
| **Principal Investigator** | Dave Morton |
| **Organization** | Virginia Department of Inland Fisheries and Wildlife |
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| **Phone** | 804-367-6772 |
| **Link** | <http://rcngrants.org/content/northeastern-terrestrial-wildlife-habitat-classification> |
| **Citation** | Gawler, S. C. 2008. Northeastern Terrestrial Wildlife Habitat Classification. Report to the Virginia Department of Game and Inland Fisheries on behalf of the Northeast Association of Fish and Wildlife Agencies and the National Fish and Wildlife Foundation. NatureServe, Boston, Massachusetts. 102 pp. |

**Summary**

The Northeast Terrestrial Wildlife Habitat Classification System (NETWHCS) is a flexible framework for characterizing wildlife habitat that works on two levels – habitat systems and structural modifiers. The basic layer is the habitat system which corresponds to the [Ecological Systems developed by NatureServe](http://www.natureserve.org/publications/usEcologicalsystems.jsp), with additional systems for altered habitats and land-use types. Because most habitat systems can incorporate substantial variation in vegetative species dominance, successional stage, and other characteristics that are relevant to wildlife use, the classification superimposes a set of structural modifiers. The combination of habitat system with structural modifiers provides a powerful tool for assessing habitat. The NETWHCS has been designed for maximum compatibility with existing habitat classification efforts in the Northeast, including [LANDFIRE](http://www.landfire.gov/) and the [GAP Analysis Program](http://gapanalysis.usgs.gov/). The habitat classification, presented in an Excel workbook with seven worksheets, is hierarchical for habitat systems consistent with the [Federal Geographic Data Committee vegetation standard](http://www.fgdc.gov/standards/projects/FGDC-standards-projects/vegetation) and can be scaled to different applications.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** Northeast Aquatic Habitat Classification System ([NEAHCS](#NETHCS)), Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System ([RCN2007-01](#rcn2007_01)), Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps ([RCN2009-02](#rcn2009_02)), Terrestrial Habitat Map Guidance ([RCN2011-05](#rcn2011_05)), Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map ([LCC-1](#lcc1)), Extending the Northeast Terrestrial Habitat Map to Atlantic Canada ([LCC-2](#lcc2))

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Terrestrial SGCN

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Evaluate ways to integrate (whenever feasible) Northeast Wildlife Habitat Classification System into SWAPs and overall state wildlife planning and operations. | Data Collection and Analysis (3) | Database Development and Management (3.1.1) | Yes |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Northeast Terrestrial Wildlife Habitat Classification System database | This Excel database provides habitat definitions and details the hieratical structure of the NETWHCS. It also has tables necessary for cross-walking the system with habitats described in SWAPs. This will help states make the transition from in-house proprietary systems to the new regional standard. | Excel Workbook | Habitat Status Assessment, Habitat Planning | Data/GIS Managers, Biologists |
| Field Key to the Ecological Systems and Habitat Systems of the Northeastern United States | This tool is a dichotomous key that can be used to identify ecological systems and other habitats of the Northeast while in the field. It was developed as a general regional tool, and also with the specific purpose of supporting the mapping and application phases of the Northeast Terrestrial Habitat Classification System ([NETWHCS](#NETHCS)). | PDF report | Habitat Assessment, Field work | Biologists |

## RCN2007-01: Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Wildlife Habitat Classification System

|  |  |
| --- | --- |
| **Status** | Completed (June 2012) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
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| **Phone** | 617-532-8354 |
| **Link** | <http://rcngrants.org/content/creation-regional-habitat-cover-maps-application-northeast-terrestrial-habitat> |
| **Citation** | Ferree, C and M. G. Anderson. 2013. A Map of Terrestrial Habitats of the Northeastern United States: Methods and Approach. The Nature Conservancy, Eastern Conservation Science, Eastern Regional Office. Boston, MA. 84 pp. |

**Summary**

The Regional Habitat Map is a raster GIS database of upland and wetland wildlife habitat in the Northeast classified using the Northeast Terrestrial Wildlife Habitat Classification System ([NETWHCS](#NETHCS)). This effort provides a common framework and language for conservation planning and wildlife management across jurisdictional borders. Specifically, the map provides a standardized and consistent habitat and ecosystem classification at multiple scales across states, facilitates interstate communication about habitats, offers managers a tool for understanding regional biodiversity patterns, and allows for more effective and efficient habitat conservation across the region.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** Northeast Terrestrial Wildlife Habitat Classification System ([NETWHCS](#NETHCS)), Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps ([RCN2009-02](#rcn2009_02)), Terrestrial Habitat Map Guidance ([RCN2011-05](#rcn2011_05)), Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map ([LCC-1](#lcc1)), Extending the Northeast Terrestrial Habitat Map to Atlantic Canada ([LCC-2](#lcc2))

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Evaluate and integrate (wherever feasible) the Regional Habitat Maps as the baseline for documenting the distribution and abundance of wildlife habitat in the Northeast region. | Data Collection and Analysis (3) | Database Development and Management (3.1.1) | Yes |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Raster GIS database of terrestrial wildlife habitat in the Northeast | The dataset is a 30-meter grid that maps upland and wetland wildlife habitats for the [NETWHCS](#NETHCS). The ecological systems represented in the map are mosaics of plant community types that tend to co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients, in a pattern that repeats itself across landscapes. This provides a robust and consistent framework for describing wildlife habitats at multiple scales and across jurisdictional boundaries | ESRI raster grid (30m) | Habitat Status Assessment, Habitat Planning, Land Protection, Wildlife Management | Biologists, Data/GIS Managers |

## LCC-1: Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map

|  |  |
| --- | --- |
| **Status** | Completed (June 2012) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
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| **Phone** | 617-532-8354 |
| **Link** | <http://www.northatlanticlcc.org/projects/habitat-map-for-virginia-piedmont-and-coastal-plain/habitat-map-for-virginia-piedmont-and-coastal-plain> |
| **Citation** | Ferree, C and M. G. Anderson. 2013. A Map of Terrestrial Habitats of the Northeastern United States: Methods and Approach. The Nature Conservancy, Eastern Conservation Science, Eastern Regional Office. Boston, MA. 84 pp. |

**Summary**

This project updated the [Northeast Terrestrial Habitat Map](#rcn2007_01) by remapping the Virginia coastal plain and Piedmont regions. The previous version adopted the [Southeast GAP](http://applcc.org/resources/holdings/archive-gis/gis-and-planning/links/southeast-gap-analysis-project) map for these areas. The result is a fully consistent habitat map across the 13 states of the Northeast region.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETWHCS)](#NETHCS), [Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System (RCN2007-01)](#rcn2007_01), [Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps (RCN2009-02)](#rcn2009_01), [Terrestrial Habitat Map Guidance (RCN2011-05)](#rcn2011_05), [Extending the Northeast Terrestrial Habitat Map to Atlantic Canada (LCC-2)](#lcc2)

**States-**VA, MD

**Species- SWAP Element 1-** Terrestrial SGCN

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3-** None

**Actions-SWAP Element 4-** Changes have already been incorporated into the Northeast Terrestrial Habitat map. See Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System ([RCN2007-01](#rcn2007_01))

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools-** Update to [RCN2007-01](#rcn2007_01)

## LCC-2: Extending the Northeast Terrestrial Habitat Map to Atlantic Canada

|  |  |
| --- | --- |
| **Status** | Ongoing (expected February 2015) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
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| **Phone** | 617-532-8354 |
| **Link** | <http://www.northatlanticlcc.org/projects/extending-the-northeast-terrestrial-habitat-map-to-atlantic-canada> |
| **Citation** |  |

**Summary**

This project will develop a comprehensive terrestrial habitat map for the entire [North Atlantic Landscape Conservation Cooperative](http://www.northatlanticlcc.org/) (NALCC) region by extending the [Northeast Terrestrial Habitat Map (RCN2007-01)](#rcn2007_01) to Atlantic Canada and southern Quebec. This GIS map will 1) provide a foundation upon which further research such as species vulnerability analyses can advance, 2) allow each relevant state and province to identify terrestrial habitats consistently across borders, 3) allow for analysis of regional connectivity, and 4) facilitate an understanding of terrestrial animal and plant populations in relation to climate change. The methods used to create this map will follow closely those developed and refined for the [Northeast Terrestrial Habitat Map](#rcn2007_01). The modeling process will combine plot-based samples, tagged to the correct ecological system, with the region-wide GIS data layers. Regression trees will be used to identify the variables that best delineate the ecological systems, and then to model those systems. The final map will be a composite of the individual models. Structural attributes like canopy density and datasets related to vegetation height and biomass may have a role in detailing forest successional stage.  Project supported by [NALCC](http://www.northatlanticlcc.org/) and [Northeast Climate Science Center](http://www.doi.gov/csc/northeast/index.cfm).

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETWHCS)](#NETHCS), [Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System (RCN2007-01)](#rcn2007_01), [Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps (RCN2009-02)](#rcn2009_01), [Terrestrial Habitat Map Guidance (RCN2011-05)](#rcn2011_05), [Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map (LCC-1)](#lcc1)

**States –** Canadian Providences (Quebec, New Brunswick, Prince Edward Island, Nova Scotia)

**Species- SWAP Element 1-** Terrestrial SGCN

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** None

**Regional Review and Coordination (Elements 6-8) –** None

**Project Tools-** [RCN2007-01](#rcn2007_01) extended into Canada.

## RCN2011-05: A Guide to the Terrestrial Habitat Map

|  |  |
| --- | --- |
| **Status** | Completed (September 2013) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
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| **Phone** | 617-532-8354 |
| **Link** | <http://rcngrants.org/content/guide-terrestrial-habitat-map> |
| **Citation** | Anderson, M.G. M. Clark, C.E. Ferree, A. Jospe, A. Olivero Sheldon and K.J. Weaver. 2013. Northeast Habitat Guides: A companion to the terrestrial and aquatic habitat maps. The Nature Conservancy, Eastern Conservation Science, Eastern Regional Office. Boston, MA. 394 pp. |

**Summary**

This project provides states with the necessary tool to enhance the understanding of the [Northeast Terrestrial Habitat map](#rcn2007_01) and to promote its widespread use. A printable web-based guide was created that includes descriptions of the habitat types, species composition and ecology of each habitat, example photographs, wildlife associations and distribution patterns, and guidance on cross-walking the habitats to other (state) classification schemes. In addition, this project reports on the data and methods used to create the map. Results include a training module on using the habitat map.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETWHCS)](#NETHCS), [Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System (RCN2007-01)](#rcn2007_01), [Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps (RCN2009-02)](#rcn2009_01), [Aquatic Map Habitat Guidance (RCN2011-06)](#rcn2011_06), [Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map (LCC-1)](#lcc1), [Extending the Northeast Terrestrial Habitat Map to Atlantic Canada (LCC-2)](#lcc2)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**None

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3**-None

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)** -None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| [NETWHS](#NETHCS) Guide | A printable web-based guide was created that includes descriptions of the habitat types, species composition and ecology of each habitat, example photographs, wildlife associations and distribution patterns, and guidance on cross-walking the habitats to other (state) classification schemes. | PDF | Use and interpretation of region-wide habitat data from [RCN2007-01](#rcn2007_01) | Biologists, Data/GIS Managers |

## RCN2009-02: Geospatial Habitat Condition Analysis based on the Northeast SGCN Habitat Maps

|  |  |
| --- | --- |
| **Status** | Final Reports are in review |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
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| **Phone** | 617-532-8354 |
| **Link** | <http://rcngrants.org/content/geospatial-condition-analysis-northeast-habitats-based-northeast-sgcn-habitat-maps> |
| **Citation** |  |

**Summary**

This project will evaluate and summarize the current condition of terrestrial and aquatic habitats across the Northeast using region-wide habitat mapping data of [streams](#neahcs) and [terrestrial](#rcn2007_01) ecosystems developed through the [RCN Grants Program](http://rcngrants.org/). The selection of metrics will follow the Northeast Monitoring and Performance Reporting Framework (NEMPRF) and be calculated relative to each habitat type. The focus will be on the indicators of human modification and securement since these directly reflect the quality or degradation of habitat. The basic units of analysis for this effort will be: 1) forest habitat patches; 2) wetlands (all sizes); 3) large and small patch terrestrial communities; 4) stream reaches; 5) lakes; 6) minor road-bounded blocks; and 7) major road-bounded blocks.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETWHCS)](#NETHCS), [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs), [Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System (RCN2007-01)](#rcn2007_01), [Terrestrial Habitat Map Guidance (RCN2011-05)](#rcn2011_05), [Aquatic Map Habitat Guidance (RCN2011-06)](#rcn2011_06), [Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map (LCC-1)](#lcc1), [Extending the Northeast Terrestrial Habitat Map to Atlantic Canada (LCC-2)](#lcc2)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN

**Habitats- SWAP Element 2-**All

**Threats- SWAP Element 3-**In progress

**Actions-SWAP Element 4**-In progress

**Monitoring-SWAP Element 5**-In progress

**Regional Review and Coordination (Elements 6-8)**-In progress

**Project Tools**-In progress

## LCC-8: Permeable Landscapes for Species of Greatest Conservation Need

|  |  |
| --- | --- |
| **Status** | Ongoing (expected April 2014) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
| **Email** | [manderson@tnc.org](mailto:manderson@tnc.org) |
| **Address** | 99 Bedford Street, 5th Floor, Boston, MA 02111 |
| **Phone** | 617-532-8354 |
| **Link** | <http://www.northatlanticlcc.org/projects/permeable-landscapes-for-species-of-greatest-conservation-need/permeable-landscapes-for-species-of-greatest-conservation-need> |
| **Citation** |  |

**Summary**

This project will evaluate and map the relative landscape permeability across the Northeast region, and thereby determine how permeability coincides with the locations and habitat of species of greatest conservation concern.  Landscape permeability is the ability of a heterogeneous land area to provide for passage of animals, equivalent to what some authors call “habitat connectivity.” The project will utilize new analytical tools (e.g. Circuitscape and Resistant Kernel models) applied to the [Northeast Regional Habitat Map](#rcn2007_01), and corroborated with species locations. The most important regional movement concentrations will be identified, particularly those areas where movements may be funneled due to constriction in the landscape.  Network flow, permeability and resistance will be measured across the landscape.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps (RCN2009-02)](#rcn2009_01)

**States –** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN all

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3-** In progress

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-**In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Landscape Permeability Tools | Report and maps | ESRI raster grid (30m), Excel workbook or database | Biologists, Planners, Data/GIS Managers | Planning |

## 

## LCC-5: Rapid Update to the National Wetlands Inventory for Selected Areas of Intertidal Wetlands in the North Atlantic LCC

|  |  |
| --- | --- |
| **Status** | Completed (September 2013) |
| **Principal Investigator** | Scott Klopfer |
| **Organization** | Conservation Management Institute, College of Natural Resources and Environment, Virginia Tech |
| **Email** | [sklopfer@vt.edu](mailto:sklopfer@vt.edu) |
| **Address** | 1900 Kraft Drive, Suite 250, Blacksburg, VA 24061 |
| **Phone** | 540-231-8825 |
| **Link** | <http://www.northatlanticlcc.org/projects/rapid-update-to-coastal-nwi/coastal-update-to-the-national-wetlands-inventory> |
| **Citation** |  |

**Summary**

This project updated National Wetland Inventory ([NWI](http://www.fws.gov/wetlands/)) maps for 153 coastal areas (1:24,000 topographic quadrangles in ME, MD, MA, NY, PA, and VA) that were last updated prior to 2000. The updated maps will have many applications in conservation analysis and coastal planning.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETHCS)](#NETHCS), [Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Habitat Classification System (RCN2007-01)](#rcn2007_01), [Northeast Aquatic Habitat Classification System](#neahcs) [(NEAHCS),](#neahcs) [Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast (LCC-4)](#lcc4)

**States -** ME, MD, MA, NY, PA, VA

**Species- SWAP Element 1-** Coastal Wetland SGCN

**Habitats- SWAP Element 2-** Terrestrial: Wetlands

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4-** None

**Monitoring-SWAP Element 5-** None

**Regional Review and Coordination (Elements 6-8) –** None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Updated [NWI](http://www.fws.gov/wetlands/) coastal quadrangles | This project updated National Wetland Inventory ([NWI](http://www.fws.gov/wetlands/)) maps for 153 coastal areas (1:24,000 topographic quadrangles in ME, MD, MA, NY, PA, and VA) that were last updated prior to 2000. | Vector GIS data | Planning | Planners, Biologists, Data/GIS Managers |

## NEAHCS: Northeast Aquatic Habitat Classification System

|  |  |
| --- | --- |
| **Status** | Completed (December 2008) |
| **Principal Investigator** | Dave Morton |
| **Organization** | Virginia Department of Inland Fisheries |
| **Email** | [dave.morton@dgif.virginia.gov](mailto:dave.morton@dgif.virginia.gov) |
| **Address** | 4010 West Broad Street, Richmond, VA 23230 |
| **Phone** | 804-367-6772 |
| **Link** | <http://rcngrants.org/content/northeastern-aquatic-habitat-classification-project> |
| **Citation** | Olivero, A. and M. Anderson. 2008. Northeast Aquatic Habitat Classification System. The Nature Conservancy, Eastern Conservation Science. 88 pp. |

**Summary**

This project created a standardized classification system and [GIS dataset](http://www.rcngrants.org/sites/default/files/full_NEaqHabGeodata.zip) that can be used to describe and map stream systems across the Northeast. The system and data consistently represent the natural flowing-water aquatic habitat types across this region in a manner that is useful for conservation planning. It was designed to unify state classifications and promote an understanding of aquatic biodiversity patterns across the entire region. The system is not intended to override local stream classifications but rather to put them into a broader context. This approach can be implemented across regional scales using GIS modeled variables that shape aquatic habitats such as stream size, slope, elevation, climate, and geology. The GIS dataset of basic aquatic habitat using the NEAHCS can be downloaded for the entire region or by individual state.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETHCS)](#NETHCS), [Northeast Aquatic Connectivity (RCN2007-02)](#rcn2007_02), [Aquatic Map Habitat Guidance (RCN2011-06)](#rcn2011_06), [Revisions to the Northeastern Aquatic Habitat Classification (LCC-3)](#lcc3)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Aquatic SGCN

**Habitats- SWAP Element 2-**Streams and Rivers

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Evaluate ways to integrate (whenever feasible) the Northeast Wildlife Aquatic Habitat Classification System into SWAPs and overall state wildlife planning and operations. | Data Collection and Analysis (3) | Database Development and Management (3.1.1) | Yes |

**Monitoring-SWAP Element 5**-None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Northeast Aquatic Habitat Classification System Database | This database contains all relevant information on the Northeast Aquatic Habitat Classification System including the systems hierarchical structure, habitat definitions and a crosswalk to individual state systems. | Excel Workbook | Habitat Status Assessment, Planning, Wildlife Management | Data/GIS Managers, Biologists, Planners |
| Northeast Aquatic Habitat GIS Database | This is a GIS database of all stream and river reaches in the Northeast classified using the Northeast Aquatic Classification System. The data can be downloaded for the region as a whole or by individual state. | ESRI shapefiles | Habitat Status Assessment, Planning, Land Protection | Data/GIS Managers, Biologists, Planners |

## LCC-3: Revisions to the Northeastern Aquatic Habitat Classification

|  |  |
| --- | --- |
| **Status** | Tidal stream and river classes are complete, lake classification is ongoing |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
| **Email** | [manderson@tnc.org](mailto:manderson@tnc.org) |
| **Address** | 99 Bedford Street, 5th Floor, Boston, MA 02111 |
| **Phone** | 617-532-8354 |
| **Link** | <http://www.northatlanticlcc.org/projects/aquatic-classification-revisions/revisions-to-the-northeastern-aquatic-habitat-classification> |
| **Citation** |  |

**Summary**

This project will update the 2008 Northeastern Aquatic Habitat Classification ([NEAHCS](#neahcs)) prepared by The Nature Conservancy ([TNC](http://www.nature.org/)) and the Northeast Association of Fish and Wildlife Agencies ([NEAFWA](http://www.neafwa.org/)). The updates will add a tidal component to the classification of streams and rivers and a mapped classification of lakes. Data on diadromous fish distributions, tidal and brackish wetland occurrences, and estuary chemistry information will be analyzed to accurately map the landward extent of tidal stream and river habitats. For lakes, information on size, elevation, geology, shoreline sinuosity, network position, depth and chemistry will be compiled to create a classification system.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETHCS)](#NETHCS), [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs), [Terrestrial Habitat Map Guidance (RCN2011-05)](#rcn2011_05), [Aquatic Habitat Map Guidance (RCN2011-06)](#rcn2011_06)

**States –** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** Stream and River SGCN

**Habitats- SWAP Element 2-** Aquatic: Streams and Rivers, Lakes

**Threats- SWAP Element 3-** In progress

**Actions-SWAP Element 4-** In progress

**Monitoring-SWAP Element 5-**In progress

**Regional Review and Coordination (Elements 6-8)-**In progress

**Project Tools-**In progress(Updates to [NEAHCS](#neahcs))

## RCN2011-06: Aquatic Map Habitat Guidance

|  |  |
| --- | --- |
| **Status** | Completed (October 2013) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
| **Email** | [manderson@tnc.org](mailto:manderson@tnc.org) |
| **Address** | 99 Bedford Street, 5th Floor, Boston, MA 02111 |
| **Phone** | 617-532-8354 |
| **Link** | <http://rcngrants.org/content/guide-terrestrial-habitat-map> |
| **Citation** | Anderson, M.G. M. Clark, C.E. Ferree, A. Jospe, A. Olivero Sheldon and K.J. Weaver. 2013. Northeast Habitat Guides: A companion to the terrestrial and aquatic habitat maps. The Nature Conservancy, Eastern Conservation Science, Eastern Regional Office. Boston, MA. 394 pp. |

