2025 Lamprey River Management Plan

Updated from 2013 Edition

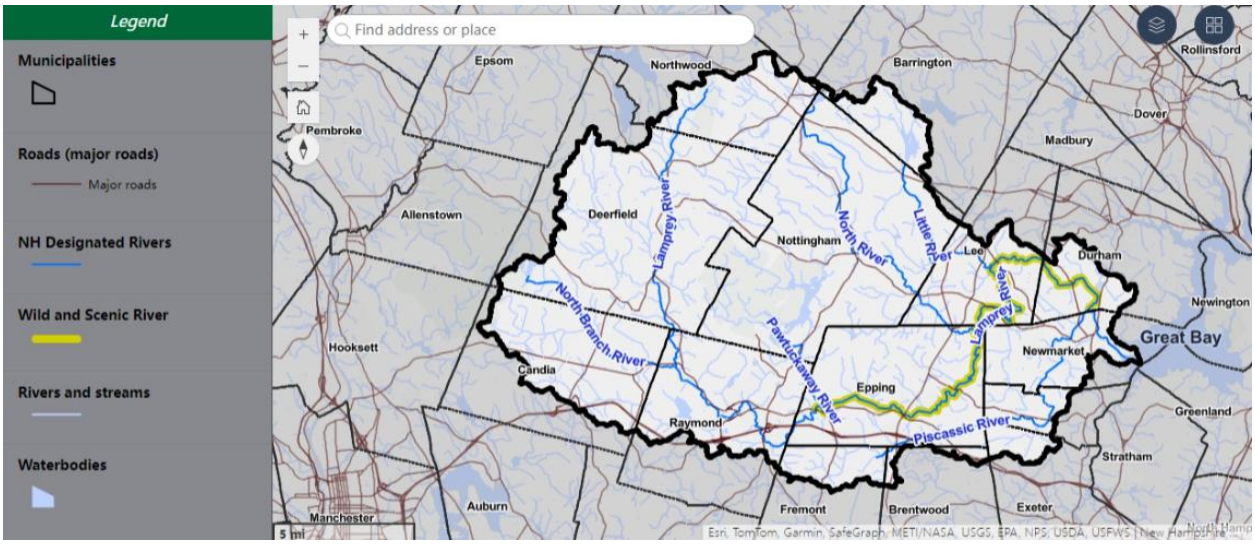
Photo by RH Lord

Prepared by

the Lamprey River Advisory Committee

www.LampreyRiver.org

Lamprey River Watershed



The Lamprey River watershed encompasses 214 square miles and is the largest source of freshwater to Great Bay. The river receives water from surface flow and groundwater from fourteen towns:

> Barrington, Brentwood, Candia, Deerfield, Durham, Epping, Exeter, Fremont, Lee, Newfields, Newmarket, Northwood, Nottingham, and Raymond.

The Lamprey River also encompasses five state-designated tributaries:

> Little, North, North Branch, Pawtuckaway, and Piscassic rivers.

The Lamprey River is intimately linked to the land that surrounds it and is, in turn, similarly linked to Great Bay.

Statement of Management Philosophy

The Lamprey River and its major tributaries (Little, North, North Branch, Pawtuckaway, and Piscassic rivers) have been recognized as significant ecological, historic, recreational, and water supply resources by the New Hampshire Rivers Management and Protection Program. In addition, the lower 23 miles of the main stem Lamprey River have been designated under the National Wild and Scenic Rivers System. Both programs require an advisory management plan to aid in protecting and managing the resources of the rivers. The Lamprey River Management Plan must provide balance among its three main goals:

1. Protect the ecosystem and associated ecological functions of the rivers and their corridors.
2. Promote responsible community use of the rivers and the surrounding land.
3. Respect the interests of property owners and municipalities while enlisting their support as guardians of the rivers' assets.

The Lamprey River, the tributaries, and the Greater Seacoast face two main threats:

1. The human population of the Greater Seacoast area is increasing rapidly. The rivers and the land surrounding them face increasing pressure from development and, to a lesser degree, recreational use. As the natural landscape shrinks, the ability of the land to adapt and be resilient also decreases.
2. The changing climate is causing more extreme weather and greater uncertainty.

In light of these threats, how do we keep our waters clean? How do we ensure that people and wildlife can access enough clean water to survive? How do we ensure that wildlife and the habitats on which they depend remain viable?

The Lamprey River and its tributaries contribute a significant amount of water to Great Bay. The Great Bay Estuary and tidal portions of the Lamprey River are showing signs of decline and do not meet federal Clean Water Act criteria for several indicators. Special attention must be paid to mitigating the increase in nitrogen, sediment, and other pollutants that reach the waterways, as well addressing areas of low dissolved oxygen. The condition of the rivers and Great Bay reflects the actions of individuals, commercial interests, and communities that populate the land surrounding these bodies of water.

