

# NH WILDLIFE CORRIDORS



Report on SB 376  
June 2018



## Executive Summary

The NH Fish and Game Department (NHFG) partnered with the NH Department of Transportation (NH DOT) and NH Department of Environmental Services (NHDES) to research wildlife corridors in New Hampshire and address Senate Bill 376, an act relative to wildlife corridors. The research topics included identifying (1) existing and needed wildlife corridors, (2) voluntary mechanisms that affect wildlife corridors and (3) any existing statutes, rules and regulations that affect wildlife corridors.



To identify existing and needed wildlife corridors in New Hampshire, the Wildlife Corridor report planning team compiled and summarized numerous on-going and completed efforts. Some of these efforts have modeled wildlife corridors, based on land-use, to create maps that show habitats linked by wildlife corridors. For example, the NH Wildlife Connectivity Model predicts wildlife connectivity zones and identifies both key areas for land protection efforts and strategic locations for restoring connectivity (page 7). Other efforts to identify existing and needed wildlife corridors have included field research looking for tracks, camera-trapping, reports of sightings by the public, and checking the connectivity at culverts and bridges (page 11). Many regional conservation plans use these mapped corridors to highlight connectivity as a land conservation priority (page 18).

Voluntary mechanisms that affect wildlife corridors include land conservation and management mechanisms (fee acquisition, conservation easements, cooperative management agreements, current use program), technical assistance opportunities, and available land acquisition and restoration funding (page 28).

In New Hampshire, there are limited regulations pertaining directly to wildlife corridors (page 44).

Recommendations include supporting funding, partnerships, outreach efforts, and the development of tools that support priority wildlife corridors (page 47).

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## Introduction

Senate Bill 376 (SB376), an act relative to wildlife corridors, took effect on August 9, 2016. SB376 requires the NH Fish and Game Department (NHFG), with the NH Department of Transportation (NHDOT) and the NH Department of Environmental Services (NHDES), to identify existing and needed wildlife corridors, including riparian corridors and potential crossings of transportation arteries. SB376 further requires NHFG, NHDOT, and NHDES to audit existing statutes, rules, and regulations that affect wildlife corridors and make recommendations concerning necessary changes.



The findings of SB376 state that *“The legislature finds and declares that:*

*I. It is recognized as a public good that habitat connectivity, including wildlife corridors and habitat linkages, be maintained and expanded. It is the policy of the state of New Hampshire to encourage, wherever feasible and practical, voluntary steps to protect the functioning of wildlife corridors through various means, as applicable.*

*II. Areas containing diverse ecological and geological characteristics are vital to the continual health and well-being of the state's natural resources and of its citizens.*

*III. Connectivity between wildlife habitats is important to the long-term viability of the state's biodiversity. Preserving and connecting high-quality habitat for wildlife can create habitat strongholds. Increasingly fragmented habitats threaten the state's wildlife species.”*

The full text of SB376 may be found in Appendix A and here:

[http://www.gencourt.state.nh.us/bill\\_Status/billText.aspx?sy=2016&id=1001&txtFormat=pdf&v=current](http://www.gencourt.state.nh.us/bill_Status/billText.aspx?sy=2016&id=1001&txtFormat=pdf&v=current)

NHFG is committed to implementing actions that conserve wildlife. NHFG, led by the Nongame and Endangered Wildlife Program, developed a NH Wildlife Action Plan (revised 2015) that is a blueprint for conserving [Species of Greatest Conservation Need](#) (SGCN) and their habitats. Each species and habitat has an individual profile that includes information about the population, threats, and actions needed to conserve these features in New Hampshire.

The Wildlife Action Plan threat assessment detailed how the loss of wildlife corridors may result in direct mortality, habitat fragmentation, and barriers to dispersal. More specifically, mortality can affect the dispersal and viability of isolated populations, and eventually cause local extirpation (Trombulak and Frissell 2000; Forman et al. 2003). At greatest risk are slow-moving species (e.g., reptiles and amphibians), species that depend on high adult survivorship (e.g. turtle species), species that are long range dispersers (e.g. bobcats, American martens, wolves), and species with scarce populations (e.g. timber rattlesnakes) (Fahrig and Rytwinski 2009). As traffic volume increases, vehicle collisions become

increasingly probable, reducing local population abundances and decreasing the likelihood and frequency of dispersal to unoccupied or low-density habitats (Litvaitis, University of New Hampshire, personal communication). Large mammals crossing roadways (e.g., black bear, moose, and deer), although not likely to be a population viability concern, cause safety concerns for motorists.

The effects of roads and development as barriers to wildlife movement are widespread (Andrews 1990; Forman et al. 2003; Trombulak and Frissell 2000). Roads that bisect seasonal or annual wildlife migration routes are of particular concern, especially for rare amphibians and reptiles that migrate between wetlands and uplands or between wetland complexes (Fahrig et al. 1995; Trombulak and Frissell 2000). New England cottontails may be reluctant to cross a wide road because of the break in dense cover that they prefer (J. Litvaitis, University of New Hampshire, personal communication). Lepidoptera (butterflies and moths) may be impeded from crossing roads by vehicular wind (S. Fuller, NHFG, personal communication). Road design can block wildlife; Jersey barriers and steep-sloping granite curbs can trap small organisms on roadways and increase mortality risk (Klemens 2000; M. Marchand, NHFG, personal observation). Underpasses (e.g., culverts) at stream crossings, especially those that are undersized or perched, may be ineffective for passage of aquatic organisms (Jackson 2003). Identifying optimal locations to place mitigation strategies, such as crossing structures, can also be difficult (Beaudry et al. 2008; Patrick et al. 2012).

The Wildlife Action Plan outlines the actions necessary to address these threats. These actions include land conservation, habitat management, habitat restoration, collaborating with many conservation partners, and providing technical assistance.

NHFG, NHDES, and NHDOT prepared this report with assistance from numerous staff involved in various connectivity projects. This report includes four major sections: NH Wildlife Corridors; Voluntary Mechanisms; Statutes, Rules and Regulations; and Recommendations. The NH Wildlife Corridors section includes a summary of completed, ongoing, and planned activities related to wildlife connectivity. Examples and illustrations are provided. In many cases, individual completed projects referenced in the report have detailed project reports of their own. References and internet links are provided for further information where available. The Voluntary Mechanisms section includes types of programs available to implement wildlife connectivity priorities in New Hampshire and provides select examples of implemented projects through those mechanisms. The Statutes, Rules, and Regulations section summarizes those regulations pertaining to wildlife connectivity, especially those regulations within the NHFG, NHDES, and NHDOT. Finally, further recommendations are made relative to the above sections. A meeting with conservation partners was held at NHFG on April 13, 2018, and a public input session was held on May 3, 2018 at NHFG, Concord.

## NH Wildlife Corridors

“For purposes of this act, "wildlife corridor" means a habitat linkage that joins 2 or more areas of wildlife habitat, allowing for fish passage or the movement of wildlife from one area to another, and "habitat stronghold" means high-quality habitat that supports wildlife in being more resilient to increasing pressures on species due to climate change and land development. ” - SB376

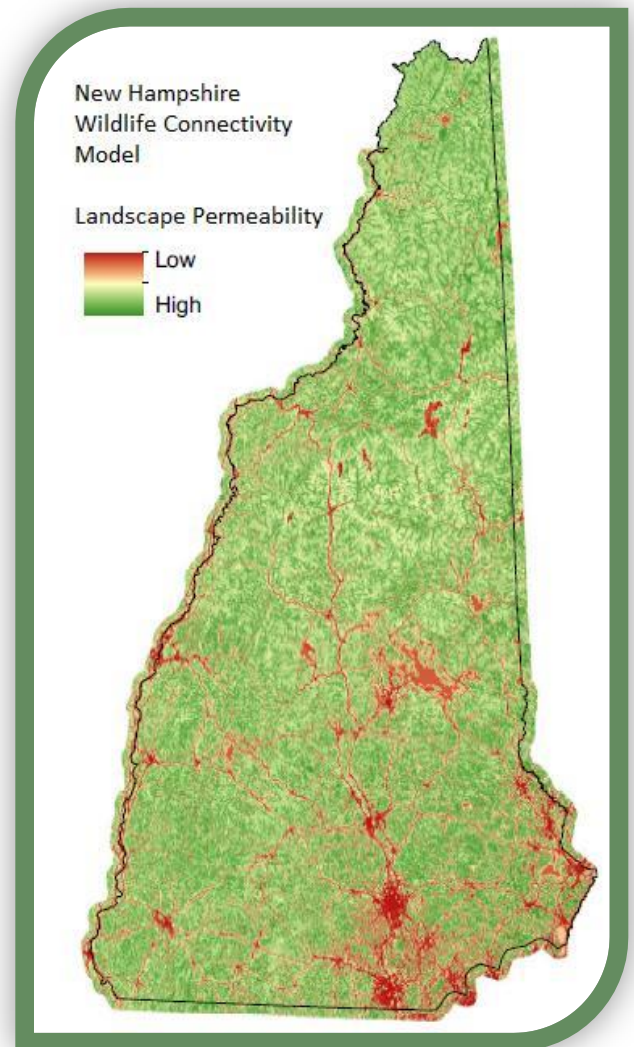
NHFG, NHDES and NHDOT, as well as partner organizations, have undertaken numerous efforts to identify existing and needed wildlife corridors in New Hampshire through mapping, modeling, field research and conservation planning. Information on these efforts follows.

### Connectivity Maps & Models

This section includes maps and models that identify priority wildlife corridors or restoration priorities.

#### NH Wildlife Connectivity Model

The NH Wildlife Connectivity Model is a GIS-based, landscape permeability model that predicts broad-scale wildlife connectivity zones across the state. The model identifies both key areas for land protection efforts and strategic locations for restoring connectivity in currently fragmented landscapes. It was originally produced in 2006 as a cooperative project between NHFG and NH Audubon. Resistance curves were used to model intense, moderate, and mild effects of distance from roads (based on traffic volumes), land cover, slope, distance from riparian areas, and ridgelines. Sixteen species were chosen to represent a range of species based on the variation in their dispersal behaviors. Both common and rare species, including bobcat, fisher, mink, Blanding’s turtle, and New England cottontail, were included. The relative influence of the landscape factors was determined based on literature review; and final scoring was peer-reviewed by biologists familiar with the species. The model has been updated (2006, 2010, 2016) to reflect updates to base data, primarily roads and recent land cover. The NH Wildlife Connectivity Model was one of several datasets used in the NH Wildlife Action Plan to assess relative habitat condition.

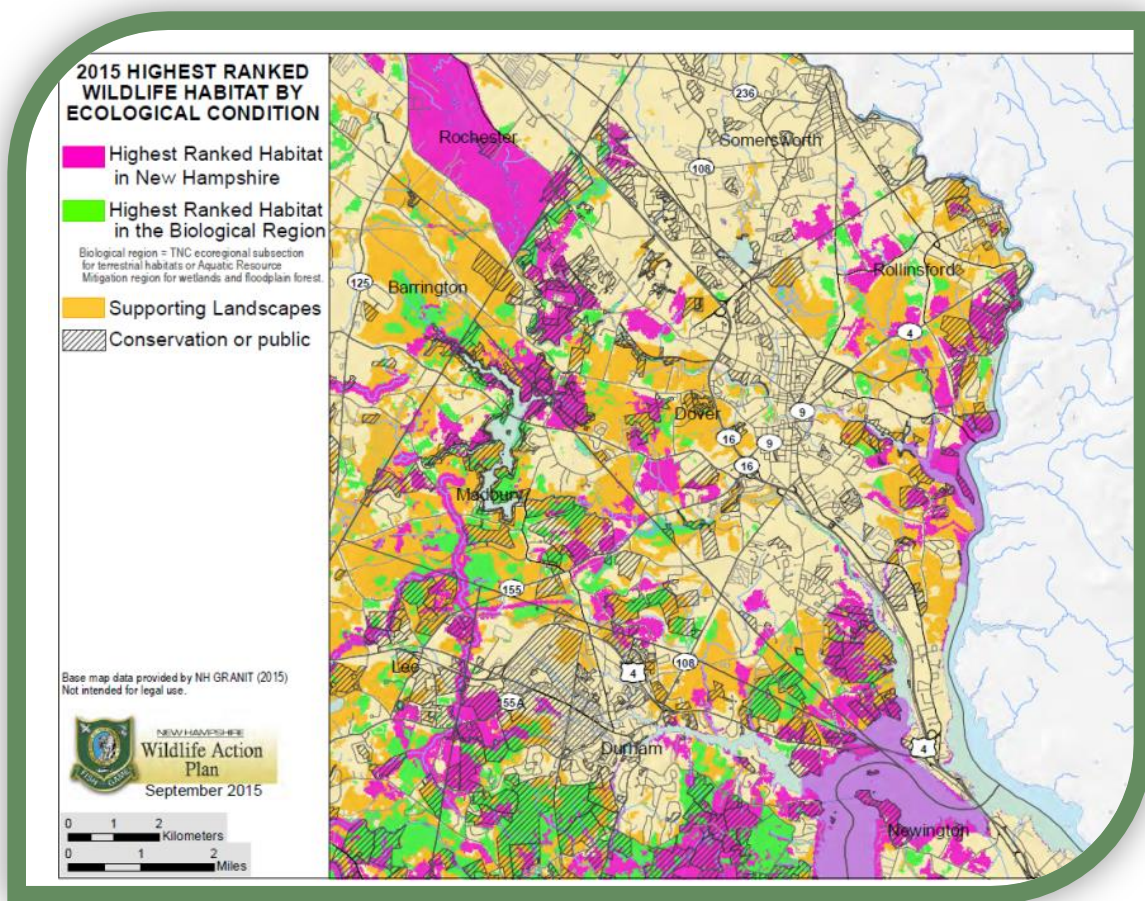




### NH Wildlife Action Plan Maps

The NH Wildlife Action Plan provides maps of the *Highest Ranked Wildlife Habitat by Ecological Condition*. These maps show where wildlife habitat is in the best relative condition in New Hampshire, particularly for [Species of Greatest Conservation Need](#). To create the maps, NHFG used a series of data on species locations, landscape setting, and human influences that affect the ability of habitats to be used by wildlife. This combination of data allowed for an analysis of habitat across the state, and not just where we know rare species exist. The *Highest Ranked Habitat in NH* (purple areas on map) and *Highest Ranked Habitat in Biological Regions* (green areas on map) are identified. A third category identified as ‘Supporting Landscapes’ (shown in orange) frequently represents connectivity priorities between other highly ranked habitats.