**Summary**

This project provides states with the tools necessary to enhance the understanding of the Northeast Aquatic Habitat classification system ([NEAHCS](#neahcs)) and to promote its widespread use. A printable web-based guide was created that provides habitat descriptions, example photographs, statistics and distribution patterns, as well as guidance on using crosswalks to other (state) classification schemes, and ,when available, wildlife associations for fish and mussels in the Northeast.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs), [Aquatic Map Habitat Guidance (RCN2011-06)](#rcn2011_06), [Revisions to the Northeastern Aquatic Habitat Classification (LCC-3)](#lcc3)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1**-Aquatic SGCN

**Habitats- SWAP Element 2-**Aquatic Habitat: all

**Threats- SWAP Element 3**-None

**Actions-SWAP Element 4**-None

**Monitoring-SWAP Element 5**-None

**Regional Review and Coordination (Elements 6-8)** -In progress

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| [NEAHCS](#neahcs) Guide | A printable web-based guide was created that includes descriptions of the habitat types, species composition and ecology of each habitat, example photographs, wildlife associations and distribution patterns, and guidance on cross-walking the habitats to other (state) classification schemes. | PDF | Use and interpretation of region-wide habitat data from [NEAHCS](#neahcs) and [LCC-3](#lcc3) | Biologists, Data/GIS Managers |

## LCC-4: Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast

|  |  |
| --- | --- |
| **Status** | Ongoing (January 2014) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
| **Email** | [manderson@tnc.org](mailto:manderson@tnc.org) |
| **Address** | 99 Bedford Street, 5th Floor, Boston, MA 02111 |
| **Phone** | 617-532-8354 |
| **Link** | <http://www.northatlanticlcc.org/projects/reports-for-application-of-the-coastal-and-marine-ecological-classification-standards-cmecs-to-the-northeast-1> |
| **Citation** |  |

**Summary**

This project will utilize the national Coastal and Marine Ecological Classification Standard ([CMECS](http://www.csc.noaa.gov/digitalcoast/publications/cmecs)) version 4.0 and a similar effort developed by [The Nature Conservancy](http://www.nature.org/) to classify estuarine and marine environments in the Northwest Atlantic from Maine to Virginia. The proposed system will be usable at multiple spatial scales and feature a hierarchical structure based on environmental variables and physical-biological linkages. Three different scales will be examined. At the regional scale (1:5,000,000), the classification will be applied to the [Nature Conservancy’s](http://www.nature.org/) Benthic Habitat Model from the [2010 Northwest Atlantic Marine Assessment](http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/Pages/default.aspx). An intermediate-scale classification (1:250,000) will utilize datasets assembled for marine spatial planning efforts in Rhode Island, Massachusetts, and adjacent federal waters. Finally, small scale estuary-specific, high-resolution benthic habitat information for Boston Harbor (1:5,000 scale) will be classified. These pilots will allow us to assess the ability of CMECS to convey consistent ecological data across several relevant scales.

**RCN Topic:** [Regional Habitat Classification and Mapping](#reg_hab_mapping)

**Related Projects:** [Northeast Terrestrial Wildlife Habitat Classification System (NETHCS)](#NETHCS), [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs)

**States -** ME, NH, MA, CT, RI, NY, NJ, PA, DE, MD, DC,VA

**Species- SWAP Element 1-** Marine SGCN

**Habitats- SWAP Element 2-**Aquatic: Coastal and Marine

**Threats- SWAP Element 3-**In progress

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-** In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Coast and marine habitat classification system | Regional, intermediate and local scale classification and mapping results | PDF, ESRI GIS data | Planning | Planners, Biologists, Data/GIS Managers |

# Regional Indicators and Measures

## NERMPRF: Northeast Regional Monitoring and Performance Framework

|  |  |
| --- | --- |
| **Status** | Completed (2008) |
| **Principal Investigator** | Tracey Tomajer |
| **Organization** | New York Department of Environmental Conservation: Division of Fish, Wildlife and Marine Resources |
| **Email** | [tmtomaje@gw.dec.state.ny.us](mailto:tmtomaje@gw.dec.state.ny.us) |
| **Address** | 625 Broadway, Albany, NY 12233-4756 |
| **Phone** | 518-402-8877 |
| **Link** | <http://rcngrants.org/content/regional-monitoring-and-performance-framework> |
| **Citation** | Northeast Association of Fish and Wildlife Agencies. 2008. Monitoring the Conservation of Fish and Wildlife in the Northeast: A Report on the Monitoring and Performance Reporting Framework for the Northeast Association of Fish and Wildlife Agencies. Prepared and compiled by: Foundations of Success. 57 pp. |

**Summary**

This project created a Framework designed to help Northeastern states meet the monitoring and performance reporting requirements of SWAPs. It does this by creating cost-effective ways to measure the status of key SGCN and their habitats, both within states and across the region. The project was a collaborative effort involving Northeastern States, federal land management agencies, non-governmental organizations, and academics. As a result, SGCN and habitat data can now be used to report on the effectiveness of conservation actions as well as to inform decision makers and managers. Specifically, this new Framework allows users to:

* collect baseline data to assess status and condition of resources;
* track rare, wide-ranging, and other species that don't recognize state boundaries but may be vital to ensuring conservation success;
* compile region-wide data to increase sample sizes and the statistical power to detect changes in population sizes or condition over time;
* improve chances for rapid detection of status change for species and habitats; e) increase abilities to compare the effectiveness of strategies and programs through standardized protocols and measures and improved data sharing among states; and,
* simplify roll-up and reporting on a state and regional scale, thus making report generation easier and improving response time to Congress.

The baseline data for this effort has been compiled and analyzed (see [RCN2007-05](#rcn2007_05_2008_05) and [RCN2008-05](#rcn2007_05_2008_05)).

**RCN Topic:** [Regional Indicators and Measures](#reg_ind_measures)

**Related Projects:** [Regional Indicators and Measures: Beyond Conservation Land (2007-05), and Conservation Status of Fish, Wildlife, and Natural Habitats in the Northeast Landscape (2008-05)](#rcn2007_05_2008_05)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** Regional SGCN, Highly Migratory Species

**Habitats- SWAP Element 2**

Terrestrial: Forests (1 – Forest and Woodlands), Freshwater Wetlands (2.C.5 – Freshwater Marsh), Managed Grassland and Shrublands (2.C.1 – Grassland and Shrubland), Unique Habitats of the Northeast (6.B.2 – Cliff & Rock, 4.B.1 – Alpine, Other [not in NETWHCS – Caves/Karst/Mines, Waterfalls])

Aquatic: Freshwater Streams and River Systems (Streams and Rivers), Lakes and Ponds

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Develop a coordinated regional implementation plan and integrate the Regional Monitoring and Performance Framework as the standard for [NEAFWA](http://www.neafwa.org/) states to measure the effectiveness of conservation activities and SWAPS. | Data Collection and Analysis (3) | Baseline Inventory - Fish and Wildlife Populations (3.2.3), Population Assessment - Fish and Wildlife Populations (3.2.7), Baseline Inventory – Habitat (3.3.1), Monitoring – Habitat (3.3.2) | No |

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| Forests (Forest and Woodlands [1]), Freshwater Wetlands (Freshwater Marsh [2.C.5]), Managed Grassland and Shrublands (Grassland and Shrubland [2.C.1]), Unique Habitats of the Northeast (Cliff & Rock [6.B.2], Alpine [4.B.1], Other [not in [NETWHCS](#NETHCS) – Caves/Karst/Mines, Waterfalls]), Streams and River Systems, Lakes and Ponds | Establish baseline status | Selection of conservation target, status measures | Baseline data collected; see [RCN2007-05](#rcn2007_05_2008_05) and [RCN2008-05](#rcn2007_05_2008_05) |

**Regional Review and Coordination (Elements 6-8) -** The NEPMPRF was created to aid the Northeastern states in meeting monitoring and performance reporting requirements of SWAPs. It created a cost-effective way to measure the status of key SGCN and their habitats within states and across the region. This data can then be used to report on the effectiveness of conservation actions at the regional scale.

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Standardized protocols for assessing condition of habitats across the region. | Standardized protocols (results chains) for measuring effectiveness of conservation actions. These protocols were used in a national project: [Measuring the Effectiveness of State Wildlife Grants](http://www.teaming.com/tool/measuring-effectiveness-state-wildlife-grants-final-report-2011) and can be directly integrated into the [Wildlife TRACS](http://wsfrprograms.fws.gov/Subpages/TRACS/TRACS.html) system. | PDF | Habitat Status Assessment, Monitoring | Data/GIS Managers, Biologists, Administrators |

## RCN2007-05 and RCN2008-05: Conservation Status of Fish, Wildlife, and Natural Habitats in the Northeast Landscape

|  |  |
| --- | --- |
| **Status** | Completed (September 2011) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
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| **Address** | 99 Bedford Street, 5th Floor, Boston, MA 02111 |
| **Phone** | 617-532-8354 |
| **Link** | <http://www.rcngrants.org/sites/default/files/final_reports/Conservation-Status-of-Fish-Wildlife-and-Natural-Habitats.pdf> |
| **Citation** | Anderson, M.G. and A. Olivero Sheldon. 2011. Conservation Status of Fish, Wildlife, and Natural Habitats in the Northeast Landscape: Implementation of the Northeast Monitoring Framework. The Nature Conservancy, Eastern Conservation Science. 289 pp. |

**Summary**

These two projects report on the status of approximately 30 key indicators and measures across six habitat and species groupings in the Northeast: forests, wetlands, unique habitats, streams and rivers, lakes and ponds, and regionally significant SGCN. Data from a variety of sources was synthesized to provide a regional view of the conservation status of each of these six targeted resources. Indicators include measures of habitat protection status, habitat loss and fragmentation, changes in bird community composition, shoreline and riparian buffer disturbance, and the impacts of invasive species. This analysis provides a baseline of information to enable the [NEAFWA](http://www.neafwa.org/) states to meet congressional expectations for monitoring and performance reporting for SWAPs and the SWG Program. The project effectively implemented approximately 75% of the NEAFWA’s [Northeast Monitoring and Performance Reporting Framework](http://www.rcngrants.org/content/regional-monitoring-and-performance-framework) ([NERPMRF](#NERMPF)).

**RCN Topic:** [Regional Indicators and Measures](#reg_ind_measures)

**Related Projects:** [Northeast Regional Monitoring and Performance Framework (NERPMRF)](#NERMPF)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** Regional SGCN

**Habitats- SWAP Element 2**

**Terrestrial:** Eastern Forests (Southern Upland Forest [1.C.1], Northeast Upland Forest [1.C.2], Boreal Upland Forest [1.D.1], Northern Wetland Forest [1.C.3], Boreal Wetland Forest [1.D.2]), Wetlands (Peatland [2.C.4], Freshwater Marsh [2.C.5], Salt Marsh [2.C.6]), Unique Habitats of the Northeast (no [NETWHCS](#NETHCS) category): Limestone valleys, wetlands and glades, Soft sedimentary valleys and hills, Acidic sedimentary pavements and ridges, Shale barrens and slopes, Granitic mountains and wetlands, Serpentine outcrops, Coarse sand barrens and dunes, Silt floodplains and clayplain forests, Alpine meadows and krumholz, Steep cliff communities

**Aquatic:** Streams and Rivers, Lakes and Ponds

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Habitat loss and fragmentation of terrestrial habitats | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Severity (measures of habitat loss, measure of fragmentation from roads, measures of road density, changes in forest bird composition), spatial extent |
| Unsustainable timber harvest, lack of old growth forests and large diameter trees | Biological Resource Use (5) | Logging and Wood Harvesting (5.3) | Severity (measure of forest stand size composition), spatial extent |
| Shoreline buffer conversion and disturbance | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Severity (measure of shoreline buffer disturbance, impervious surface and biological integrity), spatial extent |
| Invasive species of aquatic systems | Invasive and Other Problematic Species, Genes and Diseases (8) | Invasive Non-native/Alien Species/Diseases (8.1) | Severity (measure access by roads, which correlates with potential for invasive species, measure of biological integrity, number of invasive species per drainage), spatial extent |
| Fragmentation of streams and rivers by dams | Natural System Modifications (7) | Dams and Water Management (7.2) | Severity (number of dams, biological integrity, connected stream networks), spatial extent |
| Fragmentation of streams and rivers by roads | Transportation and Service Corridors (4) | Road and Railroads (4.1) | Severity (road-stream crossings, connected stream networks, flow alteration, index of biotic integrity), spatial extent |
| Riparian zone conversion and disturbance | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Severity (measures of the condition of the riparian zone: developed land, impervious surface, index of biotic integrity), spatial extent |

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| Eastern Forests | Establish baseline conservation status | GIS methodology | Baseline measurements of distribution, loss and protection, fragmentation, age and size structure, trends in forest birds |
| Wetlands | Establish baseline conservation status | GIS methodology | Baseline measurements of distribution, loss and protection, ecological condition, trends in wetlands birds |
| Lakes and Ponds | Establish baseline conservation status | GIS methodology | Baseline measurements of distribution, loss and protection, ecological condition, trends in wetlands birds |
| Streams and Rivers | Establish baseline conservation status | GIS methodology | Biotic integrity, conservation and securement of the riparian zone, dams and connected networks |
| Unique Habitats of the Northeast | Establish baseline conservation status | GIS methodology | Baseline measurements of distribution, loss and protection, distribution of rare plant and animal species, fragmentation and connectivity |
| Regionally Significant SGCN | Establish baseline conservation status | Methods for identifying regional SGCN | Measures of regional responsibility, widespread concern and status across taxonomic groups |

**Regional Review and Coordination (Elements 6-8) -** None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Regional indicators database | This database contains baseline information on the status of 30 indicators specific to eight broad habitats and two species groups in the Northeast. This information can be used to report on the current status of these resources and to measure future change as a way to monitor performance of state SWG projects and SWAPs. | PDF, Excel Workbook | Monitoring Species and Habitat Status Assessment, Species and Habitat Threat Assessment | Biologists, Data/GISManagers, Administrators |

## RCN2007-04: Development of Avian Indicators and Measures for Monitoring Threats and Effectiveness of Conservation Actions in the Northeast

|  |  |
| --- | --- |
| **Status** | Completed (March 2009) |
| **Principal Investigator** | Dan Lambert |
| **Organization** | American Bird Conservancy, not current |
| **Email** | [jdaniel.lambert@gmail.com](mailto:jdaniel.lambert@gmail.com) |
| **Address** | 214 Brothers Road, Hartland, VT 05048 |
| **Phone** | 802-436-4507 |
| **Link** | <http://rcngrants.org/content/development-avian-indicators-and-measures-monitoring-threats-and-effectiveness-conservation> |
| **Citation** | Northeast Coordinated Bird Monitoring Partnership. 2007. A Framework for Coordinated Bird Monitoring in the Northeast. Northeast Coordinated Bird Monitoring Partnership Report. 62 pp. |

**Summary**

This project provides a regional framework for coordinated bird monitoring in the Northeast. By implementing the protocols created through this project, the Northeast Association of Fish and Wildlife Agency ([NEAFWA](http://www.neafwa.org/)) states can effectively measure threats and management effects at the regional scale to target birds and habitats identified by SWAPs as those in greatest need of conservation. Products of this work include peer-reviewed survey design, protocol and standard operating procedures, and data for each indicator group (grassland, tidal marsh and mountain forest birds).

**RCN Topic:** [Regional Indicators and Measures](#reg_ind_measures)

**Related Projects**: [Identification of Tidal Marsh Bird Focal Areas in BCR 30 (RCN2010-03)](#rcn2010_03)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Bird SGCN

**Habitats- SWAP Element 2-**Terrestrial: All

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Integrate monitoring into bird management and conservation decision-making processes and ensure that monitoring is aligned with management and conservation priorities. | Planning (9) | Species Management Planning (9.3.1), Listed Species Recovery Planning (9.3.2) | No |
| Broaden the scope of current monitoring for species that are most at risk and for which inadequate information exists to make effective management decisions. | Data Collection and Analysis (3) | Research, survey or monitoring - fish and wildlife populations (3.2) | No |
| Coordinate monitoring programs among organizations and integrate them across spatial scales to solve conservation or management problems effectively | Coordination and Administration (1) | Coordination and Administration (1.1) | No |
| Increase the value of monitoring information by improving survey design, field methods, and data analysis. | Data Collection and Analysis (3) | Fish and wildlife research, survey and management techniques (3.5.4) | No |
| Maintain bird population monitoring data in modern data management systems. Recognizing the appropriate legal, institutional, proprietary, and other constraints, provide greater availability of raw data, associated metadata, and summary data for bird monitoring programs | Data Collection and Analysis (3) | Database Development and Management (3.1.1) | No |

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| Bird SGCN | N/A – General framework only | Overview of study design, field methods, data management and analysis, and implementation and coordination | None (framework only) |
| Grassland Birds, Mountain Birds, and Tidal Marsh Birds | Establish population status, measure trends in population status, and relate status and trends to biotic and abiotic factors | Goals and objectives, sampling design, field methods, data management and analysis, personnel requirements and training, annual workload and scheduling | Point count (2008) |

**Regional Review and Coordination (Elements 6-8)-**This projectestablishes 6 key regional coordination mechanisms: a website for sharing information ([www.nebirdmonitor.org](http://www.nebirdmonitor.org) – no longer functioning), the Register of Northeast Bird Monitoring Programs, a Northeast node of the Avian Knowledge Network, annual workshops, working groups organized by focus topic, and a survey design and implementation fund. These programs are administered by a Regional Monitoring Coordinator and oversight is provided by the Northeast Coordinated Bird Monitoring Partnership, a consortium of state, federal and NGO conservation organizations.

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Monitoring tools for grassland, tidal marsh and mountain forest birds | This project provides the necessary tools for monitoring grassland, tidal marsh and mountain forest birds in the Northeast. It includes a peer-reviewed survey design, protocol and standard operating procedures for each species group as well as baseline survey data. | Excel Workbook for data, PDF for protocols | Species Distribution and Abundance, Monitoring, Species Status Assessment | Biologists, Data/GIS Managers |
| Regional Bird Monitoring Protocols | Protocols and framework for Northeastern coordinated bird monitoring at the regional scale. | PDF | Field Protocol, Monitoring | Biologists |

## RCN2009-04: Development of Noninvasive Monitoring Tools for New England Cottontail Populations: Implications for Tracking Early Successional Ecosystem Health

|  |  |
| --- | --- |
| **Status** | Completed (May 2012) |
| **Principal Investigator** | Adrienne Kovach |
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| **Address** | Rudman Hall, 46 College Road, Durham, NH 03824 |
| **Phone** | 603-862-1603 |
| **Link** | [http://rcngrants.org/content/development-noninvasive-monitoring-tools-new-england-cottontail-populations-implications](http://rcngrants.org/content/development-noninvasive-monitoring-tools-new-england-cottontail-populations-implications%20) |
| **Citation** | Kovach, A. 2012. Final Report: Development of Noninvasive Monitoring Tools for New England Cottontail Populations: Implications for Tracking Early Successional Ecosystem Health. 7 pp |

**Summary**

This project developed new noninvasive tools for monitoring the status and effectiveness of conservation actions for New England cottontails (*Sylvilagus transitionalis*). A systematic study of detection rates and the factors that influence detection of New England cottontails was conducted. This resulted in noninvasive genetic monitoring techniques for baseline and population estimates of New England cottontails on several sites range-wide. The project also conducted pilot investigations for developing a pellet count index. Final products include an evaluation of current presence/absence survey protocols, guidelines for implementing effective new monitoring approaches, field survey protocols, and the first baseline population estimates for New England cottontails range-wide.

**RCN Topic:** [Regional Indicators and Measures](#reg_ind_measures)

**Related Projects:** [Implementing Bird Action Plans for Shrubland Dependents in the Northeast (RCN2007-08)](#rcn2007_08), [Conservation Strategy for the New England Cottontail (*Sylvilagus transitionalis*)](#swg_nec) (SWG-NEC)

**States -** ME, NH, MA, CT, RI, NY

**Species- SWAP Element 1-**New England cottontail (*Sylvilagus transitionalis*)

**Habitats- SWAP Element 2-**Terrestrial: Grassland and Shrubland (2.C.1)

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| New England cottontail (*Sylvilagus transitionalis*) | N/A (protocol development) | Sampling design, field methods | None |

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Monitoring protocols for New England cottontails | This project provided updates to field protocols for conducting NEC surveys and monitoring. | PDF | Field Protocol, Monitoring | Biologists |
| Occupancy and abundance data for New England cottontails | Presence/absence data for 50 range-wide sites and patch-specific abundance estimates | PDF, Excel workbook, GIS files | Species Status Assessment, Planning | Data/GIS Managers, Biologists |

## RCN2010-04: Northeast State of the Frogs: Development of Regional Analysis for Frog Call Survey Data from the North American Amphibian Monitoring Program

|  |  |
| --- | --- |
| **Status** | Completed (February 2013) |
| **Principal Investigator** | Linda Weir |
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| **Phone** | 301-497-5932 |
| **Link** | <http://rcngrants.org/content/northeast-state-frogs-development-regional-analysis-frog-call-survey-data-north-american> |
| **Citation** | Manuscript being developed |

**Summary**

This project produced the first regional analysis of frog call survey data from the [North American Amphibian Monitoring Program](http://www.pwrc.usgs.gov/naamp/) ([NAAMP](https://www.pwrc.usgs.gov/naamp/index.cfm?)). Eleven years (2001-2011) of survey data from the NAAMP were used to provide a regional trend assessment and associated analytical methods for amphibians in the Northeast. This project permitted the development of the modeling and trend assessment framework for regional reporting, resulting in the first regional-level analysis using NAAMP data. In addition, the framework will become the methodology for future reporting on NAAMP results.