Engaging the public and working together to attain the management plan goals are critical to our shared future. Central to this work will be pursuing collective efforts that are needed for protection now and into the future. The future of the rivers and Great Bay as community assets rests squarely on the willingness of everyone along the river to be knowledgeable and careful stewards. Together we can ensure that positive future.

2025 Update

Prepared by the Lamprey River Advisory Committee

town	representatives		
Barrington	John Wallace		
Brentwood			
Candia			
Deerfield			
Durham	Dick Lord (vice chair)	Matt Lake	David Steinberg
Epping	Lauren Kaehler		
Exeter			
Fremont			
Lee	James Brady		
Newfields			
Newmarket	Ben Buckley	Jerry Martin	Patrick Reynolds
Northwood	Grace Levergood (chair)		
Nottingham	Dan Davis		
Raymond	Kathy McDonald	Therese Thompson	

Significant assistance was provided by Jim MacCartney (National Park Service), Suzanne Petersen (LRAC staff), and Jackson Rand (Strafford Regional Planning Commission).

We also need to recognize our many partners who advise us and support our mission:

Great Bay NERR
Great Bay Stewards
Duane Hyde, Southeast Land Trust
Stephen Jones and his students, UNH
Lamprey River Watershed Association
Lee Historical Society, Lee Conservation Commission, Lee Public Safety
Newmarket Conservation Commission, Newmarket Recreation Department
New Hampshire Fish and Game Department
Piscataqua Region Estuaries Partnership
Raymond Conservation Commission, Raymond Planning Board
Rockingham Planning Commission
Tracie Sales, NHDES
Ellen Snyder, wildlife ecologist

This 2025 Management Plan was adopted by vote of the Lamprey River Advisory Committee on September 16, 2025.

Contents

Program Abbreviations and Links

EPA—Environmental Protection Agency U.S. Environmental Protection Agency | US EPA

GIS – Geographic Information System, a computer support system for mapping and mapping-related data.

LRAC – Lamprey River Advisory Committee www.LampreyRiver.org

LRWA – Lamprey River Watershed Association www.lrwa-nh.org

NERR – National Estuarine Research Reserve National Estuarine Research Reserve System

NHDES – New Hampshire Department of Environmental Services Welcome | NH Department of Environmental Services

NHSWAP-- New Hampshire State Wildlife Action Plan NH Wildlife Protection Plan

NPS – National Park Service https://www.nps.gov

NRCS – Natural Resource Conservation Service Home | Natural Resources Conservation Service

NWSRS – National Wild and Scenic Rivers System National Wild and Scenic River System | Rivers.gov

PREP – Piscataqua Region Estuaries Partnership Piscataqua Region Estuaries Partnership

NHRMPP – New Hampshire Rivers Management and Protection Program Rivers Management and Protection | NH Department of Environmental Services

UNH – University of New Hampshire University of New Hampshire | University of New Hampshire

USGS – US Geologic Survey USGS.gov | Science for a changing world

VRAP – New Hampshire Volunteer River Assessment Program River and Lake Monitoring | NH Department of Environmental Services

Executive Summary

This 2025 update of the *1995 Lamprey River Management Plan* and subsequent revisions reflects changes in the river and its watershed, but also a deepening understanding and level of involvement with on-going river issues on the part of the Lamprey River Advisory Committee (LRAC or the Committee).

Three legislative acts have taken place since the writing of the original *1995 Lamprey River Management Plan*. In 1996, the US Congress designated an 11.5 mile-segment of the Lamprey River in Lee, Durham, and part of Newmarket under the National Wild and Scenic Rivers System. This was followed in 2000 with the addition of 12 miles in Epping. In 2011, the entire Lamprey River and five of its major tributaries (North Branch, Pawtuckaway, North, Little, and Piscassic rivers) were designated into the NH Rivers Management and Protection Program. This represented the first time in New Hampshire that an entire watershed system was effectively protected as a single unit.