<http://www.wildlife.state.nh.us/wildlife/wap-high-rank.html>



### Connect the Coast

In 2017, The Nature Conservancy (TNC), NHFG and partners kicked off the “Connect the Coast” project, which will identify pathways for wildlife to move within and beyond New Hampshire’s coastal watershed. The project is applying conservation science and planning tools to the more densely settled and rapidly developing Seacoast region. The “Connect the Coast” project is utilizing the NH Wildlife Connectivity Model. The project will identify the critical connectors between regionally significant conservation land and habitat blocks, which will help prioritize land protection efforts to secure connections for wildlife. The connectors will also highlight opportunities to work with transportation managers to mitigate the effects of our roadways on wildlife movement. The completion date for the spatial model is June 2018.

### Planning Trails for People and Wildlife

Outdoor recreation (e.g., hiking, mountain biking, bird watching, horseback riding, snowmobiling, etc.) is an important use of conservation lands and is important to the New Hampshire economy. However, even these seemingly innocuous activities can have impacts on wildlife, including reduced abundance, reproduction, and survival.

In response to this concern, the NHFG has developed a statewide mapping tool that can be used to assess existing trails and site new trails in the most wildlife-friendly way. This mapping tool highlights areas particularly important for wildlife and areas that would be more suitable for trail development. Accompanying documents will explain how to use the tool and provide some real-world examples of how conservation organizations have used it to make their trail planning efforts most effective and reduce impacts on wildlife.

Using the most relevant scientific research for New Hampshire, a map was created to highlight areas particularly important for wildlife that, if avoided, would help to minimize trail disturbance to wildlife. This tool works based on the following principals:

- Keep unfragmented trail-free areas as large as possible
- Avoid small patches of high-quality or special habitats
- Avoid riparian areas, permanent features in the landscape that serve as important wildlife corridors
- Avoid locations of rare wildlife

NHFG website – [Planning Trails for People and Wildlife](#)

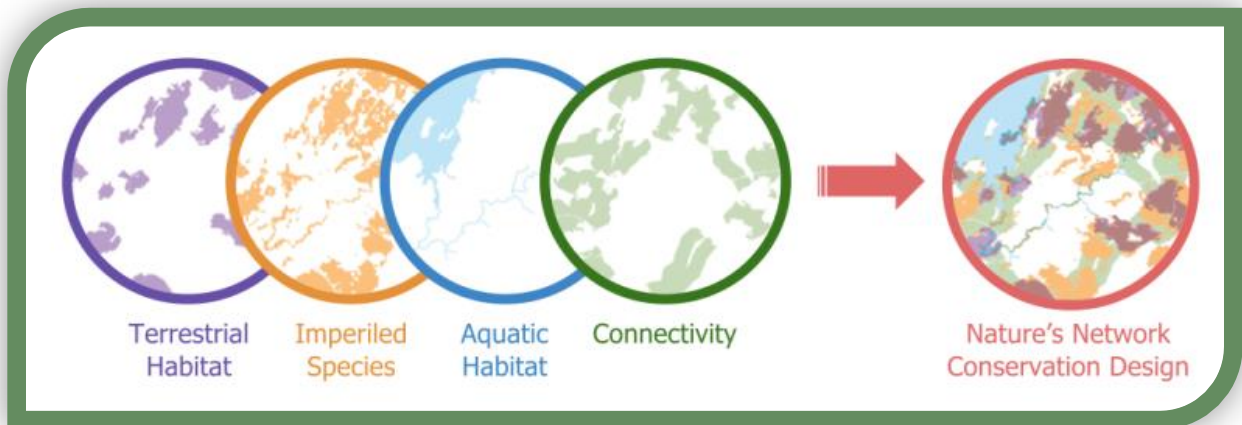
### Resilient and Connected Landscapes

TNC created maps of resilient and connected landscapes by incorporating climate change, biodiversity, and species movement (2016). These maps identify conservation priorities and opportunities for road mitigation. One use of the maps in conservation prioritization is the Open Space Institute’s *Resilient Landscapes Initiative* (see *Funding Opportunities*). The maps provided a basis for an evaluation by the Open Space Institute to determine areas known as Resilient Focus Areas, which are eligible for the Northeast Resilient Landscapes Fund (more information in Open Space Institute section).

<https://tnc.maps.arcgis.com/apps/MapSeries/index.html?appid=73c99463525a4d74957463cbe110f09c>

### Nature's Network

"Nature's Network is a collaborative effort facilitated by the North Atlantic Landscape Conservation Cooperative that brings together partners from 13 states, the U.S. Fish and Wildlife Service, nongovernmental organizations, and universities to identify the best opportunities for conserving and connecting intact habitats and ecosystems and supporting imperiled species to help ensure the future of fish and wildlife across the Northeast region." Nature's Network developed interactive maps with core habitat areas and connections/connectors for species to move across the landscape between the core areas. The maps also identify opportunities for restoration. <http://www.naturesnetwork.org/>



## Connectivity Projects

This section includes connectivity projects with on-the-ground data collection or action plans.

### NH Route 2 Wildlife Crossing Project

A wildlife study of a portion of US Route 2 and NH Route 115 in Jefferson and Randolph was completed by New Hampshire Audubon for NHFG and NHDOT. The wildlife study was focused on the area from approximately the US Route 2/NH Route 115 intersection east approximately 5.0 miles to the intersection of Durand Road West. The wildlife study identified locations within the project corridor that were experiencing relatively high wildlife utilization and discussed methods to reduce wildlife mortality due to vehicle collisions.

The emphasis of the wildlife study was on those animals likely to be at higher risk of vehicle collisions, including large game animals (moose, deer, bear), furbearers, amphibians and reptiles, and certain raptors. The investigation used wildlife tracking techniques to identify locations where animals were most likely to cross the subject roadways in the towns of Jefferson and Randolph, NH. The project also determined the characteristics of crossing locations, with the intent that the project's findings can be applied to other roadways in similar setting as well as within the study area. The locations of over 7,000 sets of tracks were recorded along the roadway. Moose, white-tailed deer, and red fox were the species most commonly recorded. The wildlife study identified two zones with a high concentration of wildlife movement: the NH Route 115/US Route 2 intersection and the area around the Bowman Inn at the west-central portion of the study area.

Using the results of the wildlife study, The Louis Berger Group, Inc. investigated the mitigation options and made recommendations to NHDOT. The recommendations included both structural (overpass/underpass) and non-structural techniques. NHDOT determined that the structural recommendations were not prudent at the time of the study due to dispersed wildlife utilization in one of the two zones, significant costs associated with the structures, and impacts to surrounding properties and resources that would result from construction of the recommended structures. NHDOT does consider incorporation of non-structural techniques to decrease animal/ vehicle collisions in the design of projects in the study area, including the following: public education, enhanced lighting, shoulder striping/additional delineator posts, signage and/or potential use of an infrared wildlife detection system. The results have implications for improving human safety through the reduction of animal vehicle collisions, as well as for improving habitat connectivity across roadways for wildlife.

### Staying Connected Initiative

In northern New Hampshire, as part of the Staying Connected Initiative, TNC, with guidance from NHFG, applied the NH Wildlife Connectivity model and identified local connections. TNC installed cameras at locations (principally along highways) predicted by the model to be wildlife crossing locations. The cameras photographed wildlife crossing or approaching the road and helped to better refine priority wildlife crossing locations. Results from the project have been used to inform land protection planning in northern New Hampshire (see case studies/success stories). In addition, the partnership has provided the resulting priority wildlife crossing locations to NHDOT. This provides an opportunity for

NHDOT to incorporate wildlife corridors that intersect transportation infrastructure into project planning and mitigation efforts to minimize the effect of roads on wildlife connectivity.

<http://stayingconnectedinitiative.org/our-places/nek-northern-nh-to-maine/>

### **NH Stream Crossing Initiative**

The New Hampshire Stream Crossing Initiative is an interagency effort by NHDES (Wetlands Bureau, New Hampshire Geological Survey), NHFG, NHDOT, the NH Department of Safety (Division of Homeland Security and Emergency Management), in collaboration with the University of New Hampshire Technology Transfer Center. The team provides overall coordination, support, guidance, and a mechanism for collaboration relative to state stream crossing assessment data collection and protocols, quality control review, data management, decision-support tools, and watershed-based criteria determination. A key purpose of the team is to maximize the standardization of data collection and reduce multiple, divergent efforts.

Specific efforts include:

- Maintain agreement on standard data collection methods, criteria and coordination among agencies in a manner that is scientifically defensible and standardized, to ensure that collected data can support future potential funding opportunities.
- Maintain agreement on quality control review protocols and procedures.
- Maintain agreement on ensuring that the master database continues agreement with the current version of the stream crossing assessment protocol in use.

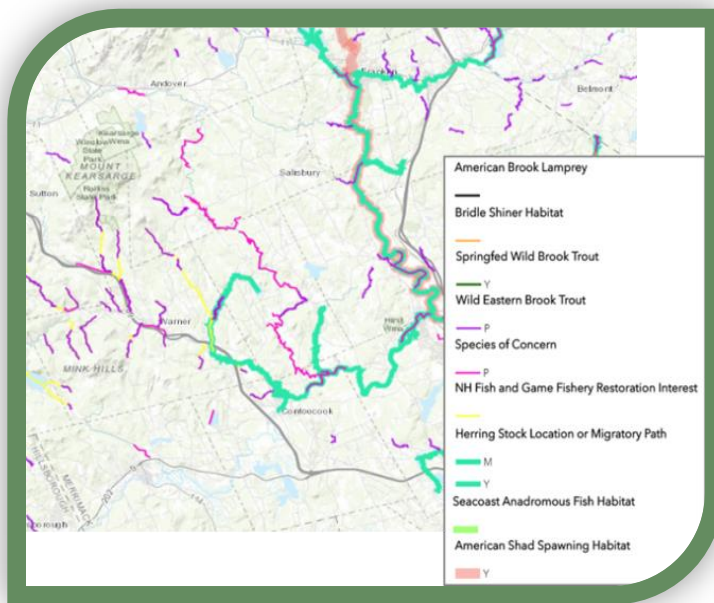
Each of these four agencies has expended considerable resources in developing a robust stream crossing assessment program. Identifying stream crossings that create barriers to aquatic and other wildlife passage, or that result in flood risks, is an important step in evaluating whether crossings should be modified or upgraded. Strategic assessments and improvement of stream crossings will enhance geomorphic compatibility and hydrologic connectivity, and will enhance habitat connectivity critical to maintaining healthy and productive aquatic resources and the fish and wildlife they support.

Interests in New Hampshire have extended well beyond fish passage to include public safety, geomorphology, hydraulics, and asset condition (of interest to NHDOT). The New Hampshire Geological Survey (NHGS) is responsible for QA/QC (quality assurance/quality control) of crossings assessments, and when finalized, datasets are made publicly available through an online viewer. Further, the Wetlands Bureau and NH Department of Safety (Division of Homeland Security and Emergency Management) have interests in the data to assist in their operations. Lastly, the agencies have begun outreach to New Hampshire towns to provide guidance on how to use all the information to prioritize crossing replacements to help aquatic organisms and reduce flood risk. Trout Unlimited, an organization that has received funding from multiple agencies to collect stream crossing data, is also engaged in similar outreach.

Across New Hampshire, there are more than 17,000 road-stream crossings, some of which have created obstructions to the adequate passage of flow, sediment, and fish. Work to improve and restore wetland and stream ecosystem function is an important conservation focus and is an investment in improving the future outcomes for many species. Today, 6,612 crossing assessments have been completed, representing approximately 35% of likely crossings.<sup>[1]</sup>

To date, the collaboration has mapped and assessed thousands of stream crossings throughout the state. These assessments help identify areas where geomorphic process compatibility and aquatic organism passage is reduced or unlikely. The data can be viewed on the [New Hampshire Aquatic Restoration Mapper](#). The Mapper is a decision support tool to prioritize culvert replacement and stream restoration projects.

In 2017, the Inland Fisheries Division of the NHFG developed spatial data highlighting important aquatic habitat. Categories include aquatic habitats or species of concern identified in the 2015 State Wildlife Action Plan, habitat related to ongoing migratory fish restoration projects, and areas where the Department has invested resources into restoration or other ongoing conservation work. The intent of the layer is to increase awareness of NHFG's conservation goals as well as to encourage restoration and conservation efforts in areas that will benefit sensitive species and aquatic habitats in New Hampshire. Important Fish Habitat is included in the Aquatic Restoration Mapper.



<https://www.des.nh.gov/organization/commissioner/pip/publications/documents/stream-crossings.pdf>

<sup>[1]</sup> Potential crossings are estimated based on mapping roads with the state hydrography layer and assuming a crossing is located at each intersection.

### **Stream Connectivity Projects**

There have been four stream connectivity projects with the specific objectives of assessing stream crossings at a watershed level and replacing them in a prioritized manner to meet community and partner goals, which include public safety and the restoration of aquatic connectivity. Project partners have included NHFG, NHDES, NHDOT, municipalities, nongovernmental organization, such as county conservation districts and Trout Unlimited, and interested citizens. The assessments have occurred in the Piscataquog, Warner, Ammonoosuc, Ashuelot, Lamprey and Oyster River watersheds and will occur in the Androscoggin River watershed in 2018-2019.