**RCN Topic:** [Regional Indicators and Measures](#reg_ind_measures)

**Related Projects:** None

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Frogs

**Habitats- SWAP Element 2**-Terrestrial: Wetlands

**Threats- SWAP Element 3**-None

**Actions-SWAP Element 4**-None

**Monitoring-SWAP Element 5**-None

**Regional Review and Coordination (Elements 6-8)** -None

**Project Tools**-None

# Landscape Scale Habitat

## RCN2007-02: Northeast Aquatic Connectivity

|  |  |
| --- | --- |
| **Status** | Completed (March 2012) |
| **Principal Investigator** | Colin Apse |
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| **Phone** | 207-373-5291 |
| **Link** | <http://rcngrants.org/content/northeast-aquatic-connectivity> |
| **Citation** | Martin, E. H. and C. D. Apse. 2011. Northeast Aquatic Connectivity: An Assessment of Dams on Northeastern Rivers. The Nature Conservancy, Eastern Freshwater Program. 102 pp. |

**Summary**

The Northeast Aquatic Connectivity Project (NAC) provides natural resource agencies with regional tools and data for strategically reconnecting fragmented aquatic habitats by targeting key barriers to fish passage for removal or bypass. It produced the first unified, error-checked database of dams, impassable waterfalls, and anadromous fish habitat across the Northeast region. This information enables state agencies and partners to move from opportunistic project selection to a more “ecological-benefits” approach to dam removal and fish passage improvement. The project developed a tool that allows managers to re-rank dams at multiple scales (state, HUC, etc), to use attribute filters (river size class, dam type, etc), and to evaluate 72 ecologically-relevant metrics linked to dam locations. It also delivered two sets of consensus-based results which capture the priorities of the 40-person Northeast Aquatic Connectivity Workgroup. These results characterize the Workgroup’s fish passage objectives for both anadromous and resident fish and provide a screening-level resource for planning, fund raising, and communication.

**RCN Topic:** [Landscape Scale Habitat](#lndscp_hab)

**Related Projects:** [Northeast Aquatic Habitat Classification System (NEAHCS),](#neahcs) [A Guide to the Aquatic Habitat Map (RCN2011-06),](#rcn2011_06) Conservation Status of Brook Floater Mussel (RCN2012-02)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Aquatic SGCN

**Habitats- SWAP Element 2-**Aquatic Habitat: Streams and Rivers

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Fragmentation of stream and river habitats by dams | Natural Systems Modification (7) | Dams and Water Management/Use (7.2) | Severity, spatial extent |
| Fragmentation of stream and river habitats by improperly designed culverts | Fish and wildlife habitat loss or degradation (1.1) | Transportation corridors (1.1.3) | Severity, spatial extent |

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Create a web portal to ensure that the Northeast Connectivity Assessment Tool (NCAT) and Northeast Aquatic Connectivity associated analysis tools (e.g. the Barrier Analysis Tool‐BAT) are available online. | Data Collection and Analysis (3) | Database Development and Management (3.1.1), Information Systems Operations and Maintenance (3.1.2) | No |
| Whenever feasible, use the Barrier Analysis Tool and associated data to assess threats to aquatic connectivity. | Planning (9) | State Wildlife Action Planning (9.4) | Yes |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-** This project recommends annual meetings of Northeast Aquatic Connectivity Working Group to review and coordinate the proper use of the NCAT, updates to the database, application of new decision support tools, and potential collaborations and partnerships.

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Barrier Analysis Tool (BAT) v1.0 | The Barrier Analysis Tool is software developed to assist resource agencies in the Northeast with strategically reconnecting fragmented aquatic habitats. It integrates GIS data on fish passage barriers with a suite of ecologically relevant variables to identify and rank dams for removal or modification. The data can be used for threat assessments of aquatic habitats in state Wildlife Action Plans. | Software, ESRI shapefiles (fish passage barriers) | Threat Assessment, Planning, Restoration | Data/GIS Managers, Biologists |
| Northeast Connectivity Assessment Tool (NCAT) | The Northeast Connectivity Assessment Tool is spreadsheet-based software developed to assist resource agencies in the Northeast with strategically reconnecting fragmented aquatic habitats. It incorporates a suite of ecologically-relevant data for almost 14,000 dams in the study area. The tool allows users to produce a tiered list of dams for a given geographic area, based on the ecological metrics that are of interest for their particular scenario. Dams in the upper tiers would provide the greatest ecological benefit, based on the metrics and parameters selected by the user. | Excel 2007 Workbook | Threat Assessment, Planning, Restoration | Data/GIS Managers, Biologists |

## 

## RCN2007-07: Establishing a Regional Initiative for Biomass Energy Development for Early-Succession SGCN in the Northeast

|  |  |
| --- | --- |
| **Status** | Completed (October 2011) |
| **Principal Investigator** | Scott D. Klopfer |
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| **Phone** | 540-231-8825 |
| **Link** | <http://static.rcngrants.org/sites/default/files/final_reports/2007-07%20FINAL%20REPORT_0.pdf> |
| **Citation** | Klopfer, S. 2011. Final Report: Establishing a Regional Initiative for Biomass Energy Development for Early-Succession SGCN in the Northeast. Conservation Management Institute. 24 pp. |

**Summary**

This project outlined the costs and benefits that biomass energy systems pose for SGCN in the Northeast. The results show that biomass energy development will impact SGCN at the state and regional levels. Generally, biomass systems that utilize wood from existing mature forests will result in a net negative impact to SGCN as these forests are converted to younger seral stages. Biomass systems implemented on existing agricultural land, however, would result in a potential net positive impact for SGCN. These systems would result in structural or floristic components similar to those needed by early-successional species that require frequent disturbance. Wildlife biologists can use this information to recognize opportunities certain biomass energy applications present for managing SGCN and also provide an impetus to work with biomass developers for mutual benefit.

**RCN Topic:** [Landscape Scale Habitat](#lndscp_hab)

**Related Projects:** [Implementing Bird Action Plans for Shrubland Dependents in the Northeast (RCN2007-08),](#rcn2007_08) [Conservation Strategy for the New England Cottontail (*Sylvilagus transitionalis*)](#swg_nec) (SWG-NEC)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**SGCN

**Habitats- SWAP Element 2-** Terrestrial

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Potential deleterious effects of biomass energy production | Energy Production and Mining (3) | Renewable Energy (3.3) | Severity, cost-benefit analysis |

**Actions-SWAP Element 4**

| **Action** | **TRACS Level 1** | **TRACS Action** | **SWAP** |
| --- | --- | --- | --- |
| State fish and wildlife agencies should make a proactive and concerted effort to engage biomass industry entities by encouraging wildlife biologists to participate in active communications with their industry counterparts at early in the project planning process as possible. | Technical Assistance (11) | Review of Proposed Projects (11.1.1) | No |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**-None

## RCN2007-08: Implementing Bird Action Plans for Shrubland Dependents in the Northeast

|  |  |
| --- | --- |
| **Status** | Completed (2011) |
| **Principal Investigator** | Robert McDowell |
| **Organization** | Northeast Association of Fish and Wildlife Agencies |
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| **Address** | 116 East Shore Lake Owassa Road, Newton, NJ 07860 |
| **Phone** | 973-948-7643 |
| **Link** | <http://rcngrants.org/content/implementing-bird-action-plans-shrubland-dependents-northeast> |
| **Citation** | McDowell, B. 2011. Restoration of Shrubland Bird Habitat in the Northern Appalachian Mountain Bird Conservation Region. Wildlife Management Institute. 5 pp. |

**Summary**

This project enhanced the conservation status of early-successional dependent SGCN in the Northeast, with a focus on the Appalachian Mountains. Specifically, the project developed Best Management Practices (BMPs), established BMP demonstration areas, monitored the response of selected shrubland species to habitat management, and educated public land managers and private landowners. Short-term conservation benefits to shrubland SGCN from this initiative include an increase in shrubland habitats. Long-term benefits will result from successfully increasing the awareness of private landowners that the current and future actions they take on their land will determine if this suite of species remains imperiled.

**RCN Topic:** [Landscape Scale Habitat](#lndscp_hab)

**Related Projects:** [Conservation Strategy for the New England Cottontail (*Sylvilagus transitionalis*)](#swg_nec)

(SWG NEC)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Shrub-dependent SGCN

**Habitats- SWAP Element 2-**Grassland and Shrubland (2.C.1)

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| American Woodcock (*Scolopax minor*), Shrub-dependent SGCN | Measure response of species to habitat management | Sampling design, field methods | None |

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| American Woodcock Habitat Best Management Practices | This report provides protocols for identifying, establishing and managing American Woodcock habitat and can be broadly applied to other shrub-dependent SGCN throughout the Northeast. | PDF | Habitat Management | Biologists |
| Various early-successional habitat outreach products | This project produced a website ([www.timberdoodle.org](file:///C:\Users\Tash\Desktop\www.timberdoodle.org)) and other outreach materials aimed at raising awareness of early-successional SGCN and their habitats. These can be used by state agencies as a recruiting and education tool for those interested in managing lands for shrub-dependent wildlife. | Website, PDF | Outreach, Education | Biologists, Communication Staff |

# Identification of Invasive Species

## RCN2007-03: Identifying Relationships between Invasive Species and SGCN in the Northeast

|  |  |
| --- | --- |
| **Status** | Completed (January 2012) |
| **Principal Investigator** | Scott D. Klopfer and Glen N. Stevens, Ph.D |
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| **Phone** | 973-948-7643 |
| **Link** | <http://rcngrants.org/content/identifying-relationships-between-invasive-species-and-species-greatest-conservation-need> |
| **Citation** | Klopfer, S. 2012. Final Report: Identifying Relationships between Invasive Species and SGCN in the Northeast. Conservation Management Institute. 18 pp. |

**Summary**

This project provides a series of data tables and the methodology necessary for assessing the impact of invasive species on SGCN. The process is open-ended and flexible to allow users to modify the criteria for customized results within each state. The metrics range from simply the number of SGCNs impacted by each invasive species to more complex analysis incorporating invasive characteristics, impacts, or weighting values. The project report provides background information on how the data tables of SGCN and invasive species were developed and how they should be interpreted for prioritizing and ranking invasive species threats to SGCNs. A detailed example of an assessment for Pennsylvania SGCN is provided. This file contains a document that walks the user through the process.

**RCN Topic:** [Identification of Invasive Species](#inv_spp)

**Related Projects:** None

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**SGCN

**Habitats- SWAP Element 2-**All

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Impact of invasive species on SGCN | Invasive and Other Problematic Species, Genes and Diseases (8) | Invasive Non-Native/Alien Species/Diseases (8.1.2) | Severity |

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Whenever feasible, use the methods developed by this project to assess the threat of invasive species on state SGCN. | Planning (9) | State Wildlife Action Planning (9.4) | Yes |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Tables and tools to assess threats to SGCN wildlife from invasive species | This tool consists of a set of Excel tables that can used to assess the impact of invasive species on SCGN wildlife. Several different metrics for doing such an assessment were compiled to provide users with customized ranking criteria to meet specific needs. A detailed example of an assessment for Pennsylvania SGCN is provided. The example files contain a word document that walks the user through the process. | Excel Workbook | Threat Assessment | Biologists |

# Instream Flow

## RCN2007-06: An Interactive, GIS-Based Application to Estimate Continuous, Unimpacted Daily Streamflow at Ungaged Locations in the Connecticut River Basin

|  |  |
| --- | --- |
| **Status** | Completed (April 2012) |
| **Principal Investigator** | Stacey A. Archfield, Ph.D. |
| **Organization** | New England Water Science Center, U.S. Geological Survey |
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| **Phone** | 508-490-5072 |
| **Link** | <http://www.rcngrants.org/content/interactive-gis-based-application-estimate-continuous-unimpacted-daily-streamflow-ungaged> |
| **Citation** | Archfield, S.A., P.A. Steeves, J.D. Guthrie and K.G. Reis III. 2013. Towards a publicly available, map-based regional software tool to estimate unregulated daily streamflow at ungauged rivers. Geoscientific Model Development. 6, 101–115. |

**Summary**

Software developed by this project allows users to identify a stream reach of interest within the Connecticut River basin and to obtain estimated continuous daily, unregulated or natural streamflow at the selected location. It builds on previous efforts in Massachusetts by refining methodology and including gauges in the northern portion of the Connecticut River Basin. The project developed a seamless, multi-state point-and-click GIS application to interactively estimate stream flow at ungauged locations in the Connecticut River Basin.

**RCN Topic:** [Instreamflow](#instream_flow)

**Related Projects:** [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs), [Northeast Aquatic Connectivity (RCN2007-02)](#rcn2007_02), [A Guide to the Aquatic Habitat Map (RCN2011-06)](#rcn2011_06)

**States -** NH, VT, MA, CT

**Species- SWAP Element 1-**Aquatic SGCN

**Habitats- SWAP Element 2-**Aquatic: Streams and Rivers

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Fragmentation of stream and river habitats by dams | Natural Systems Modification (7) | Dams and Water Management/Use (7.2) | Severity |
| Fragmentation of stream and river habitats by improperly designed culverts | Transportation and Service Corridors (4) | Roads and Railroads (4.1) | Severity |

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Connecticut River Unimpacted Streamflow Estimation ([CRUISE](http://webdmamrl.er.usgs.gov/s1/sarch/ctrtool/)) Tool | The Connecticut River Unimpacted Stream Flow Estimation ([CRUISE](http://webdmamrl.er.usgs.gov/s1/sarch/ctrtool/)) tool combines the utility of catchment delineation at any location along a stream with the estimation and serving of daily stream flow information. The tool requires only an internet connection and Microsoft Excel version 2000 or higher. The U.S. Geological Survey [StreamStats web application](http://water.usgs.gov/osw/streamstats/) is used to select the location of the ungauged site, delineate the catchment boundary, and determine its catchment characteristics. The spreadsheet program then estimates daily, historical stream flow for a 44-year (16,071-day) period of record spanning October 1, 1960 through September 30, 2004 using information from an index of stream gauge and catchment characteristics. | Web application | Threat Assessment | Biologists |

## RCN2010-02: Instream Flow Recommendations for the Great Lakes Basin of New York and Pennsylvania

|  |  |
| --- | --- |
| **Status** | Completed (September 2012) |
| **Principal Investigator** | David Klein |
| **Organization** | The Nature Conservancy |
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| **Address** | 1048 Rochester, NY 14607 |
| **Phone** | 585-546-8030 |
| **Link** | <http://rcngrants.org/content/instream-flow-recommendations-great-lakes-basin-new-york-and-pennsylvania> |
| **Citation** | Flow Recommendations for the tributaries of the Great Lakes in New York  and Pennsylvania, 2013. Taylor, Jason, Fisher, W., Apse, C., Kendy, E., Klein, D., Schuler, G., Adams, S., Crabtree, D. The Nature Conservancy, Rochester, New York. 182 pp. |

**Summary**

The Ecological Limits of Hydrologic Alteration ([ELOHA](http://www.conservationgateway.org/ConservationPractices/Freshwater/EnvironmentalFlows/MethodsandTools/ELOHA/Pages/ecological-limits-hydrolo.aspx)) framework was deployed in the Great Lakes drainage of New York and Pennsylvania to develop an objective, spatially explicit process for evaluating the ecological impacts of new withdrawals of water from the tributaries of Lakes Erie, Ontario, and the upper St. Lawrence River. This effort provides the information necessary to develop and implement instream flow standards for managing the Great Lakes surface and ground-waters of New York and Pennsylvania under the terms of the [Great Lakes Compact](http://www.glc.org/about/glbc.html). Additional multi-state benefits include: tests of the transferability of the holistic, ELOHA-based technique being developed in the Susquehanna Basin to the Great Lakes Basin; guidance on implementation of the Great Lakes Compact in at least two states, with useful information for other states and provinces in the Great Lakes Basin (jurisdictions that are part of, or work closely with, [NEAFWA](http://www.neafwa.org/), e.g. Vermont, Ontario, Quebec, Ohio); assessment and documentation of the transferability of the project methods and models that will enable other NEAFWA states to determine the utility and applicability of the approach to their states or watersheds.

**RCN Topic:** [Instream Flow](#instream_flow)

**Related Projects:** [Northeast Aquatic Connectivity (RCN2007-02)](#rcn2007_02), [An Interactive, GIS-Based Application to Estimate Continuous, Unimpacted Daily Streamflow at Ungauged Locations in the Connecticut River Basin (RCN2007-06)](#rcn2007_06)

**States -** NY, PA

**Species- SWAP Element 1**-Aquatic SGCN

**Habitats- SWAP Element 2-**Aquatic:Streams and Rivers

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Withdrawal of surface waters | Natural Systems Modification (7) | Abstraction of Surface Water (7.2.4) | Severity |

**Actions-SWAP Element 4**-None

**Monitoring-SWAP Element 5**-None

**Regional Review and Coordination (Elements 6-8)**-None

**Project Tools**-None

# Factors in Regional Decline of SGCN

## RCN2007-09: Exploring the Connection between Arousal Patterns in Hibernating Bats and White Nose Syndrome

|  |  |
| --- | --- |
| **Status** | Completed (July 2012) |
| **Principal Investigator** | DeeAnn Reeder |
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| **Address** | 701 Moore Avenue, Lewisburg, PA 17837 |
| **Phone** | 570-577-1208 |
| **Link** | http://static.rcngrants.org/sites/default/files/final\_reports/Frequent%20Arousal%20from%20Hibernation%20Linked%20to%20Severity%20of%20Infection%20and%20Mortality%20in%20Bats%20with%20WNS.pdf |
| **Citation** | Reeder D. M., C. L. Frank, G. G. Turner, C. U. Meteyer, and A. Kurta. 2012. Frequent Arousal from Hibernation Linked to Severity of Infection and Mortality in Bats with White-Nose Syndrome. PLoS ONE 7(6): e38920. doi:10.1371/journal.pone.0038920 |

**Summary**

This research demonstrates that bats affected by White Nose Syndrome (WNS) arouse from hibernation significantly more often than healthy bats. WNS has killed millions of hibernating bats in the Northeast. The severity of cutaneous Gd infection (causative agent) correlated with the number of arousal episodes during hibernation. The increased frequency of arousal from torpor likely contributes to WNS-associated mortality, but the question of how Gd infection induces increased arousals remains unanswered.

**RCN Topic:** [Factors in Regional Decline of SGCN](#rsgcn_decline)

**Related Projects:** [Laboratory and Field Testing of Treatments for White Nose Syndrome (2010-01)](#rcn2010_01)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Cave Bat SGCN

**Habitats- SWAP Element 2-**Caves and Mines (no [NETWHCS](#NETHCS) category)

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| White-nosed Syndrome in bats | Invasive and Other Problematic Species, Genes and Diseases (8) | Problematic Species/Diseases of Unknown Origin (8.4.1) | Cause, severity |

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools-**None

## RCN2010-01: Laboratory and Field Testing of Treatments of White Nosed Syndrome

|  |  |
| --- | --- |
| **Status** | Completed (July 2012) |
| **Principal Investigator** | DeeAnn Reeder |
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| **Address** | 701 Moore Avenue, Lewisburg, PA 17837 |
| **Phone** | 570-577-1208 |
| **Link** | <http://rcngrants.org/content/laboratory-and-field-testing-treatments-white-nose-syndrome-immediate-funding-need-northeast> |
| **Citation** |  |

**Summary**

This project developed methodologies to combat White Nosed Syndrome (WNS) in bats. Specifically, the project tested potential treatments for efficacy against cultured Gd (the fungal pathogen associated with WNS) under laboratory conditions. It also tested potential treatments for safety in healthy bats and efficacy against Gd in hibernating bats.