Many other changes have taken place in the watershed in the past several years:

- Residential and commercial development has resulted in a significant increase in the amount of paved and other impervious surfaces.
- Climate change has continued to drive the paradox of floods that cause significant damage and droughts that challenge public water suppliers to meet the demands of their users while leaving enough water to preserve the rivers' habitats.
- Sections of Great Bay and the Lamprey River have been federally listed as "impaired", in violation of the Clean Water Act.
- The Newmarket Wastewater Treatment Facility significantly reduced its discharges of nitrogen into the tidal portion of the Lamprey River.
- Upgrades at the Epping Wastewater Treatment Facility proved problematic and resulted in releases of partially-treated wastewater into the Lamprey River for several years during cold months. The problem seems to be resolved at this time, but significant upgrades are needed.
- Land protection goals from the Piscataqua Region Estuaries Partnership were met in the Lamprey River watershed. As of January 2025, the LRAC has provided significant funding to help provide permanent protection to approximately 3,843 acres and 19.1 miles of river frontage using Wild and Scenic River partnership funding.
- The NHDES *Lamprey River Water Management Plan* from 2013 was tested and proved successful. Initial data from the tributaries have been gathered and will be assimilated into the overall Lamprey River watershed plan.

Organizationally, LRAC membership has grown from four to fourteen towns. The Committee and its member towns have established more extensive and sophisticated working relationships with other organizations to help realize watershed-related goals.

The Committee has concentrated efforts in several main areas since the *2013 Lamprey River Management Plan Update*:

- Through the project review process, we have submitted comments on proposals to develop or redevelop river corridor lands that can result in the loss of wildlife habitat, degradation of water quality, and negative impacts on the river's natural and scenic qualities to NHDES and towns.
- We have cultivated awareness of and appreciation for the Lamprey River through educational programs and materials for all ages.
- We have worked with partners to provide information about protecting the river at recreational access points and to make physical improvements for both people and the river.
- We have promoted the ecological health of the river by working with governmental agencies, the University of New Hampshire, and others to research wildlife presence and movement, sources of bacterial contamination, and emerging threats.

Goals and Key Actions for the Next Ten Years

Water Resources

Goals:

- *Ensure that the Lamprey River and its tributaries meet or exceed standards for "fishable and swimmable" water for the health and enjoyment of all species.*
- *Maintain a viable quantity of water in the Lamprey River and its tributaries during all seasons sufficient to support and sustain aquatic habitats and wildlife, while considering the need for agricultural and municipal use.*

Diligent monitoring and safeguarding of the Lamprey's water will always be a priority. The Committee will continue its role as a watchdog, tracking the results of water quality monitoring conducted by various groups and reviewing and commenting on development proposals to avoid or minimize degradation of the river.

Bacterial source tracking research at several recreational areas has revealed that while most sites meet state and federal criteria for safe fishing and swimming most of the time, one site was almost always in violation: where Moonlight Brook empties into the Lamprey River at Schanda Park in Newmarket. Analysis of DNA reveals that the source of this bacterial contamination is mostly human, indicating a possible leak or leaks in the municipal sewer pipe system. Additional tests have been taken upstream of Schanda Park and no clear source has been identified yet. The LRAC will continue to fund bacterial source tracking and work with partners to identify the cause and a possible remedy.

As with other southern New Hampshire rivers, the Lamprey River is subject to extremely low flows during droughts. It is also seen as a major water resource by watershed towns. The UNH/Durham Water System has been the largest consumptive user of the Lamprey's water, but in the future, it is anticipated that the river will be eyed as a water supply by other towns and businesses in and out of the watershed. Meeting the needs of wildlife and habitats while addressing the growing human population will be increasingly challenging in the near future.

With the Lamprey River Water Management Plan as a template, LRAC members will be working closely with NHDES, UNH, Durham, and other river towns to encourage water conservation and other water resource management. Towns will need to balance the use of groundwater and river water for water supply so that neither is overtaxed. Such cooperation will help to ensure that withdrawals of water from the Lamprey will not diminish the supply of clean water or the river's ecology.

Wildlife and Ecology

Goals:

- *Work with towns and landowners to expand existing wildlife habitat inventories and conservation plans for the Lamprey River watershed area.*
- *Protect and restore the ecological functions and resources of the Lamprey River that are critical to wildlife and humans.*

The Lamprey River has maintained most of the healthy, diverse habitat types that made it eligible for protection under both the state and national river programs. In the next decade, the LRAC will continue to work to maintain this natural ecosystem through land conservation, careful review of development proposals, invasive species control, fish passage restoration, and safe-guarding adequate water levels in the river. These efforts will include encouraging member towns to establish standards that protect the river's clean water and habitats as well as engaging landowners to maintain the Lamprey's ecological value to a wide variety of plants and animals.

Ecological research commissioned by the LRAC has helped to track the health of the river and identify important lands for permanent protection. Future efforts will include follow-ups to this research as well as studies of other plant and animal species, their habitats, and new geographical areas. Research findings from studies conducted by LRAC and others will be mapped to facilitate ecological management in the watershed. The LRAC will continue to provide funding for worthwhile projects that result in strong protection for wildlife, such as turtle nesting areas or management plans for town forests.