### **Northeast Regional Conservation Needs Grant Program**

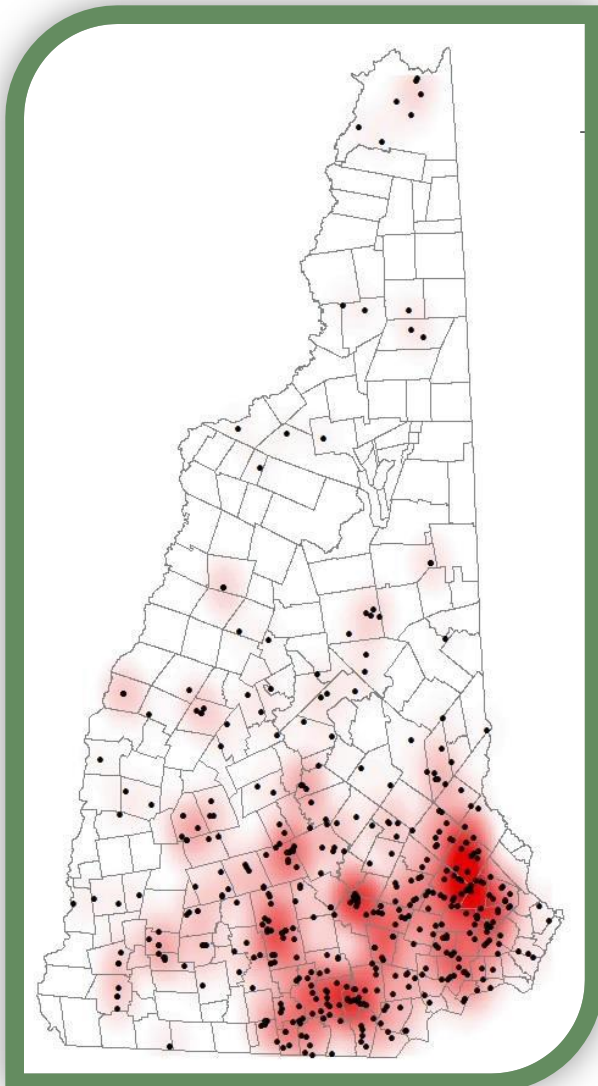
The Northeast Regional Conservation Needs (RCN) grant program (a part of the federal State Wildlife Grants program) addresses critical landscape-scale wildlife conservation needs. One initiative currently supported by the program for turtles includes the development of a standardized approach to identify and document road mortality hotspots, development of a database of regional roadway mitigation projects, development of Best Management Practices for common mitigation measures, development of standardized protocols for pre- and post-mitigation implementation monitoring, and a meta-analysis of the effectiveness of these mitigation actions.

Completed projects that include or support wildlife corridor work include: (1) Creation of Regional Habitat Cover Maps: Application of the Northeast Terrestrial Wildlife Habitat Classification System, (2) Conservation Status of Fish, Wildlife, and Natural Habitats in the Northeast Landscape, (3) Geospatial Habitat Condition Analysis based on the Northeast SGCN Habitat Maps, (4) Northeast Aquatic Connectivity, (5) 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, (6) Regional Focal Areas for Species of Greatest Conservation Need Based on Site Adaptive Capacity, Network Resilience and Connectivity. <https://rcngrants.org/>

## NH Wildlife Sightings

NH Wildlife Sightings is a web tool for reporting wildlife observations. The observations include road crossings, roadkill, tracks, and other wildlife observations. The records submitted to NH Wildlife Sightings can help identify mortality/crossing hotspots and priority wildlife habitats.

<http://nhwildlifesightings.unh.edu/>

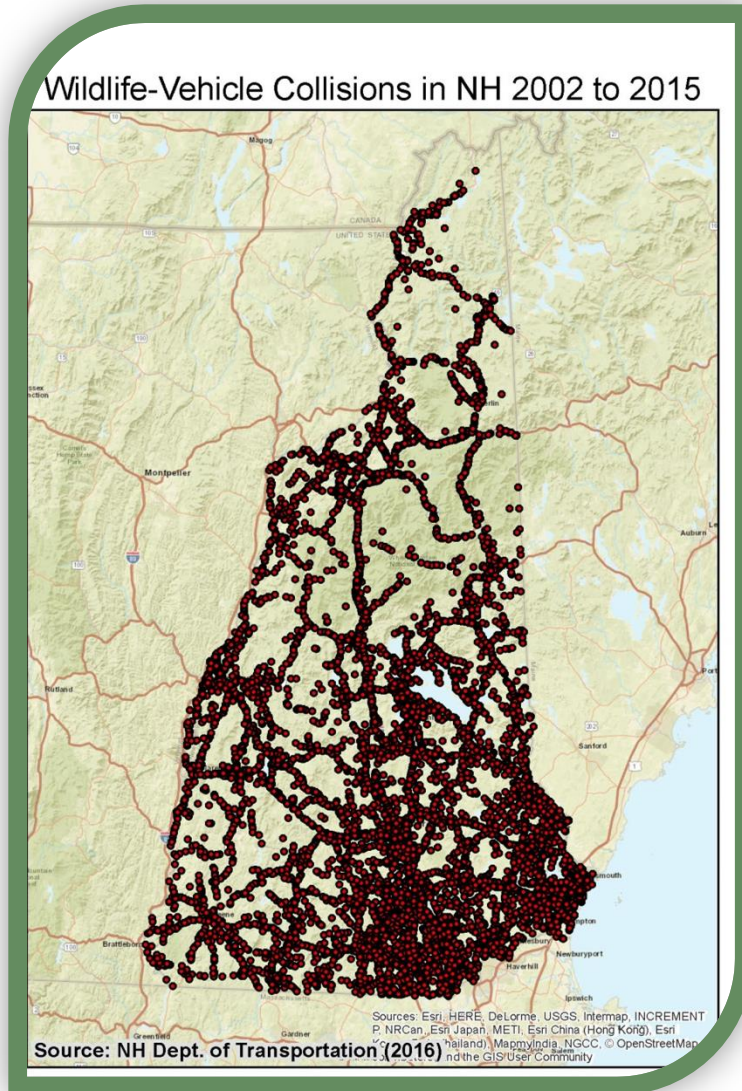


*The New Hampshire state map (left) illustrates an example of potential applications of NH Wildlife Sightings data to determine wildlife road crossing locations. NHFG created a 'heat map' model of select reptile and amphibian occurrences tagged as road crossing or road kill (black dots) for New Hampshire. The 501 records displayed here were provided by citizens through [nhwildlifesightings.unh.edu](http://nhwildlifesightings.unh.edu) and had a spatial accuracy of 500 meters or less. Modelling efforts such as this can aid in the identification of roadkill/crossing hotspots.*



**Wildlife Killed by Motor Vehicle**

A database of wildlife killed by motor vehicles is maintained by NHFG. Species in the database include deer, bear, moose, and some other species.



**Salamander Crossing Brigades**

The Harris Center for Conservation Education coordinates a citizen science program where trained volunteers assist amphibians, particularly those associated with vernal pools, across roadways during critical migration periods. <https://harriscenter.org/programs-and-education/citizen-science/salamander-crossing-brigades>

### Tidal Crossing Assessments

TNC and NHDES' Coastal Program completed the development of NH's Tidal Crossing Assessment Protocol in 2017. This tool was created for coastal resource managers to evaluate road-stream crossing structures that convey tidal flows. The intent of the protocol is to identify and prioritize tidal crossings that warrant replacement for both public safety and nature—that is, to improve fish passage, allow for marsh migration, and to enhance climate-ready infrastructure and community safety, among other management objectives. Tidal crossings are uniquely positioned at the bottom of our watersheds where they are the first potential barriers for diadromous fish to access upstream spawning and nursery habitat. Inadequate tidal crossings can also restrict salt marshes from migrating inland with rising sea levels, which threatens the long-term viability of salt marsh-dependent wildlife. In 2018, all of New Hampshire's tidal crossings will be assessed and prioritized for replacement based on both ecological and infrastructure criteria.

<https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/newhampshire/oceans-coasts/nh-tidal-crossing-assessment-protocol.pdf>

## Conservation Plans

This section covers conservation plans that include wildlife corridors in their conservation design.

### Ecosystems and Wildlife Climate Change Adaptation Plan

The Ecosystems and Wildlife Climate Change Adaptation Plan is an amendment to the NH Wildlife Action Plan (WAP) (NHFG 2005). The plan provides a comprehensive look at how climate changes will affect wildlife and their habitats through a series of vulnerability assessments of critical habitat and the development of a broad set of strategies to address those vulnerabilities. The first strategy is to conserve areas for habitat expansion and/or connectivity. These assessments and strategies were developed by a broad range of stakeholders. This plan, having been developed by a broad range of partners, is a plan for the whole state and will require the combined efforts of many agencies, organizations and individuals to accomplish.

### Connect the Connecticut

[Connect the Connecticut](#) is a landscape conservation design that identifies opportunities to protect wildlife and natural systems in the Connecticut River Watershed. The Connect the Connecticut design was developed by a team of more than 30 partners facilitated by the North Atlantic Landscape Conservation Cooperative and the U.S. Fish and Wildlife Service. The design approach used geospatial data, biological information, and models to identify opportunities to protect species, habitats, and environmental processes across an entire landscape. Components of the design include core areas, connectors, supporting landscapes, and aquatic buffers.

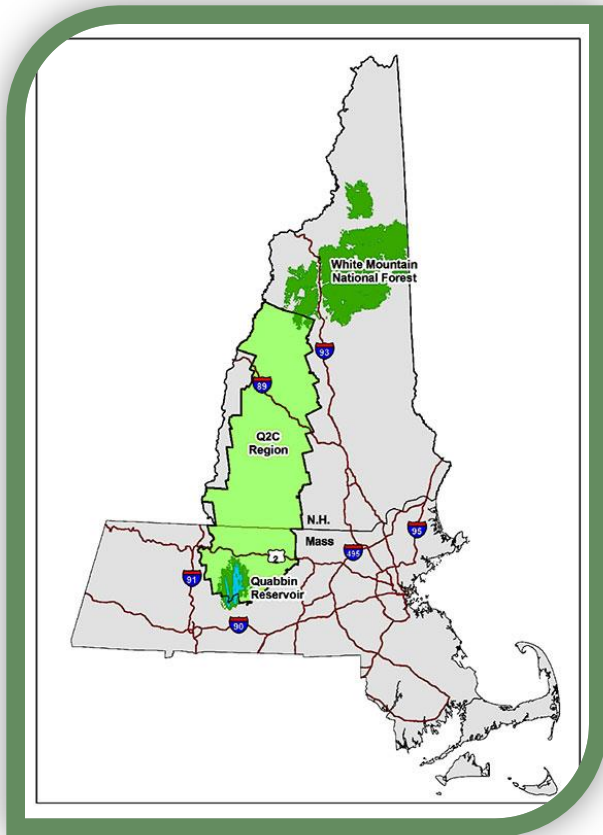
Connect the Connecticut offers a set of data and tools that individuals and communities can use to make informed decisions about conservation, planning, and development in the watershed. Connect the Connecticut also provides restoration tools that can inform actions for re-connecting and enhancing the ecosystems of the watershed.

The project includes four sections of data:

1. The Core-Connector Network of the places most essential for conservation action, in both terrestrial and aquatic settings. Collectively, this network is intended to represent the areas most important for maintaining the benefits provided by the fish, wildlife, and ecosystems of the watershed. Components of the network include core areas, connectors, supporting landscapes, and aquatic buffers.
2. Supporting Data used to create the Core-Connector Network, which can help in understanding and setting priorities within the interconnected network, but also can be used independently. Examples include datasets that depict ecological integrity and species habitat.
3. Restoration Tools that can inform actions for re-connecting and enhancing the ecosystems of the watershed.
4. Future Change Tools that provide context for making more strategic decisions in anticipation of future changes related to climate and land use.

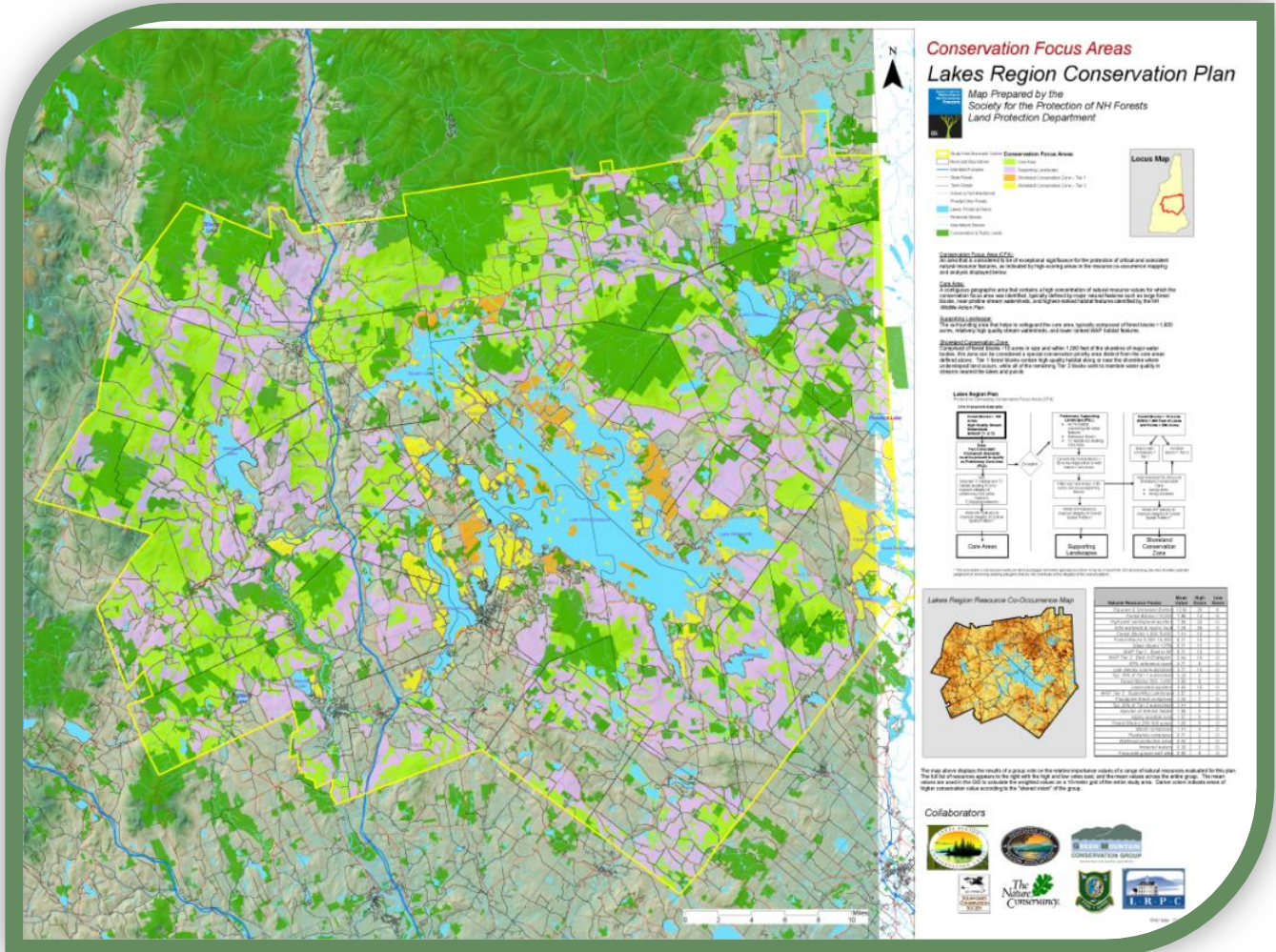
### Quabbin to Cardigan Conservation Partnership