**RCN Topic:** [Factors in Regional Decline of SGCN](#rsgcn_decline)

**Related Projects:** [Exploring the Connection between Arousal Patterns in Hibernating Bats and White Nose Syndrome (RCN2007-09)](#rcn2007_09)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Cave Bat SGCN

**Habitats- SWAP Element 2-**Caves and Mines (not in [NETWHCS](#NETHCS))

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| White-nosed Syndrome in bats | Invasive and Other Problematic Species, Genes and Diseases (8) | Problematic Species/Diseases of Unknown Origin (8.4.1) | Abatement |

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools-**None

# Guidelines for Local Planning Boards

## RCN2008-02: Development of Model Guidelines for Assisting Local Planning Boards with Conservation of Species of Greatest Conservation Need and their Key Habitats through Local Land Use Planning

|  |  |
| --- | --- |
| **Status** | Completed (February 2012) |
| **Principal Investigator** | Lesley Sneddon |
| **Organization** | NatureServe |
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| **Address** | 11 Avenue de Lafayette, 5th Floor, Boston, MA |
| **Phone** | 617-542-1908 x 245 |
| **Link** | http://rcngrants.org/content/development-model-guidelines-assisting-local-planning-boards-conservation-species-greatest |
| **Citation** | Sneddon, L. 2012. Development of Model Guidelines for Assisting Local Planning Boards with Conservation of Species of Greatest Conservation Need and their Key Habitats through Local Land Use Planning. NatureServe. 295 pp. |

**Summary**

This project developed a suite of tools designed to integrate conservation information on SGCN and their habitats with land use planning. It provides local decision makers (e.g., town planning boards and environmental commissions) with easy access to the wildlife information that they need to make informed decisions. The final report includes an overview of wildlife and conservation information available from national, regional, and state levels; case studies of integrating biodiversity conservation into planning in Virginia and Pennsylvania; legal conservation frameworks for each state; funding sources for conservation by state; and links to a demonstration toolkit for three states (Virginia, Pennsylvania, and New Hampshire) on [NatureServe’s LandScope America](http://www.landscope.org/).

**RCN Topic:** [Guidelines for Local Planning Boards](#planning_boards)

**Related Projects:** None

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**SGCN

**Habitats- SWAP Element 2-**All

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Whenever feasible incorporate the tools developed by this project in outreach efforts at the local scale (towns, planning boards, environmental commissions, land trusts) | Outreach (8) | Partner/Stakeholder Engagement (8.1) | No |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Database of state conservation resources | This database is a toolkit aimed at local planners and environmental commissions. It provides easily accessible information on SGCN and their habitats, as well as on funding sources to aid wildlife resource planning, state-based legal frameworks that address SGCN, and Best Management Practices for wildlife. | Excel Workbook | Outreach, Communication, Land Use Planning | Biologists, Communications Staff |

# Regional Focal Areas

## RCN2008-03: Regional Focal Areas for Species of Greatest Conservation Need Based on Site Adaptive Capacity, Network Resilience and Connectivity

|  |  |
| --- | --- |
| **Status** | Completed (October 2011) |
| **Principal Investigator** | Mark G. Anderson, Ph.D. |
| **Organization** | The Nature Conservancy, Eastern Region |
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| **Address** | 99 Bedford Street, 5th Floor, Boston, MA 02111 |
| **Phone** | 617-532-8354 |
| **Link** | <http://static.rcngrants.org/sites/default/files/final_reports/Resilient-Sites-for-Species-Conservation%281%29.pdf> |
| **Citation** | Anderson, M.G., M. Clark, and A. Olivero Sheldon. 2011. Resilient Sites for Species Conservation in the Northeast and Mid-Atlantic Region. The Nature Conservancy, Eastern Conservation Science. 122pp. |

**Summary**

This project integrates the most resilient examples of key geophysical settings with locations of SGCN. The goal is to identify the places in the Northeast where conservation is most likely to succeed under the effects of climate change. Site resilience was estimated by measuring the complexity and permeability of the landscape using a GIS. This information was combined with data on the known distribution of species to identify the most resilient sites for each geophysical setting. Broad east-west and north-south permeability gradients were also analyzed to identify areas where ecological flows and species movements potentially become concentrated. The results of this project are maps that can be incorporated into land use planning and protection efforts at state and local scales.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** [Assessing the Likely Impacts of Climate Change on Northeastern Fish and Wildlife Habitats and Species of Greatest Conservation Need (RCN2009-01)](#rcn2009_01), [Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II](#lcc6) (LCC-6)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Terrestrial SGCN

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Whenever feasible, integrate the results of the resiliency analysis into land protection and wildlife conservation efforts | Land and Water Rights Acquisition and Protection (6) | Land Acquisition (6.2), Water Rights Acquisition (6.2), Conservation Area Designation (6.3). Private Lands Agreement (6.4) | No |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| GIS database of sites resilient to climate change | This tool is a GIS database of sites in the Northeast identified as important indicators of biodiversity and highly resilient to climate change. These data should be incorporated into land use planning and protection efforts at state and local scales whenever feasible. | GIS data | Land Protection, Threat Assessment, Planning | Data/GIS Managers, Biologists |

## RCN2010-03: Identification of Tidal Marsh Bird Focal Areas in Bird Conservation Region 30

|  |  |
| --- | --- |
| **Status** | Ongoing |
| **Principal Investigator** | W. Gregory Shriver |
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| **Address** | 250 Townsend Hall, University of Delaware, Newark, DE 19717 |
| **Phone** | 302-831-1300 |
| **Link** | <http://rcngrants.org/content/identification-tidal-marsh-bird-focal-areas-bird-conservation-region-30> |
| **Citation** | . |

**Summary**

This project will determine state level responsibility for the conservation of tidal marsh bird species and provide the baseline for long-term monitoring of the tidal marsh bird community along the Atlantic coastline from Virginia to Maine ([Bird Conservation Region 30](http://www.nabci-us.org/bcr30.htm)). The project will focus on the tidal marshes from New Jersey to Virginia and complements existing and ongoing surveys and research being conducted from New York to Maine. The project will identify population centers for tidal marsh birds and provide states with detailed information on regional responsibility.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** [Development of Avian Indicators and Measures for Monitoring Threats and Effectiveness of Conservation Actions in the Northeast (RCN2007-04)](#rcn2007_04)

**States -** NJ, DE, MD, DC, VA

**Species- SWAP Element 1-**Tidal Marsh Bird SGCN

**Habitats- SWAP Element 2-**Terrestrial: Salt Marsh (2.C.6)

**Threats- SWAP Element 3**-In progress

**Actions-SWAP Element 4**-In progress

**Monitoring-SWAP Element 5**-In progress

**Regional Review and Coordination (Elements 6-8)** -In progress

**Project Tools**-In progress

## LCC-9: Designing Sustainable Landscapes: Assessment of Landscape Changes in the North Atlantic Landscape Conservation Cooperative: Decision-Support Tools for Conservation

|  |  |
| --- | --- |
| **Status** | Ongoing (phase 1 completed June 2012, Phase 2 to be completed, June 2014) |
| **Principal Investigator** | Kevin McGarigal, Ph.D. |
| **Organization** | University of Massachusetts, Amherst |
| **Email** | [mcgarigalk@eco.umass.edu](mailto:mcgarigalk@eco.umass.edu) |
| **Address** | Department of Environmental Conservation, Holdsworth Natural Resources Center, University of Massachusetts, Amherst, MA 01003 |
| **Phone** | 413-577-0655 |
| **Link** | http[://www.northatlanticlcc.org/projects/designing-sustainable-landscapes-phase-2](file:///C:\Users\Tash\Desktop\:\www.northatlanticlcc.org\projects\designing-sustainable-landscapes-phase-2)and  <http://www.umass.edu/landeco/research/nalcc/nalcc.html> |
| **Citation** | McGarigal, K. 2012. Project Summary: Designing Sustainable Landscapes, Assessment of Landscape Changes in the North Atlantic Landscape Conservation Cooperative: Decision-Support Tools for Conservation UMass Amherst, Amherst, Massachusetts. 21 pp. |

**Summary**

This project will assess the ability of habitats in the Northeastern U.S. to sustain populations of wildlife in the face of urban growth, changing climate, and other disturbances. Specifically, the project will predict the impacts of landscape-level changes (e.g., from urban growth, conservation programs, climate change, etc.) on the future ability of these habitats to support wildlife populations; target conservation programs to effectively and efficiently achieve objectives in State Wildlife Action Plans and other conservation plans; evaluate progress under these plans; and enhance coordination among partners during the planning, implementation and evaluation of habitat conservation through conservation design.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** [Regional Focal Areas for Species of Greatest Conservation Need Based on Site Adaptive Capacity, Network Resilience and Connectivity (RCN2007-08),](#rcn2007_08) [Geospatial Condition Analysis of Northeast Habitats based on the Northeast SGCN Habitat Maps (RCN2009-02)](#rcn2009_02), [Assessing the Likely Impacts of Climate Change on Northeastern Fish and Wildlife Habitats and Species of Greatest Conservation Need (RCN2009-01)](#rcn2009_01), [Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II](#lcc6) (LCC-6).

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN

**Habitats- SWAP Element 2-**Terrestrial

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |
| Habitat loss and fragmentation | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-**In progress

**Regional Review and Coordination (Elements 6-8)-** In progress

**Project Tools**-In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| A Landscape Change, Assessment and Design (LCAD) model for the northeast region | A Landscape Change, Assessment and Design (LCAD) model for the Northeast region that will allow us to simulate changes to the landscape under a variety of alternative future scenarios (e.g., climate change, urban growth). It will also allow us to assess the affects of those changes on ecological integrity and climate-habitat capability for representative species, and will inform the design of conservation strategies (e.g., land protection, management and restoration) to meet conservation objectives. | ESRI raster grid (30m) | Species Status Assessment, Habitat Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |
| Habitat capability models for representative species for the northeast region | Develop habitat capability models for a suite of about 30 representative species representing the habitat needs of federal and state trust species for conservation planning and evaluating the ecological consequences of landscape change | ESRI raster grid (30m) | Species Status Assessment, Habitat Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |
| Ecological integrity models for a suite of ecological systems in the northeast region | Develop ecological integrity models for a suite of ecological systems (based on Northeast Terrestrial Habitat Classification) as a complementary coarse-fine filter for conservation planning and evaluating the ecological consequences of landscape change in the LCAD model. This filter involves designing a landscape with a green infrastructure (i.e., undeveloped lands) containing a diversity of highly connected ecological systems with high intactness, resiliency and adaptive capacity. | ESRI raster grid (30m) | Species Status Assessment, Habitat Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |

## LCC-10: Decision support tool to assess aquatic habitats and threats in North Atlantic watersheds and estuaries

|  |  |
| --- | --- |
| **Status** | Ongoing (expected January 2015) |
| **Principal Investigator** | Fritz Boettner |
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| **Address** | 203 Railroad Avenue, Alderson WV 24910 |
| **Phone** | 304-445-7200 |
| **Link** | <http://www.northatlanticlcc.org/projects/downstream-strategies-project/decision-support-tool-to-assess-aquatic-habitats-and-threats-in-north-atlantic-watersheds> |
| **Citation** |  |

**Summary**

This project will develop habitat assessment models and outputs for the [NALCC](http://www.northatlanticlcc.org/) region, based on a stakeholder driven process. GIS decision-support tools will also be developed and provided to assist with resource planning efforts, at both the regional and site-specific scales. Regional data that describe fish distribution, habitat, and threats to aquatic species will be assembled and analyzed. The central focus of this project will revolve around a flexible modeling process that has been highly refined from similar on-going and completed projects across the country. Multiple models of different species or species groups will be performed and will result in expected species distribution maps, as well as identification and quantification of threats and stressors to the species modeled. Spatially-explicit model results will populate a multi-criteria decision-support tool (DST) that will integrate the components of each model developed. The DST will provide a highly functional and user-friendly mechanism for resource managers to visualize, rank, and manipulate inputs in order to prioritize areas for conservation action.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs), [Northeast Aquatic Connectivity (RCN2007-02)](#rcn2007_02)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** Aquatic

**Habitats- SWAP Element 2-**Aquatic SGCN

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Habitat loss and fragmentation | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-**In progress

**Regional Review and Coordination (Elements 6-8)-** In progress

**Project Tools-**In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Species models | Species distribution maps, as well as identification and quantification of threats and stressors to the species modeled. | ESRI raster grid (30m) | Species Status Assessment, Habitat Status Assessment, Planning | Planners, Data/GIS Managers, Biologists |
| Decision Support Tool | Multi-criteria decision support tool (DST) that will integrate the components of each model developed | ESRI raster grid (30m) | Species Status Assessment, Habitat Status Assessment, Planning | Planners, Data/GIS Managers, Biologists |

## LCC-12: Forecasting Changes in Aquatic Systems and Resilience of Aquatic Populations in the NALCC: Decision-support Tools for Conservation

|  |  |
| --- | --- |
| **Status** | Ongoing (January 2014) |
| **Principal Investigator** | Benjamin Letcher, PhD. |
| **Organization** | USGS/University of Massachusetts Amherst |
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| **Address** | 1 Migratory Way, Turners Falls, MA 01376 |
| **Phone** | 413-522-9417 |
| **Link** | <http://www.northatlanticlcc.org/projects/forecasting-changes-in-aquatic-systems-and-resilience-of-aquatic-populations-in-the-nalcc-decision-support-tools-for-conservation/forecasting-changes-in-aquatic-systems-and-resilience-of-aquatic-populations-in-the-nalcc-decision-support-tools-for-conservation> |
| **Citation** |  |

**Summary**

This project will develop a web-based decision support system for evaluating the effects of alternative management scenarios on local population persistence of brook trout under different climate change scenarios. This will include: 1) a hierarchical modeling framework to account for multiple scales and sources of uncertainty in climate change predictions; 2) statistical models to predict stream flow and temperature based on air temperature and precipitation; 3) incorporation of climate change forecasts into population-persistence models; and 4) development of a decision-support system for evaluating the effects of alternate management strategies in the face of climate change.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** [Northeast Aquatic Habitat Classification System (NEAHCS)](#neahcs), [Northeast Aquatic Connectivity (RCN2007-02)](#rcn2007_02), [Designing Sustainable Landscapes: Assessment of Landscape Changes in the North Atlantic Landscape Conservation Cooperative: Decision-Support Tools for Conservation (LCC-9)](#lcc9), [An Interactive, GIS-Based Application to Estimate Continuous, Unimpacted Daily Streamflow at Ungaged Locations in the Connecticut River Basin (RCN2007-06)](#rcn2007_06)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** Brook trout (*Salvelinus fontinalis*), Aquatic SGCN

**Habitats- SWAP Element 2-** Aquatic

**Threats- SWAP Element 3-** In progress

**Actions-SWAP Element 4 –** In progress

**Monitoring-SWAP Element 5-**In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-**In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Statistical models to predict stream flow and temperature based on air temperature and precipitation. | Empirical model for the relationship between air temperature and water temperature as a function of local environmental conditions | GIS files | Threat assessment | Planners, Data/GIS Managers, Biologists |
| Population persistence models | Model to forecast local (catchment scale) population persistence of brook trout | GIS files | Planning | Planners, Data/GIS Managers, Biologists |
| Decision support tool | Web-based application for examining effects of management scenarios on local population persistence | Web-based tool | Wildlife Management | Biologists |

## LCC-14: Assessing Priority Amphibian & Reptile Conservation Areas (PARCAs) and Vulnerability to Climate Change in the North Atlantic Landscape Conservation Cooperative

|  |  |
| --- | --- |
| **Status** | Ongoing (December 2014) |
| **Principal Investigator** | Priya Nanjappa |
| **Organization** | Association of Fish and Wildlife Agencies |
| **Email** | [pnanjappa@fishwildlife.org](mailto:pnanjappa@fishwildlife.org) |
| **Address** | 444 North Capitol Street, NW Suite 725 Washington, DC 20001 |
| **Phone** | 202-624-7890 |
| **Link** | <http://www.northatlanticlcc.org/projects/assessing-priority-amphibian-reptile-conservation-areas-parcas-and-vulnerability-to-climate-change-in-the-north-atlantic-landscape-conservation-cooperative-lcc/assessing-priority-amphibian-reptile-conservation-areas-parcas-and-vulnerability-to-climate-change-in-the-north-atlantic-landscape-conservation-cooperative-lcc> |
| **Citation** |  |

**Summary**

This project will generate spacially explicit data assessing the vulnerability of amphibian and reptile conservation areas to the effects of climate change. Amphibians and reptiles are experiencing severe habitat loss throughout North America; however, this threat to biodiversity can be mitigated by identifying and managing areas that serve a disproportionate role in sustaining herpetofauna. Identification of such areas must take into consideration the dynamic nature of habitat suitability. As climate rapidly changes it is possible that areas currently deemed suitable may no longer be so in the future. To address these needs, we are proposing to: 1) identify Priority Amphibian and Reptile Conservation Areas (PARCAs) – those discrete areas most vital to maintaining reptile and amphibian diversity, 2) propose regions of current and future climatic suitability for a number of priority reptiles and amphibians in the [North Atlantic Landscape Conservation Cooperative](http://www.fws.gov/northeast/science/nalcc.html), and 3) identify gaps in distributional data for these species that may prevent or inhibit the identification of species-level climatic suitability.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** [Northeast State of the Frogs: Development of Regional Analysis for Frog Call Survey Data from the North American Amphibian Monitoring Program (RCN2010-04)](#rcn2010_04)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN reptiles and amphibians

**Habitats- SWAP Element 2-**Terrestrial: Wetlands

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |
| Habitat loss and fragmentation | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-**In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Priority Amphibian and Reptile Conservation Areas (PARCAs) | Discrete areas most vital to maintaining reptile and amphibian diversity | ESRI raster grid (30m) | Planning, Wildlife Management, Land Protection | Planners, Biologists, Data/GIS Managers |

## LCC-15: Identifying Important Migratory Landbird Stopover Sites in the Northeast

|  |  |
| --- | --- |
| **Status** | Ongoing (June 2015) |
| **Principal Investigator** | Jeffrey Buler |
| **Organization** | University of Delaware |
| **Email** | [jbuler@udel.edu](https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=jbuler@udel.edu) |
| **Address** | 246 Townsend Hall, Department of Entomology & Wildlife Ecology, University of Delaware |
| **Phone** | 202-624-7890 |
| **Link** | <http://www.northatlanticlcc.org/projects/bird-radar-group/migratory-landbird-stopover-sites-in-the-northeast> |
| **Citation** |  |

**Summary**

This project builds upon prior work by the University of Delaware and USGS, using weather surveillance data and field surveys to map and predict stopover areas for migratory landbirds. Specifically, the project will 1) calibrate NEXRAD weather surveillance radar data of bird stopover density by collecting ground survey data of bird identities and densities; 2) improve NEXRAD-based models of important stopover sites for the Northeast by incorporating two more years of radar data, a more sophisticated modeling method, and better explanatory variables; 3) validate the updated NEXRAD-based predictive statistical models for the Northeast using ground survey and (as available) NASA radar observations; and 4) assess habitat use of migrants in relation to food abundance, habitat and landscape features in the Mid-Atlantic Coastal Plain.

**RCN Topic:** [Regional Focal Areas](#focal_areas)

**Related Projects:** None

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN birds

**Habitats- SWAP Element 2-**Terrestrial: all

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-**In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Maps and predictions of important migratory bird stopover habitats based on use by migrants in relation to food abundance, habitat and landscape features | Models and maps of important areas for landbird stopover habitat | ESRI raster grid (30m) | Planning, Wildlife Management, Land Protection | Planners, Biologists, Data/GIS Managers |

# Impact of Climate Change on SGCN

## RCN2009-01: Assessing the Likely Impacts of Climate Change on Northeastern Fish and Wildlife Habitats and Species of Greatest Conservation Need

|  |  |
| --- | --- |
| **Status** | Completed (May 2013) |
| **Principal Investigator** | Dr. Hector Galbraith |
| **Organization** | Manomet Center for Conservation Sciences |
| **Email** | [hg2@hughes.net](mailto:hg2@hughes.net) |
| **Address** | 837 Camp Arden Road, Dummerston, VT 05301 |
| **Phone** | 802-258-4836 |
| **Link** | <http://rcngrants.org/content/assessing-likely-impacts-climate-change-northeastern-fish-and-wildlife-habitats-and-species> |
| **Citation** | Manomet Center for Conservation Sciences and National Wildlife Federation. 2012. The Vulnerabilities of Fish and Wildlife Habitats in the Northeast to Climate Change. A Report to the Northeastern Association of Fish and Wildlife Agencies and the North Atlantic Landscape Conservation Cooperative. Manomet, MA. 183 pp. |

**Summary**

This project assessed the vulnerability of Northeast fish and wildlife and their habitats to climate change. It provides the information necessary for resource managers to effectively plan conservation efforts at state and regional scales under a changing climate regime. The project identifies species and habitats that may be especially vulnerable to climate change and then predicts how these species and habitats will adapt under different climate scenarios. In addition, the project identifies potential adaptation options (including the mitigation of non-climate stressors) that can be used to safeguard vulnerable habitats and species.