Land Protection and Conservation

Goals:

- *Protect lands that support the ecological health and recreational uses of the Lamprey River and its surrounding landscape.*
- *Continue to work with landowners and municipalities to foster interest and action in permanent conservation of lands associated with the rivers.*

Partnering with towns, land trusts, and other organizations, LRAC has participated in the permanent conservation of about 3843 acres of land and more than 19 miles of river frontage using Wild and Scenic River partnership funding. Land protection will continue to be a key focus of the Committee's work, especially in the Wild and Scenic River towns of Epping, Lee, Durham, and Newmarket. Because of ecological research done in the past decade and the NH Wildlife Action Plan, LRAC now has an even better understanding of which lands are most critical for protecting wildlife on the Lamprey.

The LRAC will undertake new work with town conservation commissions and other organizations to support conservation efforts in the watershed. Less formally, the LRAC will continue providing information to residents and riverfront landowners on why and how to protect the Lamprey River corridor for the future.

History

Goal:

Help local citizens understand the historic and cultural importance of the rivers in this region and encourage a deeper appreciation of their own sense of place in the on-going history of the rivers.

The Committee believes that a community's sense of place depends in part upon knowledge of its history, especially when historical sites can be enjoyed first-hand. In 1999, the LRAC researched and produced a video on the history of the river that revealed many sites of historical and archaeological significance in many watershed towns. In addition to this original history, several smaller projects have been undertaken to document the river's rich past, including history-based videos and kiosks.

The Committee will continue to conduct research and document the river's history, including funding professional work. We will partner with town historical associations to help in the development of on-site information for the public.

Recreation

Goal:

Improve and increase appropriate, non-motorized opportunities for public enjoyment along and in the Lamprey River and the designated tributaries (Little, North, North Branch, Pawtuckaway, and Piscassic rivers).

The LRAC will continue to be a partner to recreational departments, from developing and improving public access sites, co-sponsoring river-based recreational events and activities, to funding town efforts to improve conditions for people and wildlife at multiple public river access areas. The updated *Explore the Lamprey River* map and guide and the *Lamprey River Paddling Guide* that features access sites in the lower five towns will always be available to those who seek to explore the river. We hope to work with town partners to create a recreational river guide for the upper towns and the tributaries.

Project Review

Goal:

Ensure that river protection goals are adequately considered during project review at local, state, and federal levels.

The Committee is charged with reviewing all projects requiring a state or federal permit that could impact the Lamprey River. The LRAC does not have the authority to issue or deny permits, but LRAC comments must be considered by NHDES during its review process. With members from the fourteen towns, it also closely follows river-related local issues such as proposed developments or changes in regulations. In many instances, comments from the Committee will lead to cooperative efforts among the town, the developer, and state and federal regulatory agencies that results in improvements to projects, making them more protective of the river and its corridor.

Community Engagement and Education

Goal:

Engage people of all ages to appreciate and protect the resources and services provided by the Lamprey rivers and the surrounding landscape using a variety of educational media and experiences.

The Committee strives to be “the local voice for the river" and to help others to become its advocates as well. In the past, this has included working with schools in the watershed, creating

informational brochures and DVDs, sharing quarterly newsletters, posting signage at river crossings and river access sites, conducting workshops, hosting educational events, and bringing displays to various public venues. The Committee's website, www.LampreyRiver.org, serves as a hub of Lamprey River resources. Given the physical influence that the Lamprey River has on Great Bay, the LRAC has been an active partner with outreach efforts led by PREP and other Great Bay groups. This important collaborative work will continue.

Background

The Lamprey River Advisory Committee

The Lamprey River Advisory Committee (LRAC or the Committee) is mandated by both the New Hampshire Rivers Management and Protection Program and the National Wild and Scenic Rivers System to participate in the management of the Lamprey River and five of its main tributaries: North Branch, Pawtuckaway, North, Little, and Piscassic rivers. Each of the fourteen towns in the Lamprey River drainage area is eligible to have up to four Committee members. Members are nominated by the governing bodies of their towns and then are appointed by the New Hampshire Department of Environmental Services for a three-year term. Members, serving as volunteers, represent the interests of local government, business, agriculture, conservation interests, recreation, and river landowners. The Lamprey River Advisory Committee is distinct from the Lamprey River Watershed Association (LRWA), a nonprofit membership group operating throughout the watershed. The two organizations often collaborate in efforts to enhance protection of the Lamprey.