The Quabbin to Cardigan Conservation Partnership Plan identifies core areas for protection and the connections between the core areas. The plan is based on unfragmented forest blocks, water resources, New Hampshire and Massachusetts Wildlife Action Plan priorities and climate change resilience. The plan extends from Cardigan Mountain in New Hampshire south to the Quabbin Reservoir in Massachusetts. The Quabbin to Cardigan Partnership is a collaborative effort of more than twenty private organizations and public agencies. <https://q2cpartnership.org/>



### Lakes Region Conservation Plan

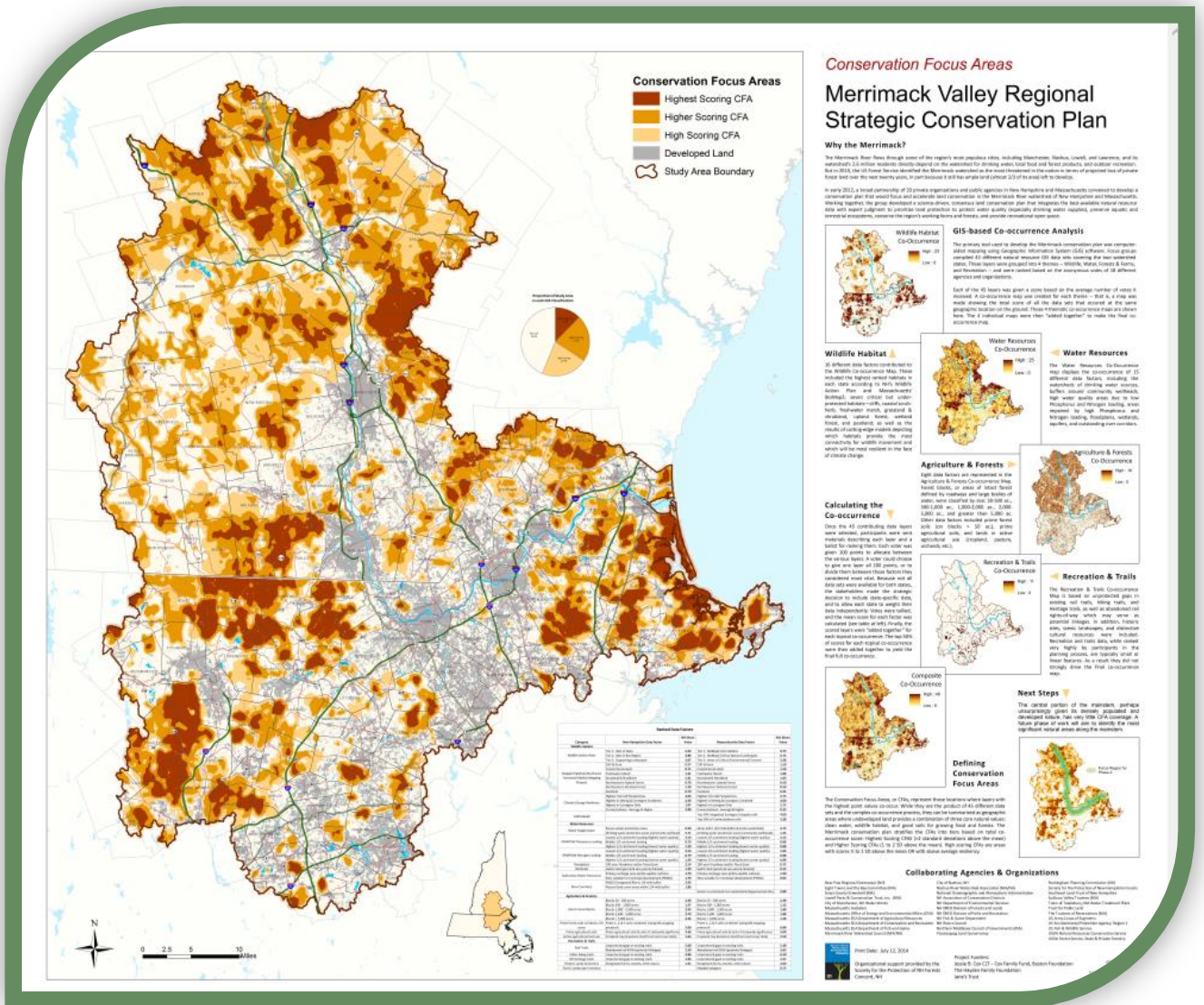
The Lakes Region Conservation Plan, revised in 2017, identifies core areas for protection and the connections between them based on unfragmented forest blocks, water resources, NH Wildlife Action Plan Priorities and climate change resilience. <https://forestsociety.org/lakes-region>



### Merrimack Conservation Partnership

The Merrimack Conservation Partnership plan, created in 2014, identifies core areas for protection and the connections between the cores. The plan is based on unfragmented forest blocks, water resources, and New Hampshire and Massachusetts Wildlife Action Plan Priorities in the Merrimack River watershed in both states. It also includes a recreation and trails network. The Merrimack Conservation Partnership is a regional conservation partnership formed by the Society for Protection of NH Forests and 33 private organizations and public agencies.

<https://merrimackconservationpartnership.org/resources/conservation-plan/>



### Coastal Plan Water Resources

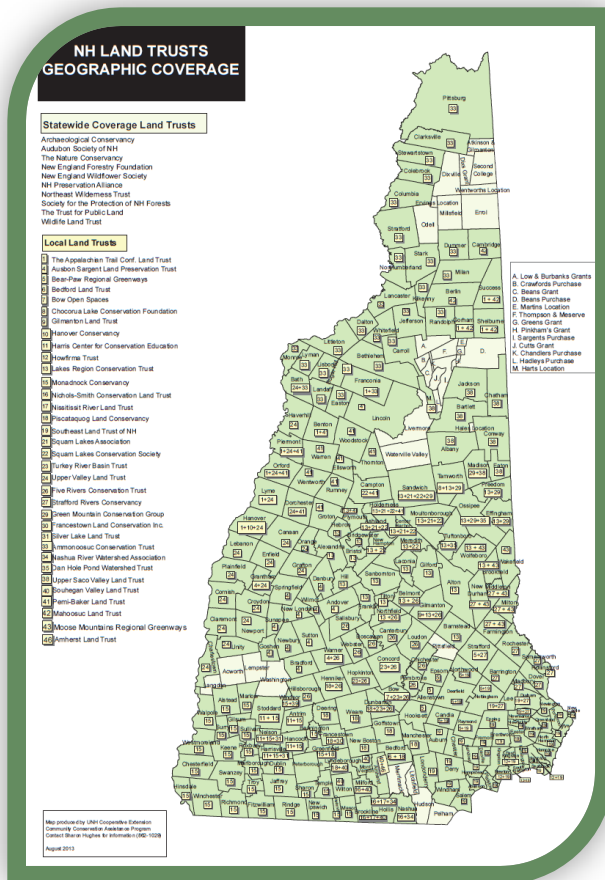
TNC developed a conservation plan focused on the protection of coastal water resources. Protection of buffers is a primary strategy for attenuating nutrients before they reach our surface waters. The effort also identified priority areas to mitigate flood hazards and to protect public water supplies.

### Buffer Options for the Bay

The Buffer Options for the Bay (BOB) project set out to address an ambitious goal, namely to leverage the capacity of buffers to protect water quality, guard against storm surge and sea level rise, and sustain fish and wildlife in New Hampshire’s Great Bay Estuary region. As a part of this process, the project team sought to identify a menu of potential options, both regulatory and non-regulatory, that stakeholders can use to effectively protect and restore buffer zones. The project’s intent was to synthesize the best available information regarding buffers in the Great Bay Estuary (GBE) watershed, not to provide specific recommendations for action. <https://www.bufferoptionsnh.org/>

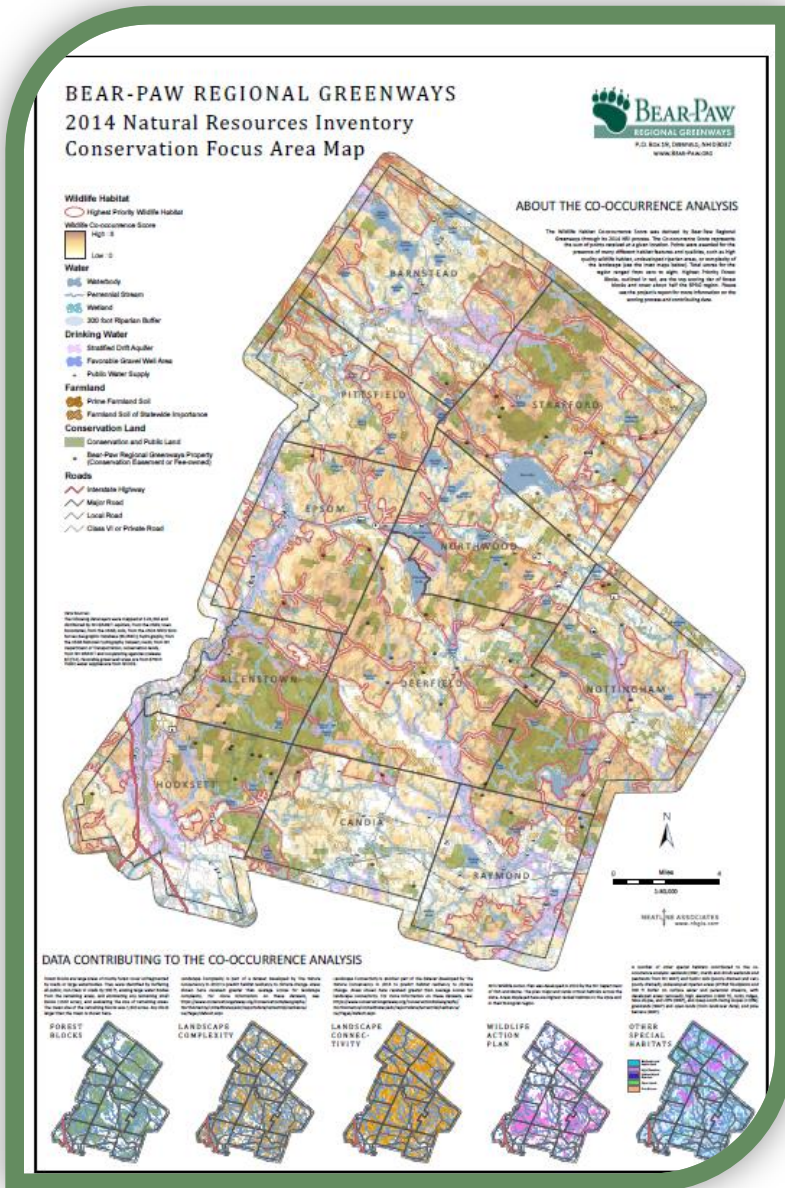
### Land Trusts

There are numerous land trusts working to protect habitats throughout New Hampshire. A few examples of land trusts incorporating connectivity follow. <https://nhltc.org/find-land-trust>



### Bear-Paw Regional Greenways Conservation Plan

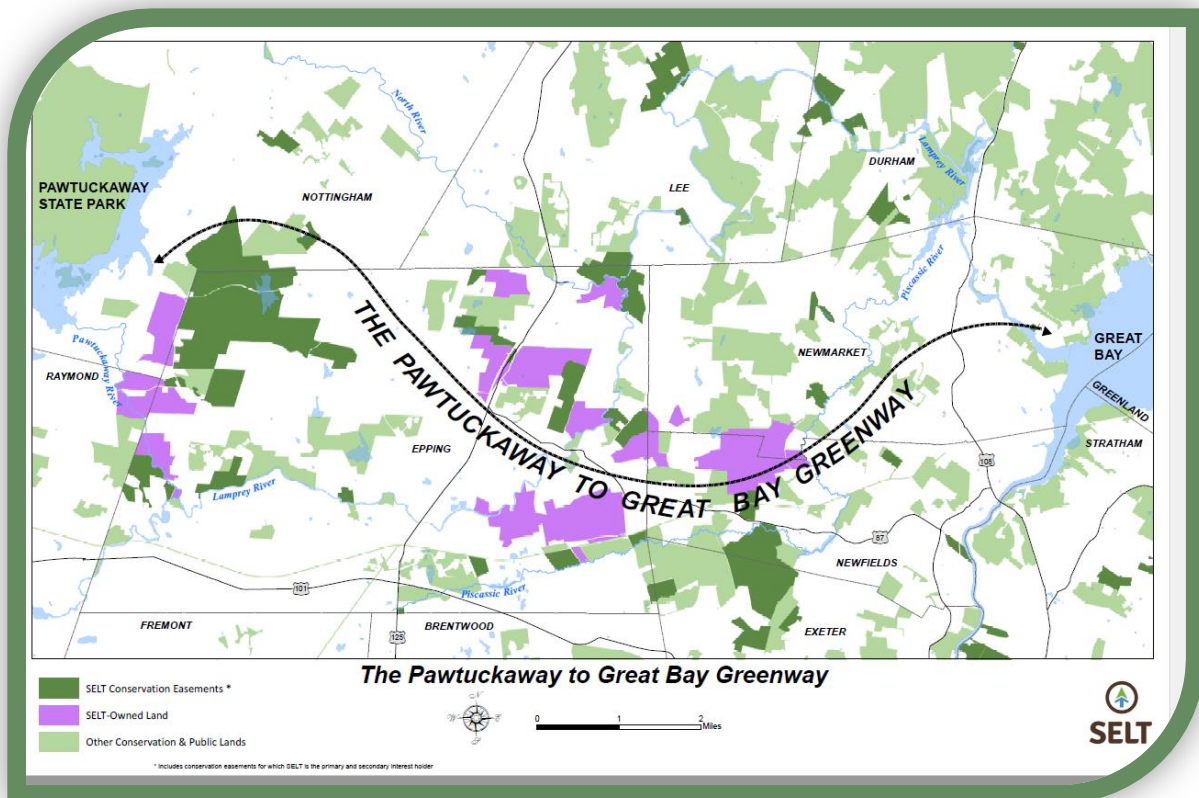
The mission of Bear-Paw Regional Greenways is to permanently conserve a network of lands that protects the region’s water, wildlife habitat, forests and farmland. Natural lands provide habitat for native wildlife and plants and “ecosystem” or “natural” services such as water quality protection, groundwater recharge, and flood control. Bear-Paw Regional Greenways Conservation Plan includes habitat connectedness and resiliency. One of the goals of the Plan is to provide connections among two of the largest conserved parcels in southern New Hampshire (Bear Brook State Park and Pawtuckaway State Park) <http://www.bear-paw.org/conservation-plan.html>





### *Southeast Land Trust of New Hampshire – Pawtuckaway to Great Bay Greenway*

The Pawtuckaway to Great Bay Greenway project proposes to link more than ten strategically important landscapes through a network of conserved lands and public trail corridors. It will create more outdoor recreation opportunities, connect critical habitat for wildlife, and help filter water for public supplies and drainage to Great Bay.