**RCN Topic:** [Impact of Climate Change on SGCN](#climate_change)

**Related Projects:** [Focal Regional Focal Areas for Species of Greatest Conservation Need Based on Site Adaptive Capacity, Network Resilience and Connectivity (RCN2008-03)](#rcn2008_03), [Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II (LCC-6)](#lcc6), [Completing Northeast Regional Vulnerability Assessment Incorporating the NatureServe Climate Change Vulnerability Index (LCC-7)](#lcc7), [Forecast Effects of Accelerating Sea-level Rise on the Habitat of Atlantic Coast Piping Plovers and Identify Responsive Conservation Strategies (LCC-13)](#lcc13)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**SGCN, Cold Water Fish

**Habitats- SWAP Element 2-** **Terrestrial:** Forests and Woodlands (Northeastern Upland Forest [1.C.2]), Wetlands (Peatlands [2.C.4], Freshwater Marsh [2.C.5], Saltmarsh [2.C.6]), Grasslands (Grassland and Shrubland [2.C.1]), **Aquatic:** Coldwater Streams and Rivers, Tidal Streams and Rivers

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Whenever feasible, use the results of this vulnerability analysis to assess the impacts of climate change on SGCN. | Planning (9) | State Wildlife Action Planning (9.4) | Yes |

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| NEAFWA Habitat Vulnerability Assessment Model | This model is designed to evaluate the relative vulnerability of wildlife habitats in the Northeast to climate change. It employs 4 separate modeling components that use 9 variables as inputs. The output consists of relative vulnerability ranks for each habitat type. The model has been deployed at the regional scale and is being used by at least 6 states for statewide assessments. | Excel Workbook | Threat Assessment | Biologists, Planners |

## LCC-6: Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II

|  |  |
| --- | --- |
| **Status** | Ongoing |
| **Principal Investigator** | Dr. Hector Galbraith |
| **Organization** | Manomet Center for Conservation Sciences |
| **Email** | [hg2@hughes.net](mailto:hg2@hughes.net) |
| **Address** | 837 Camp Arden Road, Dummerston, VT 05301 |
| **Phone** | 802-258-4836 |
| **Link** | <http://www.northatlanticlcc.org/projects/vulnerabilities-to-climate-change-of-northeast-fish-and-wildlife-habitats-phase-ii/vulnerabilities-to-climate-change-of-northeast-fish-and-wildlife-habitats-phase-ii> |
| **Citation** |  |

**Summary**

This project builds on earlier work ([RCN2009-01](#rcn2009_01)) funded by Northeast states through the Regional Conservation Needs program. It will assess vulnerability to climate change for 7-10 additional Northeastern habitat types, including forests, wetlands, and aquatic systems. Tidally-influenced habitat vulnerability will also be assessed and will include development of a database of ongoing coastal climate change projects and tools. The coastal database (NEclimateUS.org) has been developed in collaboration with NOAA and other partners.

**RCN Topic:** [Impact of Climate Change on SGCN](#climate_change)

**Related Projects:** [Focal Regional Focal Areas for Species of Greatest Conservation Need Based on Site Adaptive Capacity, Network Resilience and Connectivity (RCN2008-03)](#rcn2008_03), [Assessing the Likely Impacts of Climate Change on Northeastern Fish and Wildlife Habitats and Species of Greatest Conservation Need (RCN2009-01),](#rcn2009_01) [Completing Northeast Regional Vulnerability Assessment Incorporating the NatureServe Climate Change Vulnerability Index (LCC-7)](#lcc7), [Forecast Effects of Accelerating Sea-level Rise on the Habitat of Atlantic Coast Piping Plovers and Identify Responsive Conservation Strategies (LCC-13)](#lcc13)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**SGCN

**Habitats- SWAP Element 2-** Terrestrial: Forests and Woodlands (Northeastern Upland Forest [1.C.2]), Wetlands (Peatlands [2.C.4], Freshwater Marsh [2.C.5], Saltmarsh [2.C.6]), Grasslands (Grassland and Shrubland [2.C.1]), Aquatic: Coldwater Streams and Rivers, Tidal Streams and Rivers

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-**In progress

**Regional Review and Coordination (Elements 6-8)-**In progress

**Project Tools-** In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Northeast Climate US Website (<http://neclimateus.org/>) | This website **NEclimateUS.org** (a.k.a. 'neXus') is a searchable online database that provides a gateway to climate information for the Eastern U.S. It summarizes needs for climate information as articulated in publications; identifies available data, products and services; and includes information on planned and on-going projects. The goal is to offer a tool to search for regionally relevant climate information, and to facilitate collaborative opportunities across the network of climate-focused programs and partners in the Eastern US. NEclimateUS.org is in its early stages of development. Content will change with time to reflect developments in climate work within the region, and in response to individual sector needs when necessary. The site is designed to evaluate the relative vulnerability of wildlife habitat in the Northeast to climate change. | Website | Research, Threat Assessment | Biologists, Administrators |

## LCC-7: Completing Northeast Regional Vulnerability Assessment Incorporating the NatureServe Climate Change Vulnerability Index

|  |  |
| --- | --- |
| **Status** | Completed (September 2013) |
| **Principal Investigator** | Bruce E. Young, Ph.D |
| **Organization** | NatureServe |
| **Email** | [bruce\_young@natureserve.org](file:///C:\Documents%20and%20Settings\Lesley_Sneddon\My%20Documents\State%20Wildlife\2009%20NEAFWA\bruce_young@natureserve.org) |
| **Address** | 4600 N. Fairfax Dr., Floor 7, Arlington, VA 22203 |
| **Phone** | 703-908-1800 |
| **Link** | <http://www.northatlanticlcc.org/projects/completing-northeast-regional-vulnerability-assessment-incorporating-the-natureserve-climate-change-vulnerability-index/completing-northeast-regional-vulnerability-assessment-incorporating-the-natureserve-climate-change-vulnerability-index> |
| **Citation** |  |

**Summary**

This project developed a Climate Change Vulnerability Index (CCVI) to provide a rapid, scientifically defensible assessment of species’ vulnerability to climate change. The work was done by NatureServe and State Natural Heritage Programs collaborators. The CCVI integrates information about exposure to altered climates with species-specific sensitivity factors known to be associated with vulnerability to climate change.  This project applied the CCVI to 60 species selected in collaboration with state wildlife experts, a Science Technical Review Committee, and the Manomet Center for Conservation Sciences. Species selected for assessment include Federal Trust species, foundation species for habitats assessed for climate change vulnerability by the Manomet, and Species of Greatest Conservation Need (SGCN) as identified by the Regional Conservation Needs program.

**RCN Topic:** Impact of Climate Change on SGCN

**Related Projects:** Assessing the Likely Impacts of Climate Change on Northeastern Fish and Wildlife Habitats and Species of Greatest Conservation Need (RCN 2009-01)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN

**Habitats- SWAP Element 2-**All

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **TRACS Action Level 1** | **TRACS Action** | **SWAP** |
| Evaluate and integrate (wherever feasible) the results of the CCVI into planning for SGCNs and overall conservation planning in the Northeast region. | Planning (9) | State Wildlife Action Planning (9.4) | Yes |

**Monitoring-SWAP Element 5-** None

**Regional Review and Coordination (Elements 6-8) -** None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| CCVI results and report | Final report that translates the results into language accessible to the educated lay public. The report includes, as appropriate, potential geographic areas of relatively lower vulnerability to guide conservation decisions, and possible adaptation strategies and monitoring recommendations for individual species or guilds of species. | PDF | Species Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |

## LCC-13: Forecast Effects of Accelerating Sea-level Rise on the Habitat of Atlantic Coast Piping Plovers and Identify Responsive Conservation Strategies

|  |  |
| --- | --- |
| **Status** | Ongoing (January 2014) |
| **Principal Investigator** | Sarah Karpanty |
| **Organization** | Virginia Tech |
| **Email** | [karpanty@vt.edu](mailto:karpanty@vt.edu) |
| **Address** | Department of Fish and Wildlife Conservation, 100 Cheatham Hall, Blacksburg, Virginia 24061 |
| **Phone** | (540) 231-4586 |
| **Link** | <http://www.northatlanticlcc.org/projects/forecast-effects-of-accelerating-sea-level-rise-on-the-habitat-of-atlantic-coast-piping-plovers-and-identify-responsive-conservation-strategies/forecast-effects-of-accelerating-sea-level-rise-on-the-habitat-of-atlantic-coast-piping-plovers-and-identify-responsive-conservation-strategies> |
| **Citation** |  |

**Summary**

This collaborative project of the North Atlantic Landscape Conservation Cooperative ([NALCC](http://www.northatlanticlcc.org/)) will provide biologists and managers along the Atlantic coast with tools to predict the effects of accelerating sea-level rise on the distribution of piping plover breeding habitat, to test those predictions, and to feed results back into the modeling framework to improve predictive capabilities. Immediate model results will be used to inform a coast-wide assessment of threats from sea-level rise and related habitat conservation recommendations that can be implemented by land managers and to provide recommendations to regulators. Case studies incorporating explicit measures to preserve resilience of piping plover habitat to sea level rise into management plans for specific locations will demonstrate potential applications.

**RCN Topic:** Impact of Climate Change on SGCN

**Related Projects:** [Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II (LCC-6)](#lcc6)

**States -** ME, NH, MA, CT, RI, NY, NJ, DE, MD, VA

**Species- SWAP Element 1-** Piping Plover (*Charadrius melodus*), beach dependent SGCN

**Habitats- SWAP Element 2-**Terrestrial:beach

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Climate change impacts on SGCN | Climate Change and Severe Weather (11) | Habitat Shifting and Alteration (11.1) | Severity, spatial extent, abatement |

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-** In progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Models relating beach habitats to sea level rise | Report, maps and management recommendations | PDF | Planning | Planner, biologists |

# Invertebrate Online Database

## RCN2009-03: Development of an Online Database to Enhance the Conservation of SGCN Invertebrates in the Northeastern Region

|  |  |
| --- | --- |
| **Status** | Completed (May 2012) |
| **Principal Investigator** | Dr. James W. Fetzner Jr. |
| **Organization** | Carnegie Museum of Natural History |
| **Email** | [FetznerJ@CarnegieMNH.org](mailto:FetznerJ@CarnegieMNH.org) |
| **Address** | 4400 Forbes Avenue, Pittsburgh, PA 15213-4007 |
| **Phone** | 412-622-3259 |
| **Link** | <http://iz.carnegiemnh.org/sgcninverts/default.asp> |
| **Citation** | Fetzner Jr. J.W. 2011. SGCN Invertebrates: A database and associated website of museum specimen occurrence records for invertebrate species of greatest conservation need in the northeastern region. |

**Summary**

This project produced a web-accessible database designed for museum-specimen records, allowing researchers or institutions to interact with invertebrate data. A suite of online- tools provides access to the database of occurrence records (spatial and temporal) to enhance conservation management of invertebrate SGCN in the Northeast. The data to be exploited are derived from authoritatively determined specimens in institutional collections and from a wide range of other information not documented directly by specimens. The tools allow the scientific community to add, edit, and download species-specific data records in a secure manner for the purpose of generating distribution maps, phenological plots, and conservation management plans.

**RCN Topic:** [Invertebrate Online Database](#invert_db)

**Related Projects:** [Conservation Assessment of Odonata (Dragonflies and Damselflies) in the Northeastern Region (RCN2011-03)](#rcn2011_03)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Invertebrate SGCN

**Habitats- SWAP Element 2-**All

**Threats- SWAP Element 3-**None

**Actions-SWAP Element 4-**None

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-**None

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| The Northeast Regional Museum Specimen Database | This website is a museum specimen database for invertebrate wildlife in the Northeast. It has a suite of tools for adding, editing and downloading records. This information can be used for distribution maps, status assessments and conservation planning. | Website | Species Status Assessment, Species Distribution | Biologists, Data/GIS Managers |

# Design and Implement Conservation Strategies for NE Species of

# Greatest Conservation Need

## RCN2011-01: Support for Status Assessment and Conservation Action Plan for the Eastern Black Rail across the Northeast Region

|  |  |
| --- | --- |
| **Status** | Final Report expected March 1 |
| **Principal Investigator** | Michael D. Wilson |
| **Organization** | Center for Conservation Biology, College of William and Mary & Virginia Commonwealth University |
| **Email** | [mdwils@uvm.edu](mailto:mdwils@uvm.edu) |
| **Address** | PO Box 8795, Williamsburg, VA 23187-8795 |
| **Phone** | 757-221-1649 |
| **Link** | <http://rcngrants.org/content/support-status-assessment-and-conservation-action-plan-eastern-black-rail-across-northeast> |
| **Citation** |  |

**Summary**

This project will conduct a status assessment and create a conservation action plan for the Black Rail in the Northeast. Specifically, the project will synthesize current information, facilitate the collection of new information, and recommend action items necessary for a successful conservation campaign. Final products will include a Status Assessment report, Conservation Action Plan report, and associated geo-referenced databases on status, distribution, and spatially explicit conservation priorities.

**RCN Topic:** [Design and Implement Conservation Strategies for NE Species of Greatest Conservation Need](#con_strat)

**Related Projects:** None

**States -** NY, NJ, PA, DE, MD

**Species- SWAP Element 1-**Eastern Black Rail (*Laterallus jamaicensis jamaicensis*)

**Habitats- SWAP Element 2**-In progress

**Threats- SWAP Element 3**-In progress

**Actions-SWAP Element 4**-In progress

**Monitoring-SWAP Element 5**-In progress

**Regional Review and Coordination (Elements 6-8)** -In progress

**Project Tools**-In progress

## RCN2011-02: The Wood Turtle (*Glyptemys insculpta*) in the Northeastern United States: A Status Assessment and Conservation Strategy

|  |  |
| --- | --- |
| **Status** | Final Reports are in review |
| **Principal Investigator** | Dr. Paul R. Sievert |
| **Organization** | USGS Massachusetts Cooperative Fish and Wildlife Research Unit, Department of Environmental Conservation |
| **Email** | [psievert@eco.umass.edu](mailto:psievert@eco.umass.edu) |
| **Address** | Holdsworth Building, University of Massachusetts, Amherst, MA 01003 |
| **Phone** | 413-545-4888 |
| **Link** | <http://rcngrants.org/content/wood-turtle-glyptemys-insculpta-northeastern-united-states-status-assessment-and> |
| **Citation** |  |

**Summary**

This project represents the first major effort of the Northeast Wood Turtle Working Group ([NEWTWG](http://www.northeastparc.org/workinggroups/woodturtle.htm)) to take a comprehensive view of the status of the wood turtle the Northeast. The project will gather all available occurrence and population data for the region, undertake a series of spatial meta-analyses to evaluate region-wide trends, and make general and specific recommendations regarding the status and conservation of wood turtles. The final report will include a status assessment and conservation strategy with recommendations specific to each of the Northeastern states and to at least 12 major Northeastern watersheds (HUC4-level). The Conservation Strategy will identify populations of region-wide significance; assess the likely historic and current occurrence of wood turtles; critically review the listing status, S-rank, and protective measures in each state; articulate research and inventory priorities; and identify data deficiencies.

**RCN Topic:** [Design and Implement Conservation Strategies for NE Species of Greatest Conservation Need](#con_strat)

**Related Projects:** None

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Wood Turtle (*Glyptemys insculpta*)

**Habitats- SWAP Element 2**-In progress

**Threats- SWAP Element 3**-In progress

**Actions-SWAP Element 4**-In progress

**Monitoring-SWAP Element 5**-In progress

**Regional Review and Coordination (Elements 6-8)** -In progress

**Project Tools**-In progress

## SWG-BLTU: Conservation of Blanding’s Turtle and Associated Wetland SGCN in the Northeast

|  |  |
| --- | --- |
| **Status** | Ongoing |
| **Principal Investigator** | Michael Marchand |
| **Organization** | New Hampshire Fish & Game Department |
| **Email** | [Michael.Marchand@wildlife.nh.gov](mailto:Michael.Marchand@wildlife.nh.gov) |
| **Address** | 11 Hazen Drive, Concord, NH 09301 |
| **Phone** | 603-271-3016 |
| **Link** |  |
| **Citation** |  |

**Summary**

The purpose of this project is to maintain and enhance functional wildlife habitat in New England, New York, and Pennsylvania by applying conservation principles and practices needed to support a healthy Blanding’s turtle (*Emydoidea blandingii*) population. The goals include a spatially-explicit conservation plan for Blanding’s turtles and associated SGCN in the Northeast, standardized monitoring of the species’ status, coordinated management of habitat to reduce road mortality and outreach to key partners to prioritize land acquisition, restoration, and management activities. Key outputs of this project include: standardized rapid-assessment and long-term monitoring protocols for Blanding’s turtles and their associated SGCN and habitats; two years of monitoring data in 5 states to assess status and trends and inform conservation actions; parcel data for priority sites; 15 or more spatially explicit management plans for priority Blanding’s turtle landscapes in the Northeast, including actions needed for critical habitats and associated SGCN; identification of genetically unique management units; 5 workshops with key partners to initiate implementation of spatially explicit management plans and an overall Conservation Plan; development of a Northeast Blanding’s Turtle Conservation Plan; creation and/or enhancement of at least 5 nesting areas for Blanding’s turtles and other SGCN turtles; installation of turtle X-ing signs at 5 or more sites; and reports summarizing grant performance and actions implemented

**RCN Topic:** [Design and Implement Conservation Strategies for NE Species of Greatest Conservation Need](#con_strat)

**Related Projects:** [The Wood Turtle (*Glyptemys insculpta*) in the Northeastern United States: A Status Assessment and Conservation Strategy (RCN2011-02)](#rcn2011_02)

**States -** ME, NH, MA, NY, PA

**Species- SWAP Element 1-**Blanding’s Turtle (*Emydoidea blandingii*), Wetland SGCN

**Habitats- SWAP Element 2-** Freshwater Marsh (2.5.C), Vernal Pools (not in [NETWHCS](#NETHCS))

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Adult mortality from roads | Transportation and Service Corridors (4) | Road and Railroads (4.1) | Identification |
| Habitat loss and fragmentation | Residential and Commercial Development (1), Transportation and Service Corridors (4) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1) | Identification |

**Actions-SWAP Element 4**

| **Action** | **Sub-action** | **TRACS Level 1** | **TRACS Action** |
| --- | --- | --- | --- |
| Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | * Identify Blanding’s turtle population units throughout the Northeast * Assign Quality Ranks to all known Blanding’s turtle populations within the Northeast * Identify Blanding’s turtle conservation priorities within the Northeast * Develop spatially explicit parcel maps for Blanding’s turtle conservation priorities * Develop spatially explicit management plans at 1-4 high-priority sites in each state and at least 15 overall * Compile information from Projects I-III into a Northeast Blanding’s Turtle Conservation Plan | Planning (9) | Listed Species Recovery Planning (9.3.2) |
| Engage key partners, including state and federal transportation agencies, natural resources agencies, land trusts, municipalities, landowners, and other local stakeholders to implement priorities identified in spatially-explicit management plans | * Disseminate management plans and implementation priorities and engage key partners including transportation agencies, all local stakeholders, landowners, and partnering agencies * Host at least one workshop in each state with key land conservation partners; present results, solicit feedback, and initiate next steps toward plan implementation | Outreach (8) | Partner/stakeholder Engagement (8.1) |
| Assess genetic relationships among Blanding’s turtle populations within the Northeast region. | * Assess the population genetic structure of Blanding’s turtle populations in the Northeast and incorporate findings into conservation planning and priority area management in Maine, Massachusetts, New Hampshire, New York, and Pennsylvania * Examine isolated/outlier Blanding’s turtle populations in Pennsylvania and New York to determine origin (naturally occurring or introduced) * Compare the genetic structure of Blanding’s turtle populations within the Northeast region to those in the Midwest region and Canada to provide a spatially explicit assessment of the discrete population groups across the species’ range | Data Collection and Analysis (3) | Research, Survey or Monitoring – Fish and Wildlife Populations: Genetics (3.2.5) |
| Develop standardized monitoring protocols for Blanding’s turtle in the Northeast | * Develop standardized monitoring protocols for rapid site assessments * Develop standardized monitoring protocols for long-term reference sites | Data Collection and Analysis (3) | Fish and Wildlife Research, Survey and Management Techniques (3.5.4) |
| Implement standardized monitoring protocols. | * Select sites for rapid assessment and long-term reference monitoring * Implement rapid assessment protocols * Initiate the first year of long-term, reference site monitoring * Apply sampling results to validate established conservation priorities and inform management plans | Data Collection and Analysis (3) | Baseline Inventory (3.2.3) |
| Initiate on-the-ground implementation of priority actions to increase viability of Blanding’s turtle populations and associated SGCN. | * Create and/or enhance nesting habitat for Blanding’s turtles and other SGCN in at least 1 site per state and at least 5 in the region * Implement a ”Turtle X-ing” sign program in each state & install signs in at least 5 areas | Direct Management of Natural Resources (2) | Nesting Habitat Improvements (2.4.3), Wildlife Escape Structures (2.4.4) |
| Coordination and Administration | * Coordinate and Administer the Initiative * Evaluate performance of grant objectives * Report actions accomplished through grant | Coordination and Administration (1) | Program/  project Administrative Support (1.1.2) |

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| Blanding’s Turtle (*Emydoidea blandingii*) | Rapid and long-term assessment of population status | Goals and objectives, sampling design, field methods, data management and analysis, implementation | None |

**Regional Review and Coordination (Elements 6-8) -** Overall coordination of the Blanding’s turtle initiative will be conducted by the New Hampshire Fish & Game Department. This initiative consists primarily of phone and email communication with individual state coordinators and contractors to ensure that project objectives are being met and are on schedule. There have also been several in-person meetings of the Blanding’s Turtle working group. Each of the project’s actions has a specific metric for measuring and evaluating performance. These metrics will be evaluated as the project proceeds so that data can be incorporated into adaptive management decisions. The NH Project Coordinator communicates with project participants to evaluate performance and report results.