Designations

The Lamprey River and five of its main tributaries have been designated for special protection by the State of New Hampshire through the New Hampshire Rivers Management and Protection Program. In addition, the section from the former Bunker Pond Dam in West Epping to the confluence with the Piscassic River in Newmarket has been designated for protection by the US Congress under the Wild and Scenic Rivers Act.

These designations and subsequent protection resulted from the efforts of local citizens who documented the Lamprey's outstanding natural and cultural resources and earned the unanimous support of the fourteen towns. In addition to the recognition already achieved at the state level, there is also interest in extending Wild and Scenic designation to upstream towns. With sufficient public support, and with the assistance of LRWA and LRAC, these initiatives might move forward.

1. New Hampshire Rivers Management and Protection Program

The New Hampshire Rivers Management and Protection Program (RMPP) was enacted in 1988 to protect the state's most significant rivers or river segments. In 1990, the section of the Lamprey River which runs through Lee and Durham was among the first rivers designated into the RMPP. In 2011, the entire Lamprey and five of its major tributaries were designated. The RMPP provides for the establishment of a local advisory committee on each designated river to implement river management and protection policies at the local level.

The Lamprey River Advisory Committee serves as the local advisory committee for the Lamprey River. The Committee is legislatively responsible for four main duties per RSA 483:

- Advise the NHDES commissioner, the advisory committee (Rivers Management Advisory Committee), the municipalities through which the Designated River or segment flows, and the municipalities within tributary drainage areas on matters pertaining to the management of the river or segment and tributary drainage areas.
- Consider and comment on any federal, state, or local governmental plans to approve license, fund or construct facilities that would alter the resource values and characteristics for which the river or segment is designated.
- Develop or assist in the development and adoption of local river corridor management plans. Local planning boards may adopt such plans as an adjunct to their local master plans.
- Report biennially to the Rivers Management Advisory Committee and the commissioner, and annually to municipalities on the status of compliance with federal and state laws and regulations, local ordinances, and plans relevant to the Designated River or segment, its corridor, and tributary drainage areas. NHDES offers the committee technical assistance in developing and implementing the management plan.

The State of New Hampshire assumes responsibility for assisting the local advisory committee and provides the following protections for the Lamprey:

- a prohibition against the construction of new dams, the use of flashboards on existing dams, and interbasin transfer of water from the Lamprey River
- protection of water quality and maintenance of adequate year-round flows in the river to support a full range of natural resource needs and also human uses
- mandatory setbacks for new solid and hazardous waste facilities.

  Otherwise, the state program does not regulate local zoning or confer special regulatory powers to state agencies relative to protected rivers.

2. Designation under the Wild and Scenic Rivers Act

The broad purposes of federal designation under the Wild and Scenic Rivers Act are two-fold:

- Establish federal policies for the watercourse which ensure that federal actions are consistent with protecting the resources for which the river was designated.
- Provide for financial and technical assistance from the National Park Service in implementing the River Management Plan.

Most of the 228 rivers in the National Wild and Scenic Rivers System flow through federally-owned land and are managed by the federal agency that manages the land. In contrast, many of the designated rivers in the East flow through private lands. These rivers, including the Lamprey, are called “Partnership Wild and Scenic Rivers”, because their management occurs through a partnership of the National Park Service and a local river management advisory committee. According to Jamie Fosburgh (former resource planner for the Northeast Region

Rivers Program of the National Park Service), Partnership Wild and Scenic Rivers share the following characteristics:

- No lands are federally owned.
- The River Management Plan is written and implemented through a broadly participatory process.
- Management and use of lands adjacent to the river continue to be the responsibility of landowners, subject only to existing state and local regulations.
- The National Park Service reviews federally funded, sponsored, or licensed projects to ensure federal consistency with the plan's river protection goals.
- The costs and responsibilities for managing and protecting the river's resources are shared among all of the partners—local, state, federal, and non-governmental.

The *1995 Lamprey River Management Plan* was developed as a part of the National Wild and Scenic River Study of the Lamprey. The plan included specific provisions related to Wild and Scenic designation, all of which were carried forward in the 2007 Update and the 2013 Update. These provisions, together with the National Park Service's June 1995 Draft Report to Congress, and the text of federal legislation in 1999 and 2001 designating the portions of the Lamprey into the federal system, provide the full background and context for the National Wild and Scenic River designation of the Lamprey.