### *Whites-to-the-Ossipees Initiative*

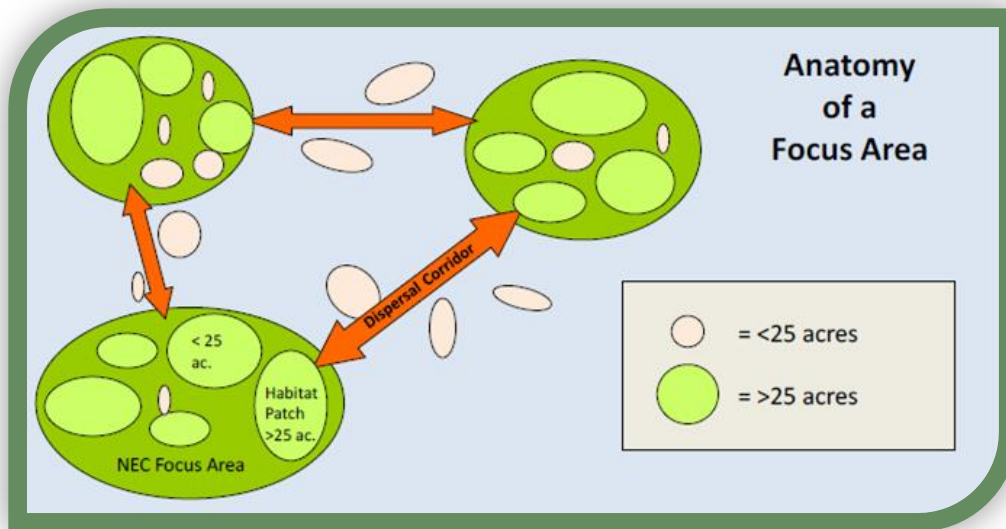
The Whites-to-the-Ossipees initiative is a project led by the Tamworth Conservation Commission, with support from multiple conservation partners, to conserve land for wildlife connectivity between the Ossipee Mountains and the White Mountain National Forest. <https://forestsociety.org/press-release/families-generosity-adds-166-acres-tamworths-conservation-lands>

### **Species-Specific Conservation Plans**

NHFG, along with other states and partners, developed or are in the process of developing regional conservation plans for several priority wildlife species (i.e., Blanding's turtle, wood turtle, New England cottontail). These plans include spatially explicit focal areas, and connectivity is incorporated into the development and prioritization of focal areas. It is important that if managing for a particular species or

group of species, the wildlife corridor provided serves as habitat for the species to move through and minimizes risk to the species while using the corridor.

For New England cottontail, powerline corridors often provide shrubby habitat that, if managed in a certain way, can provide habitat for New England cottontail and other shrub-dependent species. These powerline corridors can act as wildlife corridors between other patches of suitable habitat.

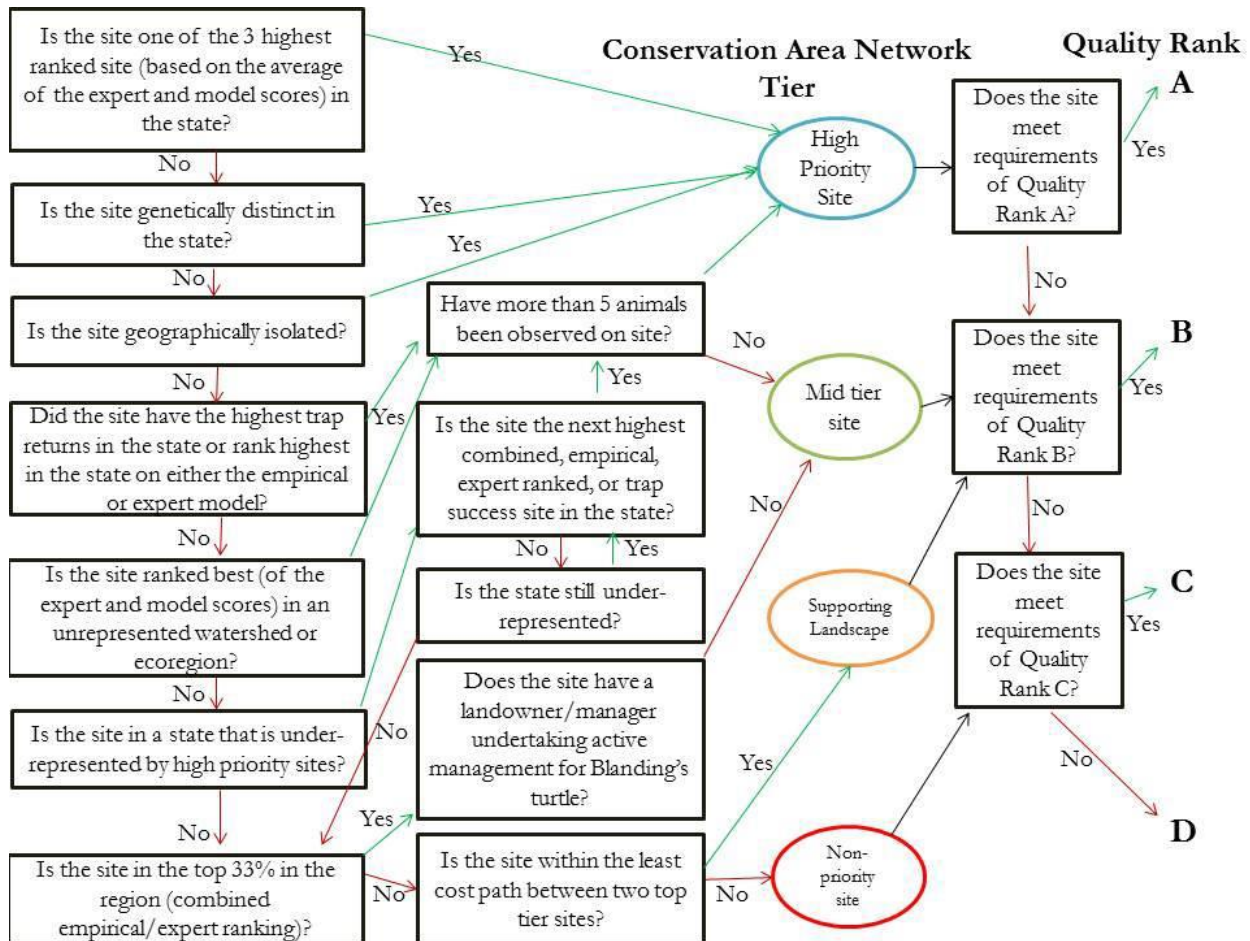


Conceptual Model for the Conservation of the New England Cottontail (above). This diagram depicts one possible configuration of habitat networks or metapopulations. Figure from Fuller and Tur 2012.

New England Conservation Strategy:

[https://newenglandcottontail.org/sites/default/files/conservation\\_strategy\\_final\\_12-3-12.pdf](https://newenglandcottontail.org/sites/default/files/conservation_strategy_final_12-3-12.pdf)

For Blanding's turtles, large undeveloped areas with a high density and diversity of wetlands are identified as core focal areas. Wetlands and low-elevation forested areas provided connections between core focal areas (e.g., supporting landscapes). Road mortality is a primary threat to the species.



Connectivity was explicitly built into the prioritization of sites for the Blanding's Turtle Conservation Plan. Figure from Willey and Jones 2014.

Blanding's turtle Northeastern U.S. Conservation Plan: <http://www.blandingsturtle.org>

## New Hampshire & Regional Collaborations/Partnerships

### NH Transportation & Wildlife Working Group

The NH Transportation & Wildlife Working Group is an interdisciplinary team led by NHFG and TNC in collaboration with NHDOT and NHDES. The group was founded in 2017 with the overarching goal of reducing the effects of roads on fish and wildlife, particularly Species of Greatest Conservation Need. To meet this goal, the workgroup proposes to collate and share road barrier mitigation "best management practices," prioritize locations for road barrier/mortality mitigation, promote awareness of wildlife/transportation issues, and increase collaboration among partners.

### New England Governors / Eastern Canadian Premiers Ecological Connectivity Workgroup

The New England Governors/Eastern Canadian Premiers (NEG/ECP) Ecological Connectivity Working Group was established in accordance with Resolution 40-3 on Ecological Connectivity, Adaptation to Climate Change, and Biodiversity Conservation (2016). Biologists from NHFG have participated in

meetings, calls, and development of a draft action plan. The workgroup collaborates across state and national borders. <http://www.coneg.org/Data/Sites/1/media/40-3-ecological-connectivity-en.pdf>

### **High Elevation Memorandum of Understanding**

In 1991, NHFG was instrumental in working with the Coos County Unincorporated Places planning board to create protected districts (PDs) for these large unorganized towns located in Coos County. Two of these zoning districts have wildlife corridor implications. The PD3 consists primarily of lowland softwood corridors located along selected streams and wetlands. Zoning ordinances were enacted for these districts to provide management direction and permitting for timber harvest and other activities that may occur in these sensitive areas. In addition, all lands located above 2,700 feet in these unincorporated places were designated as PD6 zones and are also regulated by specific permitting requirements. As part of the permitting process, NHFG biologists continue to review timber harvest activities planned for these areas.

During the early 1990s while reviewing PD6 zones, the northern regional biologist initiated efforts with foresters and land managers to reserve high elevation wildlife corridors as a condition of the permit where timber harvests were occurring on the northern mountain ridges in Coos County. These zoned districts help to create pathways for wildlife moving across the landscape in these unincorporated towns. An increase in timber harvests in this habitat resulted in further concern for maintaining high elevation habitat and connectivity across forested landscapes. This resulted in a High Elevation Memorandum of Understanding signed by the majority of large industrial forest landowners in 1996. The creation of this document was the result of a more than two year collaborative effort which included cooperating landowners, NHFG, the New Hampshire Timberland Owners Association and the Appalachian Mountain Club. NHFG's expertise at working in these high elevation habitats was instrumental in informing this process. The Memorandum of Understanding required consultation with the NHFG when cooperating landowners planned to harvest timber above 2,700 ft. While these agreements have largely lapsed due to ownership changes, this effort became the blueprint for officially establishing thousands of acres of high elevation lands as SMAs (Special Management Areas) as part of an easement on Connecticut Lakes Timber Company, the largest conserved private ownership in the State. High elevation SMAs were also established on Weyerhaeuser timberlands located in Coos County and are protected by an easement. These high elevation forested corridors help link unfragmented blocks of forest together, providing uninterrupted passage for wide ranging carnivores and other species of wildlife.

NHFG biologists continue to provide technical assistance to large forest landowners and review dozens of timber sales each year. This gives biologists the opportunity to recommend the protection of potential habitat connections on these ownerships. Frequently, corridors are designated on timber sales particularly in deer winter habitat to provide access and mobility for these animals during the winter months. Additionally, biologists frequently emphasize to landowners the importance maintaining intact riparian habitat along rivers and streams to provide habitat connectivity across landscapes.

## Voluntary Mechanisms

### Fee Acquisition

The sale of fee title of property having wildlife corridor values to a land conservation organization by a willing seller not only ensures the permanent conservation of the property but also allows future land management activity to be focused on the maintenance and/or enhancement of the wildlife corridor and conservation land connectivity values of the property.

### Easements

The placement of a conservation easement on a property having wildlife corridor values to a land conservation organization by a willing seller can provide for the permanent protection of the area. However, the easement language must be crafted in such a way that wildlife corridor protection is recognized as a purpose of the easement, and the use limitations of the easement are structured to ensure that future management activities will not have detrimental impacts of the purposes of the easement.

The Staying Connected Initiative offers draft model easement language to ensure future connectivity: [http://stayingconnectedinitiative.org/assets/connectivityconservationeasementlanguage\\_final.pdf](http://stayingconnectedinitiative.org/assets/connectivityconservationeasementlanguage_final.pdf).

### Cooperative Management Agreements

Cooperative management agreements can be a valuable tool for working with private landowners. The agreements can ensure that for a defined period of time management activities will be limited to those that will maintain and/or enhance the wildlife corridor values of the property. However, they are temporary in nature and may not survive the transfer of the property to new owners.

### Current Use Program

RSA 79-A Current Use Taxation was enacted July 1, 1973 and encourages the preservation of open space through property taxation assessment at its current use.

**“79-A:1 Declaration of Public Interest.** – It is hereby declared to be in the public interest to encourage the preservation of open space, thus providing a healthful and attractive outdoor environment for work and recreation of the state's citizens, maintaining the character of the state's landscape, and conserving the land, water, forest, agricultural and wildlife resources. It is further declared to be in the public interest to prevent the loss of open space due to property taxation at values incompatible with open space usage. Open space land imposes few if any costs on local government and is therefore an economic benefit to its citizens. The means for encouraging preservation of open space authorized by this chapter is the assessment of land value for property taxation on the basis of current use. It is the intent of this chapter to encourage but not to require management practices on open space lands under current use assessment.” ( <http://www.gencourt.state.nh.us/rsa/html/v/79-a/79-a-mrg.htm> on March 27, 2018).