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Landowner parcel database | This is a GIS database of landowner parcels within the current range of the Blanding’s turtle in the Northeast. The data will be used by biologists to identify lands most suitable for management and land protection for the species. Note: This is not a public database and will be used for internal planning purposes only | ESRI shapefiles | Planning, Land Protection, Wildlife Management | Biologists, Data/GIS Managers |
| Spatially Explicit Management Plans | This is a GIS database of lands identified as important to Blanding’s turtle populations throughout their range in the Northeast. | ESRI shapefiles | Planning, Land Protection, Wildlife Management | Biologists, Data/GIS Managers |
| Monitoring and Rapid Assessment Protocol | This is a monitoring and field protocol designed to allow biologists to easily and efficiently assess the status of local populations of Blanding’s turtles and their habitats. | PDF | Monitoring | Biologists |

## SWG-NEC: Conservation Strategy for the New England cottontail (*Sylvilagus transitionalis*)

|  |  |
| --- | --- |
| **Status** | Completed (December 2012) |
| **Principal Investigator** | Steve Fuller, Ph.D. |
| **Organization** | Wildlife Management Institute, North Atlantic LCC |
| **Email** | [sfuller71@comast.net](file:///C:\Users\Tash\Dropbox\SWAP%20Synthesis\Junk\Jeff\drafts\project%20summary%20templates\sfuller71@comast.net) |
| **Address** | 40 Collins Landing Unit 1, Weare, NH 03281 |
| **Phone** | 603-361-4336 |
| **Link** | <http://www.newenglandcottontail.org/> |
| **Citation** | Fuller, S. and A. Tur. 2012. Conservation Strategy for the New England Cottontail (*Sylvilagus transitionalis).* 148 pp. |

**Summary**

This project provides a comprehensive range-wide recovery plan and conservation strategy for New England cottontails (NEC; *Sylvilagus transitionalis*). It sets forth actions (labeled “objectives”) to address threats to NEC and outlines how conservation partners can implement those actions to ensure the future of NEC and eliminate the need for listing under the Federal Endangered Species Act. Sixty-four specific conservation actions are indentified across nine broad categories: Coordination and Administration, (11), Information Management (10), Monitoring (5), Landowner Recruitment (9), Population Management (10), Habitat Management (13), Research (6), Outreach and Education (5), and Land Protection (5). Each action has detailed information on performance measures, geographic scope, priority, duration, and implementation status.

**RCN Topic:** [Design and Implement Conservation Strategies for NE Species of Greatest Conservation Need](#con_strat)

**Related Projects:** [Implementing Bird Action Plans for Shrubland Dependents in the Northeast (RCN2007-08),](#rcn2007_08) [Development of Noninvasive Monitoring Tools for New England Cottontail Populations: Implications for Tracking Early Successional Ecosystem Health (RCN2009-04)](#rcn2009_04)

**States -** ME, NH, MA, CT, RI, NY

**Species- SWAP Element 1-**New England cottontail (*Sylvilagus transitionalis*)

**Habitats- SWAP Element 2-**Grassland and Shrubland (2.C.1)

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Present or Threatened Destruction, Modification, or Curtailment of NEC Habitat or Range | Residential and Commercial Development (1), Transportation and Service Corridors (4), Natural Systems Modification (7) | Housing and Urban Areas (1.1), Commercial and Industrial Areas (1.2), Tourism and Recreational Areas (1.3), Road and Railroads (4.1), Fire and Fire Suppression (7.1.1) | Identification |
| Hunting pressures | Biological Resource Use (5) | Hunting and Collecting Terrestrial Animals (5.1) | Identification |
| Predation | Invasive and Other Problematic Species, Genes and Disease (8) | Problematic Native Species/Diseases (8) | Identification |
| Inadequacy of Existing Regulatory Mechanisms | None | None | Identification |
| Competition with Eastern Cottontails | Invasive and Other Problematic Species, Genes and Disease (8) | Invasive Non-Native/Alien Species/Diseases (8.1-Eastern Cottontails) | Identification |
| Severe winter | Climate and Severe Weather (11) | Storms and Flooding (11.4) | Identification |

**Actions-SWAP Element 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action** | **Sub-Action** | **TRACs Level 1** | **TRACS ACTION** |
| Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Convene NEC Executive Committee | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Convene NEC Technical Committee (1.1.2 – Program/project Administrative Support) | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate Information and Adaptive Management Work Group | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate Research and Monitoring Work Group | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate NEC Land Management Teams in Each State | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate Population Management Work Group | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate Outreach Work Group | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate Land Protection Work Group | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Review Species Status | Data Collection and Analysis (3) | Population assessment (3.2.7) |
|  | Review Performance | Planning (9) | Species management planning (9.3.1) |
|  | Review Strategy Adaptations | Planning (9) | Species management planning (9.3.1) |
| Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Convene NEC Land Management Team for Each State | Coordination and Administration (1) | Incentives (1.2.1) |
| . | Develop and Deliver Incentives | Coordination and Administration (1) | Incentives (1.2.1) |
|  | Hire a Recruitment Coordinator | Coordination and Administration (1) | Incentives (1.2.1) |
|  | Contact Landowners | Coordination and Administration (1) | Incentives (1.2.1) |
|  | Manage Parcel Information and Landowner Status | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Conduct Site Assessments | Planning (9) | Habitat management planning (9.3.3) |
|  | Draft Applications, Preliminary Plans, and Cost Estimates | Planning (9) | Habitat management planning (9.3.3) |
|  | Draft and Review Land Management Ranking and Eligibility Criteria | Planning (9) | Habitat management planning (9.3.3) |
| . | Develop a Business Plan Incorporating Parcel Ranking and Reserve Design Principles | Planning (9) | Species management planning (9.3.1) |
| Establish the capacity to manage and share data among NEC recovery partners | Assess Data Management Needs | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Develop and Integrate Data Management Tools | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Maintain and Manage Spatial Data | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Maintain and Manage Planning Data | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Maintain and Manage NEC Status Data | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Maintain and Manage Management Performance Data | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Acquire Necessary Data and Permissions | Data Collection and Analysis (3) | Database development (3.1.1) |
|  | Create and Share Status and Performance Reports | Outreach (8) |  |
|  | Respond to Requests for Data | Outreach (8) |  |
|  | Provide Technical Assistance to Managers | Technical Assistance (11) | With individuals and groups involved in resource management decision making (11.2.1) |
| Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Coordinate with National Wildlife Refuges | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Coordinate with National Estuarine Research Reserves | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Manage Contracts and Vendors | Coordination and Administration (1) | Program/project administrative support (1.1.2) |
|  | Refine Best Management Practices for Making NEC Habitat | Data Collection and Analysis (3) | Habitat restoration methods (3.5.3) |
|  | Create Habitat on Private Land through Farm Bill Funding | Direct Management of Natural Resources (2) | Habitat conversion (2.1.1) |
|  | Create Habitat on Private Lands Not Eligible for Farm Bill Funding | Direct Management of Natural Resources (2) | Habitat conversion (2.1.1) |
|  | Create Habitat on Municipal Land | Direct Management of Natural Resources (2) | Habitat conversion (2.1.1) |
|  | Create Habitat on State Land | Direct Management of Natural Resources (2) | Habitat conversion (2.1.1) |
|  | Create Habitat on Federal Land | Direct Management of Natural Resources (2) | Habitat conversion (2.1.1) |
|  | Manage Habitat Through Prescribed Burning | Direct Management of Natural Resources (2) | Prescribed burning (2.3.3) |
|  | Implement Restoration (Acres) on Tribal Lands | Direct Management of Natural Resources (2) | Habitat conversion (2.1.1) |
|  | Create Demonstration Areas | Outreach (8) |  |
|  | Develop Site-Specific Management Plans | Planning (9) | Habitat management planning (9.3.3) |
| Establish the capacity to augment and manage critically low NEC populations or create new ones. | Manage Eastern Cottontails | Direct Management of Natural Resources (2) |  |
|  | Manage Predators | Direct Management of Natural Resources (2) |  |
|  | Manage Disease | Direct Management of Natural Resources (2) |  |
|  | Reduce Predation | Direct Management of Natural Resources (2) |  |
|  | Manage hunting | Education (4) | Hunter education - firearms (4.1.2) |
|  | Obtain NEC for Captive Breeding | Species Reintroduction and Stocking (10) | Propagation and stocking (10.1.1) |
|  | Conduct Zoo-Based Husbandry | Species Reintroduction and Stocking (10) | Propagation and stocking (10.1.1) |
|  | Evaluate Enclosure-Based Husbandry | Species Reintroduction and Stocking (10) | Propagation and stocking (10.1.1) |
|  | Manage Island Colony or Colonies | Species Reintroduction and Stocking (10) | Propagation and stocking (10.1.1) |
| . | Release NEC to Augment or Establish Populations | Species Reintroduction and Stocking (10) | Propagation and stocking (10.1.1) |
| Establish partnerships and funding sources for land acquisition to benefit NEC management efforts. | Expand National Wildlife Refuge Partnerships and Land Protection Efforts | Land and Water Rights Acquisition and Protection (6) |  |
|  | Develop Local and Regional Land Protection Partnerships | Land and Water Rights Acquisition and Protection (6) |  |
|  | Develop Projects | Land and Water Rights Acquisition and Protection (6) |  |
|  | Raise Funds | Land and Water Rights Acquisition and Protection (6) |  |
|  | Develop Land Protection Ranking Criteria | Land and Water Rights Acquisition and Protection (6) |  |
| Establish an outreach and education program to keep partners and the public informed, to garner political support for NEC conservation, and to minimize social barriers to creating NEC habitat. | Develop an Outreach Strategy | Outreach (8) |  |
|  | Develop and Maintain a Website | Outreach (8) |  |
|  | Develop Communications Products to Explain and Further NEC Conservation | Outreach (8) |  |
|  | Direct Outreach Efforts to NEC Focus Areas | Outreach (8) |  |
|  | Target Outreach to Key Audiences | Outreach (8) |  |
| Establish a research program to address gaps in information and key uncertainties | Determine NEC Demography | Data Collection and Analysis (3) |  |
|  | Determine NEC Distribution and Abundance | Data Collection and Analysis (3) |  |
|  | Study NEC/Eastern Cottontail Interaction | Data Collection and Analysis (3) | Fish and wildlife research, survey and management techniques (3.5.4) |
|  | Investigate Habitat Ecology | Data Collection and Analysis (3) | Fish and wildlife research, survey and management techniques (3.5.4) |
|  | Study NEC Taxonomy and Genetics | Data Collection and Analysis (3) | Genetics (3.2.5) |
|  | Test Management Assumptions | Data Collection and Analysis (3) | Fish and wildlife research, survey and management techniques (3.5.4) |
| Establish a comprehensive monitoring program for NEC throughout its range | Quantify Extent of Habitat | Data Collection and Analysis (3) | Baseline inventory (3.3.1) |
|  | Measure Habitat Occupancy Rates | Data Collection and Analysis (3) | Abundance determination (3.2.1) |
|  | Presence/Absence Distribution Surveys | Data Collection and Analysis (3) | Baseline inventory (3.2.3) |
|  | Measure Vegetation Response to Management | Data Collection and Analysis (3) | Monitoring (3.3.2) |

**Monitoring-SWAP Element 5**

|  |  |  |  |
| --- | --- | --- | --- |
| **Target Resource** | **Objective** | **Protocol Developed** | **Data** |
| New England cottontail (*Sylvilagus transitionalis*) | Habitat occupancy rates, presence/absence distribution survey, monitor disease | Goals and objectives | None |
| NEC habitat | Quantify extent of habitat, response to management | Goals and objectives | None |

**Regional Review and Coordination (Elements 6-8) -** This project describes a detailed plan of regional coordination and oversight for New England Cottontail conservation. This includes the coordination of Executive and Technical Committees as well as several area-specific working groups (Information and Adaptive Management, Research and Monitoring, Land Management, Population Management, Outreach and Land Protection). For review, the project establishes a framework and mechanisms for evaluating performance and adapting strategies.

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| NEC distribution data | This is a comprehensive GIS database of current and historic New England Cottontail locations in the Northeast. | ESRI shapefiles | Species Status Assessment, Planning | Data/GISManagers, Biologists |
| NEC Habitat Model | This is a GIS dataset of potential habitat in the Northeast for NEC as predicted by a presence only habitat model. | ESRI raster grid | Habitat Assessment, Planning, Land Protection, | Plannners, Data/GISManagers, Biologists |
| NEC Focal Areas | This is a GIS database of NEC focal areas within each state identified by the Cottontail Technical Committee. | ESRI shapefiles | Habitat Assessment, Planning, Land Protection, Wildlife Management | Plannners, Data/GIS Managers, Biologists |

# [Identify High Priority NE Species of Greatest Conservation Need](http://rcngrants.org/project-rcn-topics/identify-high-priority-ne-species-greatest-conservation-need)

## RCN2011-03: Conservation Assessment of Odonata (Dragonflies and Damselflies) in the Northeastern Region (RCN2011-03)

|  |  |
| --- | --- |
| **Status** | Final Reports are in review |
| **Principal Investigator** | Erin White |
| **Organization** | New York Natural Heritage Program |
| **Email** | [elwhite@gw.dec.state.ny.us](mailto:elwhite@gw.dec.state.ny.us) |
| **Address** | 625 Broadway, 5th Floor, Albany, NY 12233-4757 |
| **Phone** | 518-402-8955 |
| **Link** | http://rcngrants.org/content/conservation-assessment-odonata-dragonflies-and-damselflies-northeastern-region |
| **Citation** |  |

**Summary**

This project encompasses a region-wide conservation assessment for the order Odonata (dragonflies and damselflies) and will follow a procedure similar to assessments already conducted in the Northeast for certain vertebrate taxa (e.g., birds, reptiles and amphibians). It includes measures of regional responsibility, conservation concern, and vulnerability in a matrix format that can be used to prioritize species and conservation actions. Consistent and comprehensive criteria across all states will be utilized to identify which species are most important regionally as well as those which are most vulnerable. The resulting prioritization scheme will serve to direct limited state and regional resources toward conservation actions that benefit Odonata and their habitats and thereby guide implementation of SWAPs.

**RCN Topic:** [Identify High Priority NE Species of Greatest Conservation Need](#id_sgcn)

**Related Projects:** [Development of an Online Database to Enhance the Conservation of SGCN Invertebrates in the Northeastern Region (RCN2009-03)](#rcn2009_03)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-**Odonata

**Habitats- SWAP Element 2**-In progress

**Threats- SWAP Element 3**-In progress

**Actions-SWAP Element 4**-In progress

**Monitoring-SWAP Element 5**-In progress

**Regional Review and Coordination (Elements 6-8)** -In progress

**Project Tools**-In progress

## LCC-11: Mapping the Distribution, Abundance and Risk Assessment of Marine Birds in the Northwest Atlantic Ocean

|  |  |
| --- | --- |
| **Status** | Ongoing (January 2014) |
| **Principal Investigator** | Beth Gardner, Ph.D. |
| **Organization** | North Carolina State University |
| **Email** | [beth\_gardner@ncsu.edu](mailto:beth_gardner@ncsu.edu) |
| **Address** | NC State University, Department of Forestry and Environmental Resources Turner House, Campus Box 7646, Raleigh, NC 27695-7646 |
| **Phone** | 919-513-7558 |
| **Link** | <http://www.northatlanticlcc.org/projects/mapping-the-distribution-abundance-and-risk-assessment-of-marine-birds-in-the-northwest-atlantic-ocean> |
| **Citation** |  |

**Summary**

This project will develop a series of maps depicting the distribution, abundance and relative risk to marine birds from offshore activities (e.g., wind energy development) in the Northwest Atlantic Ocean. The goal of this effort is to develop and demonstrate techniques to document and predict areas of frequent use and aggregations of birds and the relative risk to marine birds within these areas. The resulting map products are intended to help inform decisions about siting offshore facilities; marine spatial planning; and other uses requiring maps of seabird distributions. This [NALCC](http://www.northatlanticlcc.org/)  project is supporting various components of map and technique development by leveraging several large, ongoing projects funded by [BOEM](http://www.boem.gov/), [DOE](http://energy.gov/), [USGS](http://www.usgs.gov/), and [NOAA](http://www.noaa.gov/) and involving research groups at the [Biodiversity Research Institute](http://www.briloon.org/), [NC State University](http://www.ncsu.edu/), [CUNY-Staten Island](http://www.csi.cuny.edu/), the [USGS Patuxent Wildlife Research Center](http://www.pwrc.usgs.gov/), and the [NOAA National Centers for Coastal Ocean Science-Biogeography Branch](http://ccma.nos.noaa.gov/about/biogeography/aboutus.aspx).

**RCN Topic:** [Identify High Priority NE Species of Greatest Conservation Need](#id_sgcn)

**Related Projects:** [Decision support tool to assess aquatic habitats and threats in North Atlantic watersheds and estuaries; Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast (LCC-4)](#lcc4)

**States -** ME, NH, MA, CT, RI, NY, NJ, PA, DE, MD, VA

**Species- SWAP Element 1-** Marine SGCN

**Habitats- SWAP Element 2-** Aquatic:Marine

**Threats- SWAP Element 3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Threat** | **IUCN Threat Level 1** | **IUCN Threats** | **Information** |
| Energy development | Energy Production and Mining (3) | Renewable Energy (3.3) | Severity, spatial extent cost-benefit analysis |

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-** In progress

**Regional Review and Coordination (Elements 6-8) –** In progress

**Project Tools-**In progress

# Northeast Regional Conservation Synthesis

## RCN2011-07: Northeast Regional Conservation Synthesis for State Wildlife Action Plan Revisions

|  |  |
| --- | --- |
| **Status** | Completed (December 2013) |
| **Principal Investigator** | Karen Terwilliger |
| **Organization** | Terwilliger Consulting, Inc |
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| **Address** | 28295 Burton Shore Rd. P.O Box 99 |
| **Phone** | [757-787-3974](tel:757-787-3974) |
| **Link** | This document |
| **Citation** | Terwilliger Consulting, Inc. and the Northeast Fish and Wildlife Diversity Technical Committee. 2013. Taking Action Together: Northeast Regional Synthesis for State Wildlife Action Plans. A report submitted to the Northeast Fish and Wildlife Diversity Committee. Locustville, VA |

**Summary**

This project synthesized regional conservation information from ongoing and completed work generated by the Regional Conservation Needs ([RCN](http://rcngrants.org/)) program, State Wildlife Grants ([SWG](http://wsfrprograms.fws.gov/Subpages/GrantPrograms/SWG/SWG.htm)) program, and the North Atlantic Landscape Conservation Cooperative ([NALCC](http://www.northatlanticlcc.org/)). It presents this information in a format that states can readily access and incorporate into their 2015 Wildlife Action Plan SWAP revisions. The synthesis and related components: enable more effective use of existing regional and landscape-scale data from RCNs, LCCs and Competitive SWGs; improve efficiency and reduce costs to individual states in addressing regional needs in their SWAPs; better incorporate regional information into SWAP updates; and provide information that allows states and conservation partners to make decisions within a regional context. This report is the first comprehensive summary of the regional information on species, habitats, threats, actions, monitoring, and coordination as extracted from RCN projects.

**RCN Topic:** [Northeast Conservation Synthesis](#synthesis)

**Related Projects:** [Northeast State Wildlife Action Plans: Database Framework for Common Elements (RCN2011-08)](#rcn2011_08), [Northeast Regional Conservation Design, Regional Synthesis and Delivery of Conservation Information and Tools for SWAP updates (LCC-16)](#lcc16)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** SGCN

**Habitats- SWAP Element 2-** All

**Threats- SWAP Element 3-** Summary and analysis of threats from RCN projects

**Actions-SWAP Element 4**- Summary and analysis of conservation actions from RCN projects

**Monitoring-SWAP Element 5-** Summary of monitoring programs and tools from RCN projects

**Regional Review and Coordination (Elements 6-8)**-

**Project Tools-**

## RCN2011-08: Northeast State Wildlife Action Plans: Database Framework for Common Elements

|  |  |
| --- | --- |
| **Status** | Completed (November 2013) |
| **Principal Investigator** | Dave Jenkins |
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| **Address** | 501 East State Street, Trenton, NJ 08625 |
| **Phone** | 609-292-9101 |
| **Link** |  |
| **Citation** |  |

**Summary**

This project will create a web-accessible database framework that will be populated with the required elements from each state’s Wildlife Action Plan (SWAP). The database will allow states, LCCs, and other partners to roll-up SWAP contents and extract common elements at any desired scale across the region. Data elements will include state SGCN listing criteria, species vulnerability assessments, habitat distribution and abundance, species and habitat threats, and conservation actions. Each of these elements will be cross-walked from individual state systems to the [TRACS](#app1) and [IUCN](#app2) classification systems.