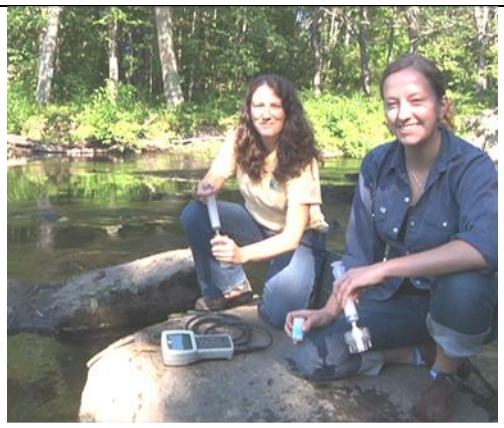
Twenty-three and a half miles of the Lamprey River are designated as a Wild and Scenic River, from the former Bunker Pond Dam in Epping to the confluence with the Piscassic River in Newmarket. The area of oversight is approximately one quarter mile on each side of the river.

The following seven sections comprise the details of the plan. The plan is deliberately ambitious, representing a full menu of initiatives seen as desirable, rather than a commitment to accomplishing some or all in the next decade. In many instances, successful collaboration will be essential to the accomplishment of the plan's identified actions and goals. The Committee often will play a supporting role to others who possess the necessary expertise, staff, authority, or resources to complete a particular job.

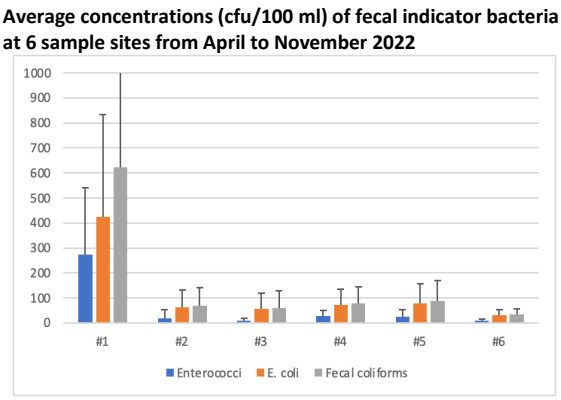
Water Resources

Goals

- *Ensure that the Lamprey River and its tributaries meet or exceed standards for "fishable and swimmable" water for the health and enjoyment of all species.*
- *Maintain a viable quantity of water in the Lamprey River and its tributaries during all seasons sufficient to support and sustain aquatic habitats and wildlife, while considering the need for agricultural and municipal use.*



Scientists taking water samples.



Background

Central to the Lamprey River Advisory Committee's work is the protection and improvement of the rivers' water. While a river itself is defined largely by flowing surface water, it is also defined by lakes, ponds, wetlands, groundwater, and precipitation. Stressors on any one of these water resources can put a strain on the river.

All rivers legislatively designated as protected under the New Hampshire Rivers Management and Protection Program are currently mandated to have an Instream Flow Management Plan. In 2013, the main stem Lamprey River became one of the first to have such a plan (Lamprey River Water Management Plan (nh.gov). In short, the management plan is designed to maintain natural flows in the river sufficient to sustain natural communities of aquatic animals in the event of a prolonged drought. The five designated tributaries are currently in the study phase as personnel at NHDES record flow data and water depth. Once data for these rivers have been collected and analyzed, a draft plan will be presented to the public for comment. Management of river flow is accomplished mainly by two strategies: restricting water users' ability to draw water from the river and supplementing water in the river through periodic releases of water from dam impoundments. The LRAC is not the body that makes these management decisions, but it can make recommendations to NHDES.

While the LRAC has a limited role in supporting a healthy *quantity* of water in the rivers, it plays a larger role in helping to support the *quality* of water in the rivers. In terms of river protection and management, "water quality" is defined by criteria that have been deemed essential to sustain life in the river. Some criteria are based on minimum standards (such as the concentration of dissolved oxygen gas), while others are based on maximum standards (such as the concentration of mercury). These criteria were developed by the EPA and NHDES. The goal in all cases is to have "fishable and swimmable waters." Class A waters meet the most stringent criteria and are suitable for drinking with minimal treatment. The Piscassic River currently meets this standard. Class B waters are fishable and swimmable, but might have some minor issues that require stronger treatment to be considered safe for drinking. With few, site-specific exceptions, the other rivers in the Lamprey River watershed meet this standard.

Keeping the rivers' waters clean and healthy is a long-term challenge. Almost everything that happens on land ultimately affects the water. The issues are many and often combine to create additional stresses. An increasing population and the accompanying development in the river corridor have resulted in a significant increase in paved and other impervious surfaces. (See Impervious Surfaces Map in Appendix B.) Natural streamside buffers are being lost. Climate change is leading to more numerous and more extreme storm events, which exacerbate issues with the addition of new development and outdated infrastructure. A key piece is finding ways to have stormwater soak into the soil for filtration and groundwater recharge rather than run across the surface and enter the river untreated.