## Habitat Management & Restoration

In some cases, wildlife corridors can be maintained or enhanced by managing or restoring habitat. Different wildlife species will move through different habitats to varying degrees. In aquatic systems, undersized culverts and dams can block movement of fish and other wildlife. Restoring passage in stream and wetland systems can benefit both aquatic species (e.g., fish) but also semi-aquatic (e.g., turtles, mink) and even terrestrial wildlife (e.g., bobcat). See 'Case Studies/Success Stories (Page 38).

In upland or wetland areas, generalist wildlife species, such as white-tailed deer, may move through a variety of forested and open habitat types so conserving land and preventing development may be sufficient to maintain the area as a wildlife corridor. However, some wildlife species may prefer more specialized habitat which may require active habitat management or restoration. For example, New England cottontails prefer a dense network of shrubs to move safely from predators. In contrast, some amphibians, including those that use vernal pools (<https://wildlife.state.nh.us/nongame/documents/vernal-pool-manual.pdf>), may prefer a forested corridor to avoid desiccation. If wildlife corridors are targeting specific groups of species, those species habitat needs should be considered when developing management/stewardship plans. Corridors should also be considered at multiple scales to accommodate both wide-ranging species and species with limited mobility.

Steep curbing on roadsides or parking lots can be a barrier for turtles and salamanders and stormwater catch basins that occur in parking lots or more natural areas can trap small animals. Erosion control netting made of welded plastic can kill a variety of wildlife species including snakes, birds, even fish. Wildlife friendly options are available and are favored and promoted during environmental reviews conducted by NHFG staff, technical assistance with landowners, and technical assistance to other land managers. If these systems and products occur in wildlife corridors, landowners may consider alternative designs that meet their other objectives.

## Technical Assistance Opportunities

### Taking Action for Wildlife

The Taking Action for Wildlife is a collaboration between NHFG and UNH Cooperative Extension to help communities, conservation groups and landowners conserve wildlife and habitats in New Hampshire. Voluntary (non-regulatory) documents that may be developed include a Natural Resources Inventory, Wildlife Conservation Plan or Open Space Plan, and Land Management Plans. This technical assistance to communities and landowners helps to incorporate wildlife conservation, including connectivity, into town documents and land use planning (<https://takingactionforwildlife.org/>).

### Innovative Land Use Planning Techniques

To address the need for guidance and technical assistance on Innovative Land Use Controls authorized by RSA 674:21, NHDES and its partners, the NH Association of Regional Planning Commissions, the NH Office of Energy and Planning, and the NH Local Government Center, produced the [Innovative Land Use Planning Techniques: A Handbook for Sustainable Development](#). This original handbook includes

sections dealing with development density, environmental characteristics, and site level design. Each of the 23 chapters includes model ordinances and regulations for use by municipalities interested in implementing the innovative land use techniques ([https://www.des.nh.gov/repp/innovative\\_land\\_use.htm](https://www.des.nh.gov/repp/innovative_land_use.htm)).

## Land Acquisition and Restoration Funding

### The NH Conservation and Heritage License Plate (Moose Plate) Program

In 1998, the New Hampshire General Court passed legislation creating the Moose Plate Program to supplement existing state conservation and cultural heritage funding. The program supports the protection of scenic lands, plants and wildlife, and historic sites and artifacts in New Hampshire. Revenues are distributed to designated state agencies for the purpose of researching and managing nongame wildlife species, their habitat, native plant species, exemplary natural communities and educating the public about these species; providing grants to counties, municipalities and nonprofits for resource conservation projects; conserving publicly owned historic properties, works of art, artifacts and archaeological sites; expanding roadside wildflower and lilac plantings; and administering the Land and Community Heritage Investment Program (LCHIP).

The NHFG Nongame & Endangered Wildlife Program receives a portion of Moose Plate funds. These funds, along with private donations, are critical in implementing core functions within the Program and provide necessary match to federal grants such as USFWS State Wildlife Grants. Funds generated from the Conservation License Plate Program, along with federal State Wildlife Grants, provided critical funding to many of the initiatives identified in this report, including the development and implementation of the NH Wildlife Action Plan and contributing to the development of this report.

<https://wildlife.state.nh.us/nongame/funding.html>



The New Hampshire State Conservation Committee is the state government agency responsible for managing the Conservation Grant Program. Competitive grants are awarded annually to physical and tangible environmental projects that foster stewardship and the sustainability of New Hampshire's natural environment ([RSA 261:97-c,III](#)). The State Conservation Committee's Conservation Grant Program supports and promotes programs and partnerships that protect, restore and enhance the state's valuable natural resources. The Conservation Grant Program's six focus areas include:

- Land Conservation: Permanent land protection through conservation easement or fee acquisition and/or associated transaction and stewardship costs.
- Water Quality and Quantity: Restore, enhance, maintain or protect.
- Wildlife Habitat: Create, restore, enhance, manage or protect.
- Soil Conservation and Flooding: Reduce or prevent erosion or improve soils.
- Best Management Practices: Plan and implement for agriculture, storm or forestry.

- Conservation Planning: Accomplish a conservation project or outcome that includes a public involvement component.

The State Conservation Committee awards Moose Plate grants to county conservation districts, municipalities, schools and qualified nonprofit organizations that support the conservation of NH's natural resources. Since 2001, the purchase of Moose License Plates has created more than \$14.6 million in revenue, supporting conservation and heritage projects in every county in New Hampshire. The source of grant funds serve an important role in getting conservation projects completed and are often paired with funds from the NHDES Aquatic Resource Mitigation (ARM) Fund Program and the Land and Community Heritage Investment Program (LCHIP).

One recent example of the multiple funding sources used to achieve landscape level conservation was the protection of the Powder Major's Forest Project. In 2016 the Society for the Protection of New Hampshire Forests was awarded funding from Moose Plate, LCHIP and the ARM Fund to purchase 195 acres of land in fee from three separate entities and create a new forest reservation in the towns of Durham, Madbury and Lee. The conservation parcel contains 84 acres of wetlands, 5,100 linear feet of frontage on the Oyster River, which is the drinking water source for the Town of Durham and UNH, 800 feet of frontage on Dube Brook, and overlies an aquifer. Three confirmed vernal pools are on the parcel with several rare plants, as well as documentation for Blanding's turtles and American eel with 12 other occurrences of rare and threatened wildlife within the Oyster River corridor. The parcel is in proximity to five conserved parcels that provide over 700 acres of protected land, adding to the connectivity in the landscape for wildlife species.

A second example of wildlife improvement projects supported by Moose Plate grant funds is an award for completing stream crossing assessments in the Androscoggin River watershed. The Androscoggin River Watershed Crossing Assessment & Habitat Restoration Project will undertake approximately 1,000 stream crossing assessments to establish a framework to effectively prioritize future aquatic habitat restoration, land protection and transportation infrastructure improvement projects within the portion of the Androscoggin River Watershed. Minimal information is currently available to evaluate these opportunities. The state standardized protocols will be used in the collection of the necessary baseline information needed to ensure that projects are prioritized and culverts replaced to result in aquatic passage improvements. <http://www.mooseplate.com/grants/>

### **Aquatic Resource Mitigation Fund**

The Aquatic Resource Mitigation (ARM) Fund was established to provide wetland permit applicants the opportunity to offset wetland impacts by providing funds into a watershed account. These funds are then disbursed to significant land conservation or restoration projects. The ARM Program recognizes the potential for long-term environmental results from mitigation that considers watershed goals, assists wildlife conservation efforts, and has the ability to target important and vulnerable wetlands in a region. To date, the program has disbursed over \$15 million to 80 projects, resulting in the protection of 16,000 acres of land and over 100 acres of habitat restoration with the focus on significant wetlands and



streams, areas important to endangered species and tidal resources. The funded projects provide important breeding areas for wildlife important to the state, species of special concern, and key locations on the landscape to assist in ameliorating more frequent intense storm events.

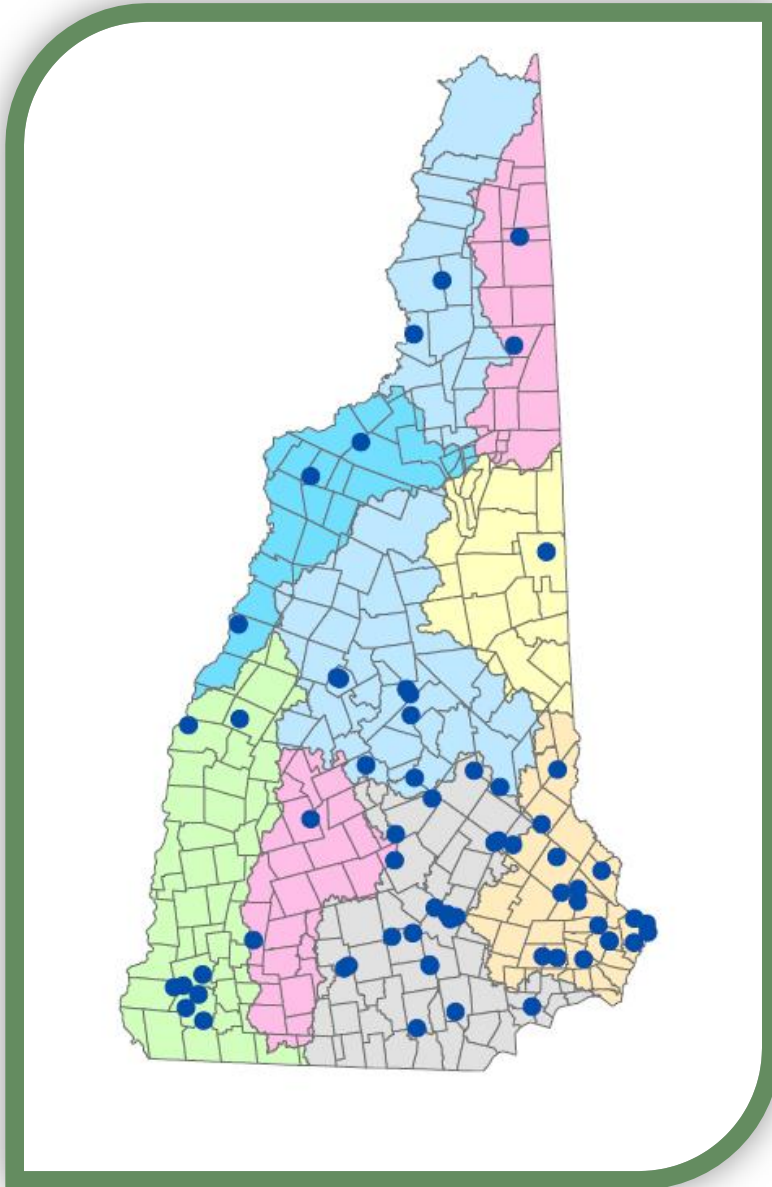
Enabling mitigation to be coordinated through a comprehensive program has achieved great success for communities across the state concerned about retaining these special aquatic features. ARM is administered by NHDES. A Site Selection Committee serves to evaluate and disburse the ARM Funds through a competitive grant program. State agency partners, including NHFG staff, participate in the overall guidance of the program as well as selecting how the funds are spent through a set of evaluation criteria. The criteria analyze the potential to protect, restore, or replace ecological integrity, wildlife habitat, water quality, and wetland functions and values lost in the watershed. Protecting landscape connectivity is key to project success through the ARM Fund program. Projects that provide or contribute to a connection between lands that are currently unconnected and which are protected in perpetuity is strongly encouraged.

The overall environmental significance that a project will provide is a specific question that is evaluated by the ARM program relative to the benefit the project will have on endangered, threatened or special concern species and/or exemplary natural communities documented to occur on the property. This question also favors locations of projects relative to NH WAP highest quality wildlife habitat areas.

A recent ARM program improvement included adding criteria that evaluates removal of restrictions such as deficient culverts and dams. The review takes into consideration how a project currently sustains or could potentially sustain the necessary environmental conditions for aquatic organisms to carry out critical life history events and support high local aquatic diversity, such as: fish access to historic spawning, nursery, or rearing grounds; conditions suitable for coldwater fish; maintain migration corridors for freshwater turtles and amphibians; and facilitate population dispersal for low mobility invertebrate species, as identified by a wildlife biologist, field-based species data, or a reviewed habitat suitability model. These habitat enhancement activities include improving instream and riparian habitat quality, including, but not limited to: removing rip rap and other bank armoring, constructing weirs to raise water levels, instream wood additions, invasive species removal, bank stabilization, and riparian revegetation.

A description of projects provided ARM funds can be found in a publication at:

<https://www.des.nh.gov/organization/divisions/water/wetlands/wmp/documents/arm-fund-web.pdf>



*Left - Aquatic Resource Mitigation Fund (ARM) Funding Regions (HUC Watersheds) and implemented project locations (blue dots) through 2016. Image from *Beyond the Beaver Dam. The Success of the NHDES Aquatic Resource Mitigation Fund.* NHDES, 2016.*

### Upper Connecticut River Mitigation and Enhancement Fund

“The Upper Connecticut River Mitigation and Enhancement Fund supports restoration, protection, and enhancement of the river, wetlands, and shore lands within the Connecticut River watershed upstream of the confluence of the White River and the Connecticut River at White River Junction, VT and West Lebanon, NH. This fund was created as part of the settlement agreement between the parties involved in the federal process to award a new operating license for three hydroelectric dams on the Connecticut River at Fifteen Mile Falls near Littleton, NH and Ryegate, VT.” <https://www.nhcf.org/how-can-we-help-you/apply-for-a-grant/upper-connecticut-river-mitigation-and-enhancement-fund/> There is no maximum grant award. As of January 2018, there is about \$8 million left in the fund.

### **Stream Passage Improvement Program**

NHDES and NHDOT have been developing a Stream Passage Improvement Program for the state as a wetland mitigation process. The Stream Passage Improvement Program will provide an incentive for NHDOT to fulfill their mitigation needs for stream losses by improving or replacing a critical crossing on the state roadway system identified in the community near the project area. In lieu of an Aquatic Resource Mitigation (ARM) fund payment, the money may be directed toward state-owned infrastructure repair or replacement, while addressing mitigation needs for stream impacts. For this to operate effectively, a statewide inventory of stream crossings is critical to inform decisions relative to mitigating and prioritizing crossings most incompatible with river processes and fish passage connectivity.