**RCN Topic:** [Northeast Conservation Synthesis](#synthesis)

**Related Projects:** [Northeast Regional Conservation Synthesis for State Wildlife Action Plan Revisions (RCN2011-07)](#rcn2011_07), [Northeast Regional Conservation Design, Regional Synthesis and Delivery of Conservation Information and Tools for SWAP updates (LCC-16)](#lcc16)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1**-In progress

**Habitats- SWAP Element 2**-In progress

**Threats- SWAP Element 3**-In progress

**Actions-SWAP Element 4**-In progress

**Monitoring-SWAP Element 5**-In progress

**Regional Review and Coordination (Elements 6-8)** -In progress

**Project Tools**-In progress

## LCC-16: Northeast Regional Conservation Design, Regional Synthesis and Delivery of Conservation Information and Tools for SWAP updates

|  |  |
| --- | --- |
| **Status** | Ongoing(June 2014) |
| **Principal Investigator** | Steven Fuller, Ph.D. |
| **Organization** | North Atlantic LCC |
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| **Address** | 5300 Westgate Center Drive, Hadley, MA 01035 |
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| **Citation** |  |

**Summary**

This project will synthesize and compile products, information, and tools that have been developed through the Regional Conservation Needs ([RCN](http://rcngrants.org/)), North Atlantic Landscape Conservation Cooperative ([NALCC](http://www.northatlanticlcc.org/)), and related efforts. It will include: 1) assessment and development of an information management system for the NALCC and Northeast Region to organize and make available all relevant spatial and related data via a [DataBasin](http://nalcc.databasin.org/) site; 2) making available all relevant spatial and related data from RCN, NALCC and [TNC](http://www.nature.org/) conservation planning projects developed by TNC through a shared LCC and TNC GIS Analyst position; 3) working with states and [NatureServe](http://natureserve.org/) to compile and synthesize information on the status and distribution of about 590 Regional SGCNs in order to prioritize SGCNs for action; 4) providing this synthesized information at regional, sub-regional and state scales as context for SCGNs in the SWAP synthesis and updates; 5) organizing this information for regional and sub-regional conservation planning and design; and 6) organizing a team of scientists to facilitate the delivery of information and tools at scales and in formats needed by partners for conservation planning, design, and decision-making..

**RCN Topic:** [Northeast Conservation Synthesis](#synthesis)

**Related Projects:** [Northeast Regional Conservation Synthesis for State Wildlife Action Plan Revisions (RCN2011-07),](#rcn2011_07) [Northeast State Wildlife Action Plans: Database Framework for Common Elements (RCN2011-08)](#rcn2011_08)

**States -** ME, NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, DC, WV, VA

**Species- SWAP Element 1-** RSGCN

**Habitats- SWAP Element 2-** All

**Threats- SWAP Element 3-** All

**Actions-SWAP Element 4-**In progress

**Monitoring-SWAP Element 5-**None

**Regional Review and Coordination (Elements 6-8)-** This project provides the synthesized information on species, habitats, and environmental variables to coordinate regional conservation planning.

**Project Tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tool** | **Description** | **File Type** | **Potential Uses** | **Primary Users** |
| Information management system for the [North Atlantic LCC](http://www.northatlanticlcc.org/) and Northeast Region | About 100 region-wide environmental variables (environmental settings) are being organized as spatial data sets, appended with metadata, and posted on or linked at the [DataBasin](http://nalcc.databasin.org/) website for download or visualization. | Vector and raster GIS data, databases | Species Status Assessment, Habitat Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |
| Regional synthesis of Regional Species of Conservation Need | Information on the status and distribution of about 590 Regional SGCNs is synthesized in order to prioritize SGCNs for action. This includes identifying species most likely to be listed in the future and recommending actions needed to avoid listing. Relational database between these species and environmental settings and threats data. For select priority RSGCNs with sufficient data, models of the habitat distribution and suitability. | Vector and raster GIS data, databases | Species Status Assessment, Habitat Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |
| Regional conservation designs and decision support tools | Information and tools include species and habitat distribution and condition, species-habitat models, decision support tools, vulnerability assessments, and resiliency and connectivity assessments which contribute to regional landscape conservation designs (conservation blueprint). |  | Species Status Assessment, Habitat Status Assessment, Planning, Wildlife Management, Land Protection | Planners, Data/GIS Managers, Biologists |

# Appendix 1 – Regional Project Summary Table (includes RCN, SWG and NALCC projects)

| **Project ID** | **Brief Title** | **In Synthesis Chapters** | **8 SWAP Elements covered in plan** | **NE States included in plan** | **PI Org** | **Status** | **Final Product** | **Product Released** | **Product link** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NETWHCS | Northeastern terrestrial wildlife habitat classification | 2 | 2 | All | VDGIF | closed | Main excel spreadsheet of classification with supporting documents | Dec-08 | <http://rcngrants.org/content/northeastern-terrestrial-wildlife-habitat-classification> |
| NEAHCS | Northeastern aquatic habitat classification | 2 | 2 | All | VDGIF | closed | GIS database, final report and supporting documents | Sep-08 | <http://rcngrants.org/content/northeastern-aquatic-habitat-classification-project> |
| NERPMF | Regional monitoring and performance framework | 5 | 5 | All | NYDEC | closed | 2 Final reports and appendices | 2008 | <http://rcngrants.org/content/regional-monitoring-and-performance-framework> |
| RCN 2007-01 | Regional Habitat Maps: NE Terrestrial Habitat Class. System | 2 | 2 | All | TNC | closed | Terrestrial Ecosystem and Habitat Map of NE | Jun-12 | <http://conserveonline.org/workspaces/ecs/documents/ne-terrestrial-habitat-mapping-project> |
| RCN 2007-02 | Northeast Regional Connectivity Assessment Project | 2,3,4 | 2,3,4 | All | TNC | closed | NE Aquatic Connectivity report and NCAT tool | Mar-12 | <http://rcngrants.org/content/northeast-aquatic-connectivity> |
| RCN 2007-03 | Identifying Relationships between Invasive Species and SGCN | 3 | 3 | All | CMI | closed | Final report, excel spreadsheets, example | Jan-12 | <http://rcngrants.org/content/identifying-relationships-between-invasive-species-and-species-greatest-conservation-need> |
| RCN 2007-04 | Development of Avian Indicators and Measures | 5 | 5 | All | ABC | closed | Protocol, SOP, and data for mtn, tidal and grassland birds | Mar-09 | <http://rcngrants.org/content/development-avian-indicators-and-measures-monitoring-threats-and-effectiveness-conservation> |
| RCN 2007-05 | Conservation Status of Key Habitats and Species | 1,2,3,5 | 1,2,3,5 | All | TNC | closed | Conservation Status report with maps and tables | Sep-11 | <http://www.rcngrants.org/sites/default/files/final_reports/Conservation-Status-of-Fish-Wildlife-and-Natural-Habitats.pdf> |
| RCN 2007-06 | GIS based Application to Estimate Stream Flow | 3 | 3 | NH, VT, MA, CT | USGS | closed | Submitted manuscript (accepted and in-press Jan/2013), GIS-based Tool, User Manual | Apr-12 | <http://www.rcngrants.org/content/interactive-gis-based-application-estimate-continuous-unimpacted-daily-streamflow-ungaged> |
| RCN 2007-07 | Regional Initiative Biomass Successional SGCN | 3,4 | 3,4 | All | CMI | closed | Final report | Oct-11 | <http://static.rcngrants.org/sites/default/files/final_reports/2007-07%20FINAL%20REPORT_0.pdf> |
| RCN 2007-08 | Grassland/Shrubland Conservation Initiatives | None | None | All | NEAFWA | closed | 4 final reports | 2010-2011 | <http://rcngrants.org/content/implementing-bird-action-plans-shrubland-dependents-northeast> |
| RCN 2007-09 | WNS in Bats | 1,3 | 1,3 | All | Bucknell Univ | closed | Manuscript published | Jul-12 | <http://static.rcngrants.org/sites/default/files/final_reports/Frequent%20Arousal%20from%20Hibernation%20Linked%20to%20Severity%20of%20Infection%20and%20Mortality%20in%20Bats%20with%20WNS.pdf> |
| RCN 2008-01 | GIS Application to Estimate Target Fish Comm. | no | no | NA | Rushing Rivers | closed | No product |  |  |
| RCN 2008-02 | Model Guidelines for Local Planning Boards | none | none | All | NatureServe | closed | Final report and excel spreadsheet of guidelines | Feb-12 | <http://rcngrants.org/content/development-model-guidelines-assisting-local-planning-boards-conservation-species-greatest> |
| RCN 2008-03 | Focal Area Resilience and Adaptive Capacity | 3 | 3 | All | TNC | closed | Final report | Oct-11 | <http://static.rcngrants.org/sites/default/files/final_reports/Resilient-Sites-for-Species-Conservation%281%29.pdf> |
| RCN 2008-04 | Implementation of Bird Monitoring | no | no | NA | ABC | closed | No product |  |  |
| RCN 2008-05 | Key Habitat and Species Indicators and Measures | 1,2,3,5 | 1,2,3,5 | All | TNC | closed | Project merged with 2007-05, one final report | Sep-11 | <http://www.rcngrants.org/sites/default/files/final_reports/Conservation-Status-of-Fish-Wildlife-and-Natural-Habitats.pdf> |
| RCN 2009-01 | Assessing Impacts of Climate Change on SGCN | 1,3 | 1,3 | All | Manomet | ongoing | 3 Final reports currently under review |  | <http://rcngrants.org/content/assessing-likely-impacts-climate-change-northeastern-fish-and-wildlife-habitats-and-species> |
| RCN 2009-02 | Condition Analysis for NE Habitats | 2,3 | 2,3 | All | TNC | ongoing | Final products are under review |  | <http://rcngrants.org/content/geospatial-condition-analysis-northeast-habitats-based-northeast-sgcn-habitat-maps> |
| RCN 2009-03 | Invertebrate Online Database | 1 | 1 | All | CMNH | closed | Web-accessible database | May-12 | <http://iz.carnegiemnh.org/sgcninverts/default.asp> |
| RCN 2009-04 | Noninvasive Monitoring Tools for NE Cottontail | 5 | 5 | ME, NH, MA, CT, RI, NY | UNH | closed | 3 Final repots | May-12 | <http://rcngrants.org/content/development-noninvasive-monitoring-tools-new-england-cottontail-populations-implications> |
| RCN 2010-01 | Lab and Field Testing of Treatments for WNS | 3 | 3 | All | Bucknell Univ. | ongoing |  |  | http://rcngrants.org/content/laboratory-and-field-testing-treatments-white-nose-syndrome-immediate-funding-need-northeast |
| RCN 2010-02 | Instream Flow for Great Lakes Basin of NY and PA | 3 | 3 | NY, PA | TNC | ongoing |  |  | http://rcngrants.org/content/instream-flow-recommendations-great-lakes-basin-new-york-and-pennsylvania |
| RCN 2010-03 | Identification of Tidal Marsh Bird Focal Areas BCR 30 | 1,2,3,4,5 | 1,2,3,4,5 | NJ, DE, MD, DC, VA | U of DE | ongoing |  |  | http://rcngrants.org/content/identification-tidal-marsh-bird-focal-areas-bird-conservation-region-30 |
| RCN 2010-04 | Regional Analysis of Frog Monitoring | 5 | 5 |  | USGS | ongoing | Website completed, Final manuscript currently under internal review - not yet submitted to journal |  | <http://rcngrants.org/content/northeast-state-frogs-development-regional-analysis-frog-call-survey-data-north-american> |
| RCN 2011-01 | Conservation Action Plan for the Eastern Black Rail | 1,2,3,4,5 | 1,2,3,4,5 | NY, NJ, PA, DE, MD | Ctr for Cons. Bio. | ongoing | Final report expected March 1 |  |  |
| RCN 2011-02 | Wood Turtle Conservation Strategy | 1,2,3,4,5 | 1,2,3,4,5 | All | UMass CRU | ongoing | Final report is under review |  | <http://rcngrants.org/content/wood-turtle-glyptemys-insculpta-northeastern-united-states-status-assessment-and> |
| RCN 2011-03 | Conservation Assessment of Odonata | 1,2,3,4,5 | 1,2,3,4,5 | All | NY Nat. Heritage | ongoing | Final report is under review |  | http://rcngrants.org/content/conservation-assessment-odonata-dragonflies-and-damselflies-northeastern-region |
| RCN 2011-05 | Terrestrial Map Guidance | 2 | 2 | All | TNC | ongoing |  |  | http://rcngrants.org/content/guide-terrestrial-habitat-map |
| RCN 2011-06 | Aquatic Habitat Map Guidance | 2 | 2 | All | TNC | ongoing |  |  | http://rcngrants.org/content/guide-aquatic-habitat-map |
| RCN 2011-07 | RCN Regional Synthesis | 1,2,3,4,5 | 1,2,3,4,5 | All | Terwilliger | ongoing | Report is updated as necessary | April-14 |  |
| RCN 2011-08 | Northeast State Wildlife Action Plans: Database Framework for Common Elements |  |  | All | NJ DFW | ongoing | Report is updated as necessary | April-14 |  |
| RCN 2012-01 | Rana virus in amphibians | 3 | 3 | All | MD DNR | developing contract |  |  |  |
| RCN 2012-02 | Conservation status of Brook Floater Mussel | 1,2,3,4,5 | 1,2,3,4,5 | All | Saint Anselm College | developing contract |  |  |  |
| RCN 2012-03 | Fungal Dermatitis in New England Timber Rattlesnake | 3 | 3 | ME, NH, VT, MA | RI Zoological Soc | developing contract |  |  |  |
| SWG BLTU | Conservation of Blanding’s Turtle and Associated Wetland SGCN in the Northeast |  | All | ME,NH, MA, NY, PA | NH FG | ongoing |  |  |  |
| SWG NEC | Conservation Strategy for the New England cottontail (Sylvilagus transitionalis) | All | 1,2,3,4,5 | ME, NH, MA, CT, RI, NY | Wildlife Management Institute | closed |  |  | <http://www.newenglandcottontail.org> |
| LCC - 1 | Virginia Piedmont and Coastal Plain Updates to Northeast Habitat Map |  |  | VA, MD | TNC | closed | Extension of the Terrestrial Ecosystem and Habitat Map of NE | Jun-12 | http://www.northatlanticlcc.org/projects/habitat-map-for-virginia-piedmont-and-coastal-plain/habitat-map-for-virginia-piedmont-and-coastal-plain |
| LCC - 2 | Extending the Northeast Terrestrial Habitat Map to Atlantic Canada |  |  | Canada - Quebec, New Brunswick, Prince Edward Island, Nova Scotia | TNC | ongoing |  |  | <http://www.northatlanticlcc.org/projects/extending-the-northeast-terrestrial-habitat-map-to-atlantic-canada> |
| LCC - 3 | Revisions to the Northeastern Aquatic Habitat Classification |  |  | All | TNC | ongoing |  |  | http://www.northatlanticlcc.org/projects/aquatic-classification-revisions/revisions-to-the-northeastern-aquatic-habitat-classification |
| LCC - 4 | Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast |  |  | ME, NH, MA, CT, RI, NY, NJ, PA, DE, MD, DC,VA | TNC | ongoing |  |  | http://www.northatlanticlcc.org/projects/reports-for-application-of-the-coastal-and-marine-ecological-classification-standards-cmecs-to-the-northeast-1 |
| LCC - 5 | Rapid Update to the National Wetlands Inventory for Selected Areas of Intertidal Wetlands in the North Atlantic LCC |  |  | ME, MD, MA, NY, PA, and VA | Conservation Management Institute | ongoing |  |  | http://www.northatlanticlcc.org/projects/rapid-update-to-coastal-nwi/coastal-update-to-the-national-wetlands-inventory |
| LCC - 6 | Vulnerabilities to Climate Change of Northeast Fish and Wildlife Habitats, Phase II |  |  | All | Manomet Center for Conservation Sciences | ongoing |  |  | <http://www.northatlanticlcc.org/projects/vulnerabilities-to-climate-change-of-northeast-fish-and-wildlife-habitats-phase-ii/vulnerabilities-to-climate-change-of-northeast-fish-and-wildlife-habitats-phase-ii>  <http://rcngrants.org/content/assessing-likely-impacts-climate-change-northeastern-fish-and-wildlife-habitats-and-species> |
| LCC - 7 | Completing Northeast Regional Vulnerability Assessment Incorporating the NatureServe Climate Change Vulnerability Index |  |  | All | NatureServe | ongoing |  |  | <http://www.northatlanticlcc.org/projects/completing-northeast-regional-vulnerability-assessment-incorporating-the-natureserve-climate-change-vulnerability-index/completing-northeast-regional-vulnerability-assessment-incorporating-the-natureserve-climate-change-vulnerability-index>  <http://www.natureserve.org/prodServices/climatechange/ccvi.jsp> |
| LCC - 8 | Permeable Landscapes for Species of Greatest Conservation Need |  |  | All | TNC | ongoing |  |  | <http://www.northatlanticlcc.org/projects/permeable-landscapes-for-species-of-greatest-conservation-need/permeable-landscapes-for-species-of-greatest-conservation-need> |
| LCC - 9 | Designing Sustainable Landscapes:  Assessment of Landscape Changes in the North Atlantic Landscape Conservation Cooperative: Decision-Support Tools for Conservation |  |  | All | University of Massachusetts, Amherst | ongoing |  |  | <http://www.northatlanticlcc.org/projects/designing-sustainable-landscapes-phase-2>  <http://www.umass.edu/landeco/research/nalcc/nalcc.html> |
| LCC - 10 | Decision support tool to assess aquatic habitats and threats in North Atlantic watersheds and estuaries |  |  | All | Downstream Strategies | ongoing |  |  | <http://www.northatlanticlcc.org/projects/downstream-strategies-project/decision-support-tool-to-assess-aquatic-habitats-and-threats-in-north-atlantic-watersheds> |
| LCC - 11 | Mapping the Distribution, Abundance and Risk Assessment of Marine Birds in the Northwest Atlantic Ocean |  |  | ME, NH, MA, CT, RI, NY, NJ, PA, DE, MD, VA | North Carolina State University | ongoing |  |  | [http://www.northatlantic assessment-of-marine-birds-in-the-northwest-atlantic-ocean lcc.org/projects/mapping-the-distribution-abundance-and-risk-](http://www.northatlanticlcc.org/projects/mapping-the-distribution-abundance-and-risk-assessment-of-marine-birds-in-the-northwest-atlantic-ocean) |
| LCC - 12 | Forecasting Changes in Aquatic Systems and Resilience of Aquatic Populations in the NALCC: Decision-support Tools for Conservation |  |  | All | USGS/University of Massachusetts Amherst | ongoing |  |  | <http://www.northatlanticlcc.org/projects/forecasting-changes-in-aquatic-systems-and-resilience-of-aquatic-populations-in-the-nalcc-decision-support-tools-for-conservation/forecasting-changes-in-aquatic-systems-and-resilience-of-aquatic-populations-in-the-nalcc-decision-support-tools-for-conservation> |
| LCC - 13 | Forecast Effects of Accelerating Sea-level Rise on the Habitat of Atlantic Coast Piping Plovers and Identify Responsive Conservation Strategies |  |  | ME, NH, MA, CT, RI, NY, NJ, DE, MD, VA | Virginia Tech | ongoing |  |  | <http://www.northatlanticlcc.org/projects/forecast-effects-of-accelerating-sea-level-rise-on-the-habitat-of-atlantic-coast-piping-plovers-and-identify-responsive-conservation-strategies/forecast-effects-of-accelerating-sea-level-rise-on-the-habitat-of-atlantic-coast-piping-plovers-and-identify-responsive-conservation-strategies> |
| LCC - 14 | Assessing Priority Amphibian & Reptile Conservation Areas (PARCAs) and Vulnerability to Climate Change in the North Atlantic Landscape Conservation Cooperative (LCC) |  |  | All | Association of Fish and Wildlife Agencies | ongoing |  |  | <http://www.northatlanticlcc.org/projects/assessing-priority-amphibian-reptile-conservation-areas-parcas-and-vulnerability-to-climate-change-in-the-north-atlantic-landscape-conservation-cooperative-lcc/assessing-priority-amphibian-reptile-conservation-areas-parcas-and-vulnerability-to-climate-change-in-the-north-atlantic-landscape-conservation-cooperative-lcc> |
| LCC - 15 | Identifying Important Migratory Landbird Stopover Sites in the Northeast |  |  | All | University of Delaware | ongoing |  |  | <http://www.northatlanticlcc.org/projects/bird-radar-group/migratory-landbird-stopover-sites-in-the-northeast> |
| LCC - 16 | Northeast Regional Conservation Design, Regional Synthesis and Delivery of Conservation Information and Tools for SWAP updates |  |  | All | North Atlantic LCC | ongoing |  |  | <http://www.northatlanticlcc.org/groups/science-delivery-team>  <http://nalcc.databasin.org/> |