Key Future Actions

- Study and track chemical and physical traits of river water in a consistent manner so that towns and other partners can protect the cleanest water and improve degraded water.
    - Continue to support volunteer water testing efforts and targeted scientific research, such as bacterial tracking.
    - Update previously completed trend analyses to determine whether the water is improving or worsening over time.
    - Compare data to New Hampshire benchmarks and identify which issues could be improved locally.
    - Regularly review water quality data and address action items.
    - Identify what critical data are missing and recommend steps to address the gaps.
    - Gather and collate data from historic water testing in the Lamprey River and its tributaries for use in administration, project review, and education activities performed by LRAC. Make data available to the public.
- Work with towns to protect and improve the "fishable and swimmable" water of the rivers.
    - Enlist local knowledge to identify problem areas that do not or would not appear on GIS maps and standard evaluations (such as broken or leaking pipes or undocumented erosion areas). Report these problems to town officials or agencies that might be able to provide help in correcting the problem.

    - Encourage towns to enact consistent and effective regulations for stormwater, zoning, buffers, and floodplains.
    - Encourage towns to reduce the amount of salt they apply to town roads. Recommend that town public works departments enroll in classes such as NH SnoPros, UNH Technology Transfer Center, and Road Scholars. Encourage towns to adopt salt application standards for private snow plow drivers as part of commercial and subdivision planning. Request NHDES to require SnoPro certification on all new commercial development and redevelopment projects.
    - Provide towns with information on septic systems that can be distributed to residents.
    - In fulfilling LRAC's permit review responsibility, help towns to assess development proposals relative to their effects on water resources.
    - Plan river-based activities in each town to build awareness that all areas should and can have "fishable and swimmable" water.
    - Identify emerging issues that affect the water in the rivers and help towns to plan accordingly.
- Work with town residents to protect and improve the water:
    - Expand outreach efforts to landowners about septic system care and maintenance.
    - Encourage residents to minimize or discontinue the use of pesticides and fertilizers.
    - Provide information about resources available to riparian landowners to encourage wide, naturally vegetated buffers and floodplains to minimize erosion and filter run-off.
    - Support community efforts to "soak in the rain" through LRAC Community Grants.
    - Recognize landowner efforts that protect clean water, both along the river and as part of the watershed.
- Promote water conservation:
    - Support town efforts to develop long-range water use plans and encourage exploration of alternate sources or storage.
    - Encourage strategies and regulations for low-impact development or retro-fits so that water soaks *into* the soil and does not flow *across* it where soil conditions are appropriate.
    - Engage towns and residents to identify and correct sources of water loss (broken pipes, leaky faucets, etc.). Offer Community Grants to towns or conservation groups to identify and quantify water loss. Develop incentives to conserve water.

To view past accomplishments in Water Resources, click here or go to Appendix C page 49.

Link to NHDES instream flow data and resources for Lamprey River and designated tributaries NH Instream Flow Map.

Land Protection

Goals:

- *Protect lands that support the ecological health and recreational uses of the Lamprey River and its surrounding landscape.*
- *Continue to work with landowners and municipalities to foster interest and action in permanent conservation of lands associated with the rivers.*

Background

The most effective long-term strategy for protecting resources of the river is voluntary land conservation, either through a conservation easement or land acquisition/purchase for conservation purposes by a municipality or qualified conservation group. Protecting the best and/or most sensitive land helps to protect the water and the overall environment that relies on that water.

The State of New Hampshire, local municipalities, and landowners have other tools for protecting the significant natural resources of the Lamprey River watershed, but these have notable limitations:

- Regulatory approaches (such as shoreland protection rules) provide minimum, yet important, protection to the river. These regulations are subject to the political priorities of elected officials and can be modified in ways that are not always beneficial to the river or its resources. Despite regulations, protected shorelands and wetlands are sometimes legally developed.
- Deed restrictions and covenants might seem to protect land, but they are impermanent, subject to interpretation and amendment, and difficult to enforce.
- Voluntary resource stewardship by individual landowners often varies from one owner to the next, and is not as durable, over the long term, as a conservation easement.

A conservation easement is a legal agreement between a landowner and a qualified conservation organization or agency in the form of a deed that permanently protects the land from harmful development.

Conservation easements are granted in perpetuity and apply to the land regardless of who might own it in the future. Land under easement often remains privately owned and managed. Typically, easements are used for agriculture, forestry, wildlife habitat, scenic views, drinking water source protection, passive recreation, and education. All uses not specifically prohibited by the easement are allowed to continue provided they are compatible with the conservation purposes of the easement. The land trust or municipality that holds the easement is normally legally obligated to monitor it annually to assure that the easement terms are being adhered to and enforce its terms, if necessary.