As part of the Stream Passage Improvement Program, NHDOT may collect additional crossing data in the project area to enhance the inventory and improve mitigation decision making. If NHDOT prefers to provide an ARM Fund payment, municipalities or other eligible organizations would have the high quality information to consider applying for an ARM Fund grant for the local replacement project. The new process is designed to inform NHDOT, local decision makers, and advocates about the importance of properly designed and maintained culverts and bridges for improved fish and wildlife passage and aquatic connectivity with the benefit of public safety improvement. The key to this program is the development of a list of identified crossings that are failing aquatic organism passage that could be replaced by NHDOT or ARM Fund applicants.

### **Land and Community Heritage Investment Program (LCHIP)**

“The New Hampshire Land and Community Heritage Investment Program (LCHIP) is an independent state authority that makes matching grants to NH communities and non-profits to conserve and preserve New Hampshire's most important natural, cultural and historic resources. Through this investment Program every \$1 in resources brings back more than seven times local, private, federal funds, and helps to secure NH's greatest business advantage: The quality of life and traditional values of our state.

LCHIP works in partnership with New Hampshire municipalities and non-profits to acquire land and cultural resources, or interests therein, with local, regional and statewide significance. The legislatively mandated mission of the program is to ensure the perpetual contribution of these resources to the economy, environment and quality of life in New Hampshire.” <https://www.lchip.org/#>

### **NH Fish and Game Department's Fisheries Habitat Account and Wildlife Habitat Account**

The Wildlife and Fisheries Habitat Accounts were established by the Legislature in 1999 and 2000, respectively, to provide a source of non-federal funds that can be used for the conservation, restoration and management of wildlife and fisheries habitats.

### **U.S. Fish and Wildlife Service’s State Wildlife Grant Program**

The State Wildlife Grant (SWG) Program provides Federal grant funds to State fish and wildlife agencies for developing and implementing programs that benefit wildlife and their habitats, including species that are not hunted or fished.

Grant funds may be used to address a variety of conservation needs—such as research, fish and wildlife surveys, species restoration, habitat management, and monitoring—that are identified within a State’s Wildlife Action Plan. These funds may also be used to update, revise, or modify a State’s Plan.

Identified and described in the State Wildlife Action Plans, the “species of greatest conservation need” include many species that have experienced significant population declines. Threats to these species are also described in the Plans and include such factors as habitat loss or fragmentation, competition from non-native species, and stressors related to climate change. The Plans identify their habitats, as well as actions needed to restore or maintain viable populations of these species.

The Plans also outline the methods to be used to monitor species populations and to measure the effectiveness of States’ conservation actions, enabling States and their partners to utilize an adaptive management approach to conservation of these priority species.

State Wildlife Grant funds administered by the Wildlife and Sport Fish Restoration Program provide a unique source of funding, helping States to focus on targeted species in a proactive fashion, to help identify and reverse species population declines before restoration becomes more difficult and costly. State Wildlife Grants, through the NHTG Nongame & Endangered Wildlife Program, supported many of the efforts mentioned in this document. Congress appropriates funds for the State Wildlife Grant Program on an annual basis.

<https://wsfrprograms.fws.gov/subpages/grantprograms/swg/swg.htm>

### **U.S. Fish and Wildlife Service’s Wildlife Restoration Grant Program and the NH Fish and Game Lands Team**

In 2014, the New Hampshire Fish and Game Department applied to the U.S. Fish and Wildlife Service’s Wildlife Restoration Program and received approval of a five-year grant to expand and enhance the State’s wildlife management area system. To guide land conservation efforts under this grant, NHTG has developed criteria to assess the benefits of potential projects. The NHTG Lands Team meets regularly to vet potential acquisitions. The criteria include habitat connectivity to existing NHTG property and/or other conservation land. Since the grant’s inception 3,900 acres of land abutting other existing conservation land have been added to the wildlife management area system. Several factors are considered when evaluating lands, including its size, habitat diversity, Wildlife Action Plan ranking, presence of rare species on or near the property, and public and management access capabilities. Proximity to other conservation lands, including the Department’s own Wildlife Management Areas, is also a strong consideration to ensure habitat connectivity.

### **Northeast Resilient Landscapes Fund**

The Open Space Institute provides land protection grants and technical assistance for projects within Resilient Focus Areas, or those areas most likely to preserve diversity in a changing climate.

<https://www.openspaceinstitute.org/northeast-resilient-landscapes-fund>

### National Fish Passage Program

Since the program launched in 1999, the U.S. Fish and Wildlife Service's National Fish Passage Program has removed 1,530 fish passage barriers, reopened 21,406 river miles, reconnected 166,751 wetland acres, and benefited over 90 species of fish. This federal program requires a 3:1 federal to non-federal match. <https://www.fws.gov/fisheries/whatwedo/nfpp/nfpp.html>

### National Fish and Wildlife Foundation Grant Programs

The National Fish and Wildlife Foundation has a number of grant programs that fund land conservation and connectivity projects. The sources are a mix of federal and non-federal funds.

<http://www.nfwf.org/whatwedo/grants/Pages/home.aspx>

### Natural Resources Conservation Service

USDA's Natural Resources Conservation Service has several programs to help conserve land.

The **Agricultural Conservation Easement Program (ACEP)** is funded under the 2014 Farm Bill (<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nh/programs/farmbill/>), which is due to expire at the end of the federal fiscal year (9/30/2018). The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the **Agricultural Land Easements (ALE)** component, NRCS helps Indian tribes, state and local governments, and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. ALE protects the long-term viability of the nation's food supply by preventing conversion of productive working lands to non-agricultural uses. Land protected by agricultural land easements provides additional public benefits, including environmental quality, historic preservation, wildlife habitat and protection of open space. Under the **Wetlands Reserve Easements (WRE)** component, NRCS helps to restore, protect and enhance enrolled wetlands. WRE provides habitat for fish and wildlife, including threatened and endangered species, improve water quality by filtering sediments and chemicals, reduce flooding, recharge groundwater, protect biological diversity and provide opportunities for educational, scientific and limited recreational activities.

Permanent Easements are conservation easements in perpetuity. NRCS pays 100 percent of the easement value for the purchase of the easement. Additionally, NRCS pays 75 to 100 percent of the restoration costs. NRCS also pays all costs associated with recording the easement in the local land records office, including recording fees, charges for abstracts, survey and appraisal fees, and title insurance. Land eligible for wetland reserve easements includes farmed or converted wetland that can be successfully and cost-effectively restored. NRCS will prioritize applications based the easement's potential for protecting and enhancing habitat for migratory birds and other wildlife. To enroll land through wetland reserve easements, NRCS enters into purchase agreements with eligible private landowners or Indian tribes that include the right for NRCS to develop and implement a wetland reserve restoration easement plan. This plan restores, protects, and enhances the wetland's functions and values. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/nh/programs/easements/>

NRCS offers voluntary programs to eligible landowners and agricultural producers to provide financial and technical assistance to help manage natural resources in a sustainable manner. Through these programs the agency approves contracts to provide financial assistance to help plan and implement conservation practices that address natural resource concerns or opportunities to help save energy, improve soil, water, plant, air, animal and related resources on agricultural lands and non-industrial private forest land. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/nh/programs/financial/>

### **Forest Legacy Program**

The Forest Legacy Program has conserved hundreds of thousands of acres in New Hampshire. The Forest Legacy Program Committee includes members from the NH Department of Natural and Cultural Resources, Division of Forests and Lands and NHFG. “As part of the 1990 Farm Bill, Congress created the Forest Legacy Program to help protect environmentally important private forestlands threatened with conversion to non-forest uses. The Secretary of Agriculture is responsible for the development and administration of the Forest Legacy Program. The US Forest Service in cooperation with states and other units of government is responsible for the implementation of the program. States have been granted the authority to establish criteria for their programs within the framework of the national program to help address specific needs and goals of their state.

To help maintain the integrity and traditional uses of private forest lands, the Forest Legacy Program promotes the use of conservation easements, legally binding agreements transferring a negotiated set of property rights from one party to another. Participation in the program is entirely voluntary.”

<https://www.nhdfi.org/Land-Conservation/NH-Forest-Legacy-Program>

### **Alliance for America’s Fish & Wildlife - Recovering America’s Wildlife Act**

The Alliance for America’s Fish & Wildlife’s purpose is to create a 21st-century funding model for critically needed conservation of our nation’s most precious natural resources, our fish and wildlife. This effort has expanded out of the strong partnership created by the Blue Ribbon Panel on Sustaining America’s Diverse Fish & Wildlife Resources, consisting of members representing the outdoor recreation, retail, and manufacturing sector, the energy and automotive industries, private landowners, educational institutions, conservation organizations, sportsmen’s groups, and state and federal fish and wildlife agencies.

The *Recovering America’s Wildlife Act*, a bipartisan federal bill to address the critical funding need, was introduced during late 2017. The bill, as currently stated, would redirect \$1.3 billion in existing royalties annually from the development of energy and mineral resources on federal lands and waters to conserve the full array of fish and wildlife.

This bill would provide critical funding for implementing New Hampshire’s Wildlife Action Plan, which sets priorities for restoring and managing our wildlife, including threatened and endangered species and other species of greatest conservation need. Many of the actions described in this *Wildlife Corridors* report, including but not limited to habitat protection, aquatic and terrestrial restoration, technical

assistance to landowners and communities, education on the importance of species of greatest conservation need, and the use of wildlife corridors, would all be eligible under the funds.

Alliance for America's Fish and Wildlife website: <http://www.ournatureusa.com>

NHFG website: <https://wildlife.state.nh.us/nongame/rawa.html>

## Case Studies/Success Stories

### NH Wildlife Action Plan

Successful implementation of the NH Wildlife Action Plan has been documented and continues. Since 2005, NHFG, in partnership with dozens of organizations, agencies, universities, municipalities, scientists, professionals and volunteers in every part of the state, has been guided by the Wildlife Action Plan during land use planning and decision making, landscape conservation planning, and species and habitat management and conservation. A total of 495 species and habitat actions were implemented from 2005-2015 (45 percent of all actions identified in the 2005 plan). Over 4,250 acres were targeted by NHFG for land acquisition or habitat management for specific species or habitat, and overall 235,000 acres of highest ranked habitat was conserved by partners. Technical assistance was provided to over 3,500 citizens, landowners, and land managers. Over 1,300 structures were installed (such as bat gates and nesting structures) or removed (such as dams and other fish passage barriers) to benefit wildlife populations.

### Aquatic Connectivity Improvement

#### *Falls Brook Connectivity Project, Swanzey*

The Cheshire County Conservation District with assistance from NHFG and Trout Unlimited received funds from the ARM Fund and Moose Plate Program to improve aquatic organism passage, particularly for brook trout, by removing the Falls Brook culvert located on Hale Hill Road which is two and a quarter miles upstream of the confluence with the Ashuelot River. The project replaced an undersized culvert, potentially hazardous to community infrastructure and stream geomorphology during extreme storm events. By replacing a problem culvert with one that is flood resilient and provides unimpeded passage by all aquatic animals, the project restored approximately 15 miles of barrier-free passage in an area of excellent brook trout thermal refugia and spawning habitat.



Undersized and screened culvert inlet, Falls Brook, Swanzey on May 10, 2011.



Culvert replacement with a 23' open bottom arch culvert under Hale Hill Road, Falls Brook, Swanzey



### ***Washburn Road/Route 3 Stratford Crossing Project***

NHDOT, in partnership with TNC, has secured a grant from the National Fish and Wildlife Foundation (NFWF) to replace a structurally deficient box culvert beneath US Route 3 in Stratford. The culvert is currently a significant barrier to fish and is in a priority area for wildlife passage across US Route 3, northern New Hampshire's busiest road. The culvert is proposed to be replaced with a more ecologically sensitive structure that improves hydraulics and habitat connectivity. This collaborative project emerged from the conservation science and planning conducted through the Staying Connected Initiative. Construction is targeted for the fall of 2019.

### ***Dalton Crossing Project***

NHDOT will be replacing a 3'X3' concrete box culvert that is structurally deficient and requires replacement. Although the existing culvert does allow for some aquatic species passage, there are no accommodations for riparian species. In addition, the road fill slopes are steep and therefore promote erosion and allow sediment to enter the stream channel. The replacement culvert will be lengthened on the inlet and outlet sides slightly to accommodate flatter fill slopes to reduce the potential for erosion of the slopes. In addition, the culvert is being proposed as a 5' high X 7' wide precast concrete box culvert. These dimensions will allow the ability to simulate a natural stream channel and narrow floodplain bench inside of the structure, which will accommodate aquatic and some riparian species passage. The design considered water flow depths and flow velocities within the culvert and simulated channel that support this approach.

### ***Exeter Dam Removal, Exeter***

ARM Funds (\$100,000) were awarded to the Town of Exeter to remove the Great Dam in downtown Exeter. The Exeter dam removal project restores approximately 15 miles of the Exeter River and its tributaries to a free-flowing condition, eliminating a barrier to migrating anadromous fish and improving water quality. The project benefits the diadromous fish populations in the Exeter River and the wider Great Bay Estuary, enhances the natural and human ecosystem by improving water quality, and reducing Exeter's vulnerability to the growing risk of flooding. Multiple funding sources made this \$2 million project successful.



Exeter River following dam removal, Exeter

### ***Sawyer Mill Dam Removals, Dover***

NHDES is playing a significant role in the Sawyer Mill Dam Removal Project through its various programs including: Coastal Program, Dam Safety Program, Dam Removal and River Restoration Program, Watershed Assistance Section, Wetlands Bureau, and Aquatic Resource Mitigation program. NHDES has assisted with assembling \$1.7 million in funding requests from 14 different grant programs.

The goals of the Sawyer Mill Dam Removal Project are to restore fish passage, improve fish and wildlife habitat, improve water quality, and reduce flood hazards. Removal of the two Sawyer Mill Dams will significantly improve access for American eels and restore passage for alewife, blueback herring and sea lamprey, which are identified as species of “special concern” and “species of greatest conservation need” by NHEF. The project will reconnect 11.2 miles of main-stem riverine habitat to Great Bay.

### ***Nash Stream Restoration Project***

Perhaps the largest stream restoration project in the northeast, the Nash Stream Restoration Project was a partnership of NHEF, NH Division of Forests and Lands, and Trout Unlimited. The focus species was wild brook trout. Stream connectivity was restored at 11 sites in 8 streams. Additionally, nearly 7 miles of mainstem stream habitat and 6 miles of tributary habitat were restored. Funding came from diverse sources such as ARM, Fisheries Habitat Account, USFWS, Upper Connecticut River Mitigation and Enhancement Fund, and others.