# Appendix 2 – Summary of Threats Identified by RCN Projects

| **IUCN Level 1** | **Project ID** | **Threat** | **Habitats** | **Species** | **States** |
| --- | --- | --- | --- | --- | --- |
| Biological Resource Use | RCN2007-05, RCN2008-05 | Unsustainable timber harvest, lack of old growth forests and large diameter trees | Southern Upland Forest [1.C.1], Northeast Upland Forest [1.C.2], Boreal Upland Forest [1.D.1], Northern Wetland Forest [1.C.3], Boreal Wetland Forest [1.D.2] | Forest SGCN | All |
| Biological Resource Use | SWG NEC | Overutilization for Commercial, Recreational, Scientific, or Educational Purposes | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Climate Change and Severe Weather | RCN2008-03 | Climate change impacts on SGCN | All | All SGCN | All |
| Climate Change and Severe Weather | RCN2009-01 | Climate change impacts on SGCN | All | All SGCN | All |
| Energy Production and Mining | RCN2007-07 | Biomass Energy Production | Eastern Forests | Forest SGCN | All |
| Invasive and Other Problematic Species, Genes and Diseases | RCN2007-03 | Impact of invasive species SGCN | All | All SGCN | All |
| Invasive and Other Problematic Species, Genes and Diseases | RCN2007-05, RCN2008-05 | Invasive Species | Streams and Rivers | Aquatic SGCN | All |
| Invasive and Other Problematic Species, Genes and Diseases | RCN2007-05, RCN2008-05 | Invasive Species | Lakes and Ponds | Aquatic SGCN | All |
| Invasive and Other Problematic Species, Genes and Diseases | RCN2007-09 | White-nosed Syndrome in bats | Caves and Mines | Cave Bats | All |
| Invasive and Other Problematic Species, Genes and Diseases | RCN2010-01 | White-nosed Syndrome in bats | Caves and Mines | Cave Bats | All |
| Invasive and Other Problematic Species, Genes and Diseases | SWG NEC | Disease and Predation | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Invasive and Other Problematic Species, Genes and Diseases | SWG NEC | OtherNatural or Human-Caused Factors Affecting the Continued Existence of NEC | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Natural Systems Modifications | RCN2007-02 | Fragmentation of stream and river habitats by dams | Streams and Rivers | Aquatic SGCN | All |
| Natural Systems Modifications | RCN2007-05, RCN2008-05 | Fragmentation and other impacts of dams | Lakes and Ponds | Aquatic SGCN | All |
| Natural Systems Modifications | RCN2007-05, RCN2008-05 | Fragmentation and other impacts of dams | Streams and Rivers | Aquatic SGCN | All |
| Natural Systems Modifications | RCN2007-06 | Fragmentation of stream and river habitats by | Streams and Rivers | Aquatic SGCN | All |
| Natural Systems Modifications | RCN2010-02 | Withdrawal of surface waters |  | Aquatic SGCN | All |
| Natural Systems Modifications | SWG NEC | Present or Threatened Destruction, Modification, or Curtailment of NEC Habitat or Range | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Not in IUCN | SWG NEC | Inadequacy of Existing Regulatory Mechanisms | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Southern Upland Forest [1.C.1], Northeast Upland Forest [1.C.2], Boreal Upland Forest [1.D.1], Northern Wetland Forest [1.C.3], Boreal Wetland Forest [1.D.2] | Forest SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Southern Upland Forest [1.C.1], Northeast Upland Forest [1.C.2], Boreal Upland Forest [1.D.1], Northern Wetland Forest [1.C.3], Boreal Wetland Forest [1.D.2] | Forest SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Southern Upland Forest [1.C.1], Northeast Upland Forest [1.C.2], Boreal Upland Forest [1.D.1], Northern Wetland Forest [1.C.3], Boreal Wetland Forest [1.D.2] | Forest SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Peatland [2.C.4], Freshwater Marsh [2.C.5], Salt Marsh [2.C.6] | Wetland SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Peatland [2.C.4], Freshwater Marsh [2.C.5], Salt Marsh [2.C.6] | Wetland SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Peatland [2.C.4], Freshwater Marsh [2.C.5], Salt Marsh [2.C.6] | Wetland SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Limestone valleys, wetlands and glades, Soft sedimentary valleys and hills, Acidic sedimentary pavements and ridges, Shale barrens and slopes, Granitic mountains and wetlands, Serpentine outcrops, Coarse sand barrens and dunes, Silt floodplains and clayplain forests, Alpine meadows and krumholz, Steep cliff communities | . | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Limestone valleys, wetlands and glades, Soft sedimentary valleys and hills, Acidic sedimentary pavements and ridges, Shale barrens and slopes, Granitic mountains and wetlands, Serpentine outcrops, Coarse sand barrens and dunes, Silt floodplains and clayplain forests, Alpine meadows and krumholz, Steep cliff communities | . | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Limestone valleys, wetlands and glades, Soft sedimentary valleys and hills, Acidic sedimentary pavements and ridges, Shale barrens and slopes, Granitic mountains and wetlands, Serpentine outcrops, Coarse sand barrens and dunes, Silt floodplains and clayplain forests, Alpine meadows and krumholz, Steep cliff communities | . | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | shoreline buffer conversion and disturbance | Lakes and Ponds | Aquatic SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | shoreline buffer conversion and disturbance | Lakes and Ponds | Aquatic SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | shoreline buffer conversion and disturbance | Lakes and Ponds | Aquatic SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | riparian zone conversion and disturbance | Streams and Rivers | Aquatic SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | riparian zone conversion and disturbance | Streams and Rivers | Aquatic SGCN | All |
| Residential and Commercial Development | RCN2007-05, RCN2008-05 | riparian zone conversion and disturbance | Streams and Rivers | Aquatic SGCN | All |
| Residential and Commercial Development | SWG BLTU | Habitat loss and fragmentation | Freshwater Marsh (2.5.C), Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Residential and Commercial Development | SWG BLTU | Habitat loss and fragmentation | Freshwater Marsh (2.5.C), Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Residential and Commercial Development | SWG BLTU | Habitat loss and fragmentation | Freshwater Marsh (2.5.C), Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Residential and Commercial Development | SWG NEC | Present or Threatened Destruction, Modification, or Curtailment of NEC Habitat or Range | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Residential and Commercial Development | SWG NEC | Present or Threatened Destruction, Modification, or Curtailment of NEC Habitat or Range | Grassland and Shrubland [2.C.1] | New England cottontail | ME, NH, MA, CT, RI, NY |
| Transportation and Service Corridors | RCN2007-02 | Fragmentation of stream and river habitats by improperly designed culverts | Streams and Rivers | Aquatic SGCN | All |
| Transportation and Service Corridors | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Southern Upland Forest [1.C.1], Northeast Upland Forest [1.C.2], Boreal Upland Forest [1.D.1], Northern Wetland Forest [1.C.3], Boreal Wetland Forest [1.D.2] | Forest SGCN | All |
| Transportation and Service Corridors | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Peatland [2.C.4], Freshwater Marsh [2.C.5], Salt Marsh [2.C.6] | Wetland SGCN | All |
| Transportation and Service Corridors | RCN2007-05, RCN2008-05 | Habitat loss and fragmentation | Limestone valleys, wetlands and glades, Soft sedimentary valleys and hills, Acidic sedimentary pavements and ridges, Shale barrens and slopes, Granitic mountains and wetlands, Serpentine outcrops, Coarse sand barrens and dunes, Silt floodplains and clayplain forests, Alpine meadows and krumholz, Steep cliff communities | | All |
| Transportation and Service Corridors | RCN2007-05, RCN2008-05 | shoreline buffer conversion and disturbance | Lakes and Ponds | Aquatic SGCN | All |
| Transportation and Service Corridors | RCN2007-05, RCN2008-05 | Invasive Species | Lakes and Ponds | Aquatic SGCN | All |
| Transportation and Service Corridors | RCN2007-05, RCN2008-05 | stream barriers and fragmentation (non-dams) | Streams and Rivers | Aquatic SGCN | All |
| Transportation and Service Corridors | RCN2007-06 | Fragmentation of stream and river habitats by improperly designed culverts | Streams and Rivers | Aquatic SGCN | All |
| Transportation and Service Corridors | SWG BLTU | Habitat loss and fragmentation | Freshwater Marsh (2.5.C), Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Transportation and Service Corridors | SWG BLTU | Road Mortality | Freshwater Marsh (2.5.C), Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |

# Appendix 3 – Summary of Actions Identified by RCN Projects

| **TRACS LEVEL 1** | **Project ID** | **Action** | **Sub-Action** | **Habitat** | **Species** | **States** |
| --- | --- | --- | --- | --- | --- | --- |
| Coordination and Administration | RCN2007-04 | Coordinate monitoring programs among organizations and integrate them across spatial scales to solve conservation or management problems effectively. |  | All | Bird SGCN | All |
| Coordination and Administration | SWG BLTU | Coordination and Administration | Coordinate and Administer the Initiative | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Coordination and Administration | SWG BLTU | Coordination and Administration | Evaluate performance of grant objectives | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Coordination and Administration | SWG BLTU | Coordination and Administration | Report actions accomplished through grant | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Coordination and Administration | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Coordinate with National Wildlife Refuges | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Coordinate with National Estuarine Research Reserves | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Manage Contracts and Vendors | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Convene NEC Land Management Team for Each State | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Develop and Deliver Incentives | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Hire a Recruitment Coordinator | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Contact Landowners | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Convene NEC Executive Committee | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Convene NEC Technical Committee (1.1.2 – Program/project Administrative Support) | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Coordinate Information and Adaptive Management Work Group | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Coordinate Research and Monitoring Work Group | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Coordinate NEC Land Management Teams in Each State | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Coordinate Population Management Work Group | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Coordinate Outreach Work Group | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Coordination and Administration | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Coordinate Land Protection Work Group | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | NEAHCS | Evaluate ways to Integrate (whenever feasible) Northeast Wildlife Aquatic Habitat Classification System into state wildlife action plans and overall state wildlife planning and operations. |  | Aquatic | Aquatic SGCN | All |
| Data Collection and Analysis | NERMPF | Develop a coordinated regional implementation plan and integrate the Regional Monitoring and Performance Framework as the standard for NEAFWA states to measure the effectiveness of conservation activities and state Wildlife Action Plans. |  | All | Regionally Significant SGCN, Higly Migratory Species | All |
| Data Collection and Analysis | NERMPF | Develop a coordinated regional implementation plan and integrate the Regional Monitoring and Performance Framework as the standard for NEAFWA states to measure the effectiveness of conservation activities and state Wildlife Action Plans. |  | Forest and Woodlands [1], Freshwater Marsh ([2.C.5], Grassland and Shrubland [2.C.1], Cliff and Rocks [6.B.2], Alpine [4.B.1], Other - Caves/Karst/Mines, Waterfalls | All SGCN | All |
| Data Collection and Analysis | NETWHCS | Evaluate ways to Integrate (whenever feasible) Northeast Wildlife Habitat Classification System into state wildlife action plans and overall state wildlife planning and operations. |  | Terrestrial | Terrestrial SGCN | All |
| Data Collection and Analysis | RCN2007-01 | Evaluate and integrate (wherever feasible) the Regional Habitat Maps as the baseline for documenting the distribution and abundance of wildlife habitat in the Northeast region. |  | Terrestrial | Terrestrial SGCN | All |
| Data Collection and Analysis | RCN2007-02 | Provide a portal to ensure that the Northeast Connectivity Assessment Tool (NCAT) and Northeast Aquatic Connectivity associated analysis tools (e.g. the Barrier Analysis Tool‐BAT) are available online. |  | Streams and Rivers | Aquatic SGCN | All |
| Data Collection and Analysis | RCN2007-04 | Broaden the scope of current monitoring for species that are most at risk and for which we have inadequate information to make effective management decisions. |  | All | Bird SGCN | All |
| Data Collection and Analysis | RCN2007-04 | Increase the value of monitoring information by improving survey design, field methods, and data analysis. |  | All | Bird SGCN | All |
| Data Collection and Analysis | RCN2007-04 | Maintain bird population monitoring data in modern data management systems. Recognizing legal, institutional, proprietary, and other constraints provide greater availability of raw data, associated metadata, and summary data for bird monitoring programs. |  | All | Bird SGCN | All |
| Data Collection and Analysis | SWG BLTU | Assess genetic relationships among Blanding’s turtle populations within the Northeast region. | Assess the population genetic structure of Blanding’s turtle populations in the Northeast and incorporate findings into conservation planning and priority area management in Maine, Massachusetts, New Hampshire, New York, and Pennsylvania | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Assess genetic relationships among Blanding’s turtle populations within the Northeast region. | Examine isolated/outlier Blanding’s turtle populations in Pennsylvania and New York to determine origin (naturally occurring or introduced) | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Assess genetic relationships among Blanding’s turtle populations within the Northeast region. | Compare the genetic structure of Blanding’s turtle populations within the Northeast region to those in the Midwest region and Canada to provide a spatially explicit assessment of the discrete population groups across the species’ range | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Develop standardized monitoring protocols for Blanding’s turtle in the Northeast. | Develop standardized monitoring protocols for rapid site assessments | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Develop standardized monitoring protocols for Blanding’s turtle in the Northeast. | Develop standardized monitoring protocols for long-term reference sites | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Standardized monitoring protocols. | Select sites for rapid assessment and long-term reference monitoring | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Standardized monitoring protocols. | Implement rapid assessment protocols | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG BLTU | Standardized monitoring protocols. | Initiate the first year of long-term, reference site monitoring | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Data Collection and Analysis | SWG NEC | Establish a comprehensive monitoring program for NEC throughout its range | Quantify Extent of Habitat | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a comprehensive monitoring program for NEC throughout its range | Measure Habitat Occupancy Rates | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a comprehensive monitoring program for NEC throughout its range | Presence/Absence Distribution Surveys | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a comprehensive monitoring program for NEC throughout its range | Measure Vegetation Response to Management | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a research program to address gaps in information and key uncertainties | Determine NEC Demography | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a research program to address gaps in information and key uncertainties | Determine NEC Distribution and Abundance | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a research program to address gaps in information and key uncertainties | Study NEC/Eastern Cottontail Interaction | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a research program to address gaps in information and key uncertainties | Investigate Habitat Ecology | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a research program to address gaps in information and key uncertainties | Study NEC Taxonomy and Genetics | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish a research program to address gaps in information and key uncertainties | Test Management Assumptions | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Refine Best Management Practices for Making NEC Habitat | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Assess Data Management Needs | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Develop and Integrate Data Management Tools | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Maintain and Manage Spatial Data | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Maintain and Manage Planning Data | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Maintain and Manage NEC Status Data | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Maintain and Manage Management Performance Data | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Acquire Necessary Data and Permissions | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Manage Parcel Information and Landowner Status | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Data Collection and Analysis | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Review Species Status | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG BLTU | Initiate on-the-ground implementation of priority actions to increase viability of Blanding’s turtle populations and associated SGCN. | Create and/or enhance nesting habitat for Blanding’s turtles and other SGCN in at least 1 site per state and at least 5 in the region | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Direct Management of Natural Resources | SWG BLTU | Initiate on-the-ground implementation of priority actions to increase viability of Blanding’s turtle populations and associated SGCN. | Implement a turtle X-ing sign program in each state & install signs in at least 5 areas | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Direct Management of Natural Resources | SWG NEC | Establish a comprehensive monitoring program for NEC throughout its range | Monitor Disease and Parasitism | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Manage Eastern Cottontails | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Manage Predators | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Manage Disease | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Reduce Predation | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Create Habitat on Private Land through Farm Bill Funding | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Create Habitat on Private Lands Not Eligible for Farm Bill Funding | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Create Habitat on Municipal Land | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Create Habitat on State Land | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Create Habitat on Federal Land | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Manage Habitat Through Prescribed Burning | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Direct Management of Natural Resources | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Implement Restoration (Acres) on Tribal Lands | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Education | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Manage hunting | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Land and Water Rights Acquisition and Protection | SWG NEC | Establish partnerships and funding sources for land acquisition to benefit NEC management efforts. | Expand National Wildlife Refuge Partnerships and Land Protection Efforts | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Land and Water Rights Acquisition and Protection | SWG NEC | Establish partnerships and funding sources for land acquisition to benefit NEC management efforts. | Develop Local and Regional Land Protection Partnerships | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Land and Water Rights Acquisition and Protection | SWG NEC | Establish partnerships and funding sources for land acquisition to benefit NEC management efforts. | Develop Projects | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Land and Water Rights Acquisition and Protection | SWG NEC | Establish partnerships and funding sources for land acquisition to benefit NEC management efforts. | Raise Funds | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Land and Water Rights Acquisition and Protection | SWG NEC | Establish partnerships and funding sources for land acquisition to benefit NEC management efforts. | Develop Land Protection Ranking Criteria | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Land and Water Rights Acquisition and Protection | RCN2008-03 | Whenever feasible, integrate the results of the resiliency analysis into land protection and wildlife conservation efforts. |  | All | All SGCN | All |
| Outreach | RCN2008-02 | Whenever feasible incorporate the tools developed by this project in outreach efforts at the local scale (towns, planning boards, environmental commissions, land trusts) |  | All | All SGCN | All |
| Outreach | SWG BLTU | Engage key partners, including state and federal transportation agencies, natural resources agencies, land trusts, municipalities, landowners, and other local stakeholders to implement priorities identified in spatially-explicit management plans. | Disseminate management plans and implementation priorities and engage key partners including transportation agencies, all local stakeholders, landowners, and partnering agencies | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Outreach | SWG BLTU | Engage key partners, including state and federal transportation agencies, natural resources agencies, land trusts, municipalities, landowners, and other local stakeholders to implement priorities identified in spatially-explicit management plans. | Host at least one workshop in each state with key land conservation partners; present results, solicit feedback, and initiate next steps toward plan implementation | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Outreach | SWG NEC | Establish an outreach and education program to keep partners and the public informed, to garner political support for NEC conservation and to minimize social barriers to creating NEC habitat. | Develop an Outreach Strategy | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish an outreach and education program to keep partners and the public informed, to garner political support for NEC conservation and to minimize social barriers to creating NEC habitat. | Develop and Maintain a Website | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish an outreach and education program to keep partners and the public informed, to garner political support for NEC conservation and to minimize social barriers to creating NEC habitat. | Develop Communications Products to Explain and Further NEC Conservation | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish an outreach and education program to keep partners and the public informed, to garner political support for NEC conservation and to minimize social barriers to creating NEC habitat. | Direct Outreach Efforts to NEC Focus Areas | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish an outreach and education program to keep partners and the public informed, to garner political support for NEC conservation and to minimize social barriers to creating NEC habitat. | Target Outreach to Key Audiences | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Create Demonstration Areas | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Create and Share Status and Performance Reports | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Outreach | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Respond to Requests for Data | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | RCN2007-02 | Whenever feasible, use the Barrier Analysis Tool and associated data to assess threats to aquatic connectivity. |  | Streams and Rivers | Aquatic SGCN | All |
| Planning | RCN2007-03 | Whenever feasible, use the methods developed by this project to assess the threat of invasive species on state SGCN. |  | All | All SGCN | All |
| Planning | RCN2007-04 | Integrate monitoring into bird management and conservation decision-making processes and ensure that monitoring is aligned with management and conservation priorities. |  | All | Bird SGCN | All |
| Planning | RCN2009-01 | Whenever feasible, use the results of this vulnerability analysis to assess the impacts of climate change on SGCN. |  | All | All SGCN | All |
| Planning | SWG BLTU | Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | Identify Blanding’s turtle population units throughout the Northeast | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG BLTU | Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | Assign Quality Ranks to all known Blanding’s turtle populations within the Northeast | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG BLTU | Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | Identify Blanding’s turtle conservation priorities within Northeast | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG BLTU | Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | Develop spatially explicit parcel maps for Blanding’s turtle conservation priorities | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG BLTU | Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | Develop spatially explicit management plans at one to four high priority sites in each state and at least 15 overall | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG BLTU | Develop a conservation plan for Blanding’s turtle and associated SGCN in the Northeast, including identifying spatially explicit conservation priorities. | Compile information from Projects I-III into a Northeast Blanding’s Turtle Conservation Plan | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG BLTU | Standardized monitoring protocols. | Apply sampling results to validate conservation priorities established and inform management plans | Freshwater Marsh [2.C.5], Vernal Pools | Blanding's Turtle | ME, NH, MA, NY, PA |
| Planning | SWG NEC | Establish the capacity to create and manage 35,900 acres of habitat for NEC by 2022 | Develop Site-Specific Management Plans | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Conduct Site Assessments | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Draft Applications, Preliminary Plans, and Cost Estimates | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Draft and Review Land Management Ranking and Eligibility Criteria | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | SWG NEC | Establish the capacity to recruit land owners for voluntary management of NEC habitat on at least 7,000-15,000 acres. | Develop a Business Plan Incorporating Parcel Ranking and Reserve Design Principles | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Review Performance (9.3.1 – Species Management Planning) | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Planning | SWG NEC | Implement the NEC plan and the framework for NEC recovery oversight (NEC Executive Committee), administration, coordination, and adaptive management | Review Strategy Adaptations | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Species Reintroduction and Stocking | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Obtain NEC for Captive Breeding | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Species Reintroduction and Stocking | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Conduct Zoo-Based Husbandry | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Species Reintroduction and Stocking | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Evaluate Enclosure-Based Husbandry | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Species Reintroduction and Stocking | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Manage Island Colony or Colonies | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Species Reintroduction and Stocking | SWG NEC | Establish the capacity to augment and manage critically low NEC populations or create new ones. | Release NEC to Augment or Establish Populations | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |
| Technical Assistance | RCN2007-07 | State fish and wildlife agencies should make a proactive and concerted effort to engage biomass industry entities by encouraging wildlife biologists to participate in active communications with their industry counterparts at early in the project planning |  | Grassland and Shrubland [2.C.1] | Shrubland SGCN | All |
| Technical Assistance | SWG NEC | Establish the capacity to manage and share data among NEC recovery partners | Provide Technical Assistance to Managers | Grassland and Shrubland [2.C.1] | New England Cottontail | ME, NH, MA, CT, RI, NY |