## Terrestrial and Wetlands Connectivity

### *Clay Pond, Hinman Ponds, Heads Pond Projects, Hooksett*

Conservation efforts in an area within a mile of Manchester city limits involves the protection of over 1,400 acres of land in Hooksett. Multiple funding sources including \$780,000 of ARM funds have gone to fund significant wildlife habitat, wetlands, vernal pools, and exemplary communities. Land in the vicinity of Hinman Pond includes over 76 acres of wetlands. The parcel lies within a NHFG Wildlife Action Plan conservation focus area that is greater than 20,000 acres in size, is primarily hemlock-hardwood-pine forest, and includes the largest (100 acres) Appalachian-oak-pine exemplary forest known in New Hampshire. The acquisition includes the prime wetland, Hinman Pond and approximately 43 vernal pools. Three perennial streams provide almost one mile of riparian habitat which flow to Dubes Pond and one flows north to Head Pond and then the Merrimack River. The Hinman Pond property provides critical habitat for several rare or endangered species. The property abuts Bear Brook State Park and Manchester Water Works properties and lies within the Lake Massabesic watershed, Manchester's public drinking water supply.

### *Evans Mountain/Crooked Run Projects, Barnstead, Pittsfield, Strafford*

Several projects over multiple years have been awarded over \$945,000 of ARM funds to purchase a conservation easement held by Bear-Paw Regional Greenways on approximately 1,465 acres of valuable wildlife habitat. The parcels include over 125 acres of wetlands, 3 miles of perennial streams, most of the frontage on the 30 acre Adams Pond, and almost half of the frontage on Wild Goose Pond. The wetlands include 57 acres of marshland, 26 acres of other wetlands, 2 acres of peatland and the 30-acre Adams Pond. The unfragmented forest that includes Crooked Run is large, more than 2,000 acres in total, connecting a 6,000-acre block that includes Evans Mountain property and a 16,000-acre block just to the north. Nine restoration sites were included in the project for aquatic passage improvement including removal of a bridge from a perennial stream, fill removal and slope stabilization adjacent to high value peatlands.



View from Evans Mountain towards Bow Lake, Strafford

### ***Cape Horn Connectivity Project***

The 288-acre Heon parcel was identified by the Staying Connected Initiative as a critical wildlife corridor linking West Mountain and Victory Basin in Vermont with the Kilkenny Region in New Hampshire. The property, protected by TNC in 2017, is adjacent to Cape Horn State Forest and includes three exemplary natural communities documented by the NH Natural Heritage Bureau.

<https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/newhampshire/newsroom/protected-land-in-north-country-to-benefit-wildlife-and-outdoor-recreation.xml>

## Statutes, Rules and Regulations

### NH Fish and Game Department

The NHFG does not currently have statutes, rules and regulations that specifically reference wildlife corridors. The department's mission statement is: *As the guardian of the state's fish, wildlife and marine resources, the New Hampshire fish and game department works in partnership with the public: (1) To conserve, manage, and protect these resources and their habitats; (2) To inform and educate the public about these resources; and (3) To provide the public with opportunities to use and appreciate these resources.* Fis 102.01(c). Both the Endangered Species Conservation Act (CHAPTER 212-A) and the Nongame Species Management Act (CHAPTER 212-B) establish Conservation Programs.

### NH Department of Environmental Services

#### Wetlands

**NH RSA 482-A:1 Finding of Public Purpose.** – *It is found to be for the public good and welfare of this state to protect and preserve its submerged lands under tidal and fresh waters and its wetlands, (both salt water and fresh-water), as herein defined, from despoliation and unregulated alteration, because such despoliation or unregulated alteration will adversely affect the value of such areas as sources of nutrients for finfish, crustacea, shellfish and wildlife of significant value, will damage or destroy habitats and reproduction areas for plants, fish and wildlife of importance, will eliminate, depreciate or obstruct the commerce, recreation and aesthetic enjoyment of the public, will be detrimental to adequate groundwater levels, will adversely affect stream channels and their ability to handle the runoff of waters, will disturb and reduce the natural ability of wetlands to absorb flood waters and silt, thus increasing general flood damage and the silting of open water channels, and will otherwise adversely affect the interests of the general public.*

As part of a standard application review, the applicant is required to provide information on whether the project is designed to maintain wetland and stream hydrological connectivity, aquatic organism passage, and plant community features to maintain or restore wetland and aquatic resource functions.

#### Rivers Management and Protection Program

The New Hampshire Rivers Management and Protection Program was created in 1988. When the state designates a river into the Rivers Management and Protection Program, the state offers an extra level of protection for significant instream river resources. For example, there are protection measures related to dams, hydroelectric facilities, channel alterations and water quality that may influence aquatic connectivity and riparian corridors.

<http://www.des.state.nh.us/organization/divisions/water/wmb/rivers/>

### NH Department of Transportation

The NHDOT does not currently have existing statutes, rules and regulations that specifically reference wildlife corridors.

### **NH Department of Transportation Projects - Natural Resource Agency Coordination Meetings**

The monthly NHDOT Natural Resource Agency Coordination Meeting provides an opportunity for early coordination and problem solving on natural resource concerns that arise in the development of transportation projects, thereby streamlining State and Federal permitting and National Environmental Policy Act (NEPA) approvals.

The coordination meeting is facilitated by NHDOT Bureau of Environment staff and regularly attended by NHFG, NHDES Wetlands Bureau, NH Natural Heritage Bureau, US Army Corps of Engineers, US Environmental Protection Agency, and Federal Highway Administration. Other State and Federal agencies and local organizations are notified of meetings and attend for specific projects of interest, including the National Marine Fisheries Service; US Fish & Wildlife Service; NH Coastal Program; NH Office of Strategic Initiatives Floodplain Management Program; NHDES Watershed Management Bureau; local River Advisory Committees; and local Lake Associations.

A range of natural resource issues are discussed at the coordination meeting. Specific issues of concern for each project include wetland impacts; wetland mitigation; water quality and stormwater treatment; stream crossings and aquatic organism passage; floodplain impacts; and rare species.

The agenda for the meeting and minutes from past meetings are available on the NHDOT's Bureau of Environment webpage: <https://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/nracrmeetings.htm>

### **NH Department of Transportation Projects - Process for Threatened and Endangered Species**

The Department of Transportation's Bureau of Environment (BOE) conducts U.S Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) reviews and requests NH Natural Heritage Bureau data checks to determine whether federally or state listed species are likely to be located in project areas. BOE staff members assess whether the proposed activity is likely to affect the species of concern based on the size, type, and duration of the proposed activity and the potential proximity and type of habitat used by the listed species. Based on this assessment, BOE may coordinate with USFWS or NHFG to review the project. USFWS and NHFG help to ascertain whether or not the listed species is likely to be adversely affected, provide recommendations for conservation measures, and, if necessary, recommend further study.

The Department has consulted with USFWS personnel in developing this review process and the USFWS Endangered Species Specialist has stated in an email that findings of "no adverse effect" do not need to be shared with USFWS personnel. In addition, some projects are eligible to be reviewed programmatically through the IPaC tool.

### **Transportation Project Mitigation**

As the permittee, the NHDOT is required to consider local opportunities for project mitigation. In the past, NH DOT has had many projects which preserved habitat through purchase of conservation easements and land to mitigate for project impacts. These mitigation packages are reviewed with local and natural resource agency partners.

One example, the Bedford-Manchester-Londonderry 11512 (Manchester Airport Access Road) Project included parcels preserved in the Little Cohas Marsh, parcels preserved along a designated wildlife corridor through commercial property in Londonderry, and parcels preserved along the Merrimack River for Bald Eagle roosting habitat. Approximately 748 acres of upland and wetland habitat and 37 acres along the Merrimack River for Eagle Habitat has been preserved, including approximately 2.5 acres for the reconstruction of an unnamed stream.



## Recommendations

### *Actions identified by Wildlife Corridors Report Planning Team, Partners and Public*

- Support local (e.g., municipal conservation funds), statewide (e.g., MoosePlate, Aquatic Resource Mitigation Fund, LCHIP), and federal (e.g., USFWS State Wildlife Grants, Recovering America's Wildlife Act - <http://www.ournatureusa.com/>) funding programs that would implement wildlife corridor priorities.
- Support initiatives that increase revenue sources to existing conservation programs identified above in order to increase implementation of priority projects.
- Continue/consider incorporating the importance of wildlife corridors and connectivity into the ranking processes for existing funding sources.
- Incorporate latest science and information into revisions to the NH Wildlife Action Plan.
- Support the continuation of the NH Wildlife and Transportation Working Group as a mechanism to prioritize future research needs and implementation projects.
- Maintain or enhance the effectiveness of existing voluntary mechanisms (e.g., current use, fee and easement acquisition programs, etc.).
- Incorporate wildlife corridor information into local and regional planning initiatives.
- Continue research needed to identify important wildlife corridor locations.
- Communicate wildlife crossing priorities that overlap transportation infrastructure to NHDOT, town conservation commissions, and town road agents.
- Incorporate wildlife corridors and potential conflicts with other uses into property stewardship plans, including the development or maintenance of trails.
- Partner with state and federal agencies, non-profit partners, and landowners to improve aquatic connectivity at priority locations.
- Develop tools that assist in the identification and implementation of wildlife corridors. For example, a master corridor map could be developed.



### *Actions Identified in NH Wildlife Action Plan (2015) Related to Wildlife Corridors*

**1500. Land Protection** - Highly threatened and essential habitat resources should be priorities, such as riparian/shoreland habitat, larger unfragmented blocks, and wildlife corridors that connect significant habitat.

**1502. Landowners, communities, and conservation groups** should be encouraged to concentrate land conservation efforts to protect unfragmented blocks of land, significant wildlife habitat areas, and corridors that enable wildlife movement across the landscape.

**1503. Communities, conservation groups, landowners and others** should use the Wildlife Action Plan maps (Habitats Land Cover and Highest Ranked Habitats) to prioritize conservation of riparian and shoreland habitats and other important wildlife corridors.

**1504.** Protect large diverse areas with multiple habitat types that will allow for habitat migration and create resilient landscapes

### **2100. Create Resources for Conservation of Wildlife Habitats and Species**

**2105.** Map potential wildlife corridors and habitat connectivity



**2301.** Promote role of the regional planning commissions in landscape-scale conservation

**3230. Water and Watersheds**

**3233.** Restore or maintain watershed connectivity to provide areas for fish and wildlife passage and the ability to compensate for increased storm events

**3237.** Coordinate and provide guidance on dam management to improve wildlife connectivity and habitat resilience

**4000. Education, Information, and Technical Guidance**

**4006.** Provide more rounded education on climate change that includes how it will impact wildlife corridors and connectivity, and engage local volunteer groups to educate others on issues related to climate change

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## Appendices

### Appendix A. Senate Bill 376

**CHAPTER 243**  
**SB 376-FN - FINAL VERSION**

02/11/2016 0395s  
03/24/2016 1061s  
05/19/2016 1996EBA

2016 SESSION

16-2810  
10/05

### SENATE BILL ***376-FN***

AN ACT relative to wildlife corridors.

SPONSORS: Sen. Watters, Dist 4; Sen. Woodburn, Dist 1; Rep. Backus, Hills. 19

COMMITTEE: Energy And Natural Resources

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#### ANALYSIS

This bill requires the fish and game department to identify existing and needed wildlife corridors connecting wildlife habitats in the state and to make recommendations for legislative changes.

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Explanation: Matter added to current law appears in ***bold italics***.

Matter removed from current law appears [~~in brackets and struck through~~].

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

02/11/2016 0395s 16-2810  
03/24/2016 1061s 10/05  
05/19/2016 1996EBA

#### STATE OF NEW HAMPSHIRE

*In the Year of Our Lord Two Thousand Sixteen*

AN ACT relative to wildlife corridors.

*Be it Enacted by the Senate and House of Representatives in General Court convened:*

243:1 Wildlife Corridors; Findings. The legislature finds and declares that:

I. It is recognized as a public good that habitat connectivity, including wildlife corridors and habitat linkages, be maintained and expanded. It is the policy of the state of New Hampshire to encourage, wherever feasible and practical, voluntary steps to protect the functioning of wildlife corridors through various means, as applicable.

II. Areas containing diverse ecological and geological characteristics are vital to the continual health and well-being of the state's natural resources and of its citizens.

III. Connectivity between wildlife habitats is important to the long-term viability of the state's biodiversity. Preserving and connecting high-quality habitat for wildlife can create habitat strongholds. Increasingly fragmented habitats threaten the state's wildlife species.

IV. Analysis of the state's habitat connectivity benefits from the consideration of all relevant data, including information from private and public landowners.

243:2 Fish and Game Department; Report.

I. Because of the importance of wildlife corridors to assist in adapting to warming temperatures and shifting habitats and creating habitat strongholds, and in order to protect ecosystem health and biodiversity and improve the resiliency of wildlife and their habitats to such existing and potential changes, the fish and game department, in collaboration with the department of environmental services and the department of transportation, shall identify existing and needed wildlife corridors, including riparian corridors, and including potential crossings of transportation arteries, such as a possible crossing in the Jefferson-Randolph section of Route 2. Prior to entrance onto private property for purposes described in this paragraph, the fish and game department, the department of environmental services, and the department of transportation shall obtain landowner permission. The executive director of fish and game, the commissioner of the department of transportation, and the commissioner of the department of environmental services shall direct their departments to research voluntary mechanisms such as easements and cooperative management agreements that affect wildlife corridors and shall make, after receiving public comment, recommendations concerning any potential changes.

II. The executive director shall file a report containing the department's findings pursuant to paragraph I and any recommendations to the speaker of the house of representatives and the president of the senate no later than June 30, 2018.

III. For purposes of this act, "wildlife corridor" means a habitat linkage that joins 2 or more areas of wildlife habitat, allowing for fish passage or the movement of wildlife from one area to another, and "habitat stronghold" means high-quality habitat that supports wildlife in being more resilient to increasing pressures on species due to climate change and land development.

243:3 Effective Date. This act shall take effect 60 days after its passage.

Approved: June 10, 2016

Effective Date: August 9, 2016