The LRAC partners with towns, state agencies, and land trusts on land protection projects. The committee is not organizationally structured to hold either title to land or conservation easements; instead, it provides information and assistance to landowners about the natural resource values of their property and ways to conserve their property if they are interested. The committee can provide funds to cover some land transaction costs such as appraisals and surveys, and can provide funds to cover a portion of the land acquisition costs.

The LRAC's policy is to match or leverage its funds with those of other conservation groups to further the collective conservation goals of communities, landowners, and environmental protection partners. Because the LRAC's land protection funds are provided by the US Congress, this policy also assures Washington that federal dollars are being leveraged at the local level. Expenditure of these funds is subject to the conditions of the *1995 Lamprey River Management Plan* which was referenced in the federal designating legislation. The pertinent language in this regard is as follows:

The National Park Service will not own or manage any lands along the river and does not support condemnation of land along the river. Federal funds can be made available to land trusts and local communities for the purchase of lands or conservation easements that advance the purposes for which the river was designated (for the Lamprey River: ecological, archaeological, and fisheries protection). The National Park Service considers providing funds subject to the following conditions:

- *The acquisition is from willing sellers only.*
- *An appropriate local, state, or nonprofit entity and not the National Park Service holds title and management responsibility for any purchased lands or easements.*

Lamprey River Advisory Committee Land Protection Ranking

The LRAC has developed a set of criteria for prioritizing funding for land conservation. In addition to these priorities, each property is evaluated for its unique qualities. Some properties that do not meet the criteria listed below might still have unique assets that would be worthy of consideration. In some instances, certain priorities might conflict, such as wildlife protection and recreational access. The criteria neither guarantee nor disqualify any particular project from receiving funding. All projects are considered on a case-by-case basis to optimize best outcomes.

First Priorities:

- land with at least 1,000 feet of main stem, Wild and Scenic Lamprey River frontage
- properties on which easements can be placed on the entire property
- properties which are threatened by development
- properties whose owners are ready to take steps to conserve the land, or whose circumstances require resolution of the land's future
- properties with significant wildlife habitat or other special features: soils, open space, cultural/historic features

- properties currently being used as productive open space: e.g. farming, forestry, etc.

Second Priorities:

- properties with at least 500 feet of main stem or designated tributary river frontage
- properties which protect land at least 500 feet from the river bank
- properties offering recreational access to the river
- first priority land whose owners are reluctant to take action imminently
- land which connects to other conservation lands
- land which is part of a large, unfragmented block of undeveloped land

Third Priorities

- properties along tributaries to the Lamprey River
- land which must be purchased outright (as opposed to easements)
- parcels smaller than 5 acres
- parcels with less than 500 feet of river frontage
- properties which protect land less than 500 feet from the river bank
- parcels deemed to be largely undevelopable

Committee volunteers and land protection staff work with towns and partner organizations to contact owners of high priority properties. Property owners are urged to communicate with any of these to explore conservation options before making decisions to develop their land. The LRAC cannot pay more than the full appraised value for a property. Landowners may also choose to donate all or part (a bargain sale) of the property or easement value.

As of December 2024, the Lamprey River Advisory Committee has helped to permanently protect 3,843 acres with more than 19.1 miles of frontage in 5 towns in the Lamprey River watershed.

In addition to permanent land protection, LRAC Community Grants have been used by Barrington and Raymond to help develop land conservation planning maps.

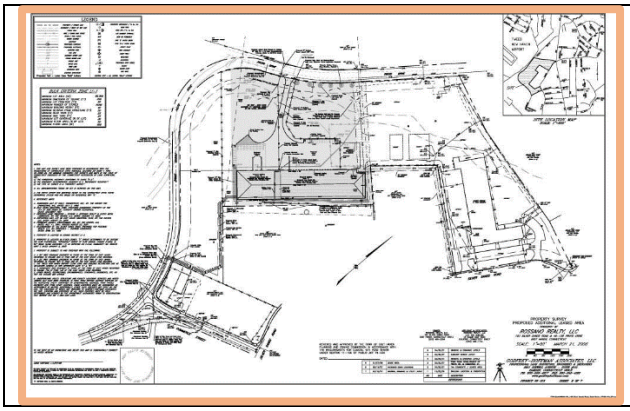
Key Future Actions

action	potential partners & resources
Work with partners to identify individual properties that are located in areas identified by the State of New Hampshire as high priorities for permanent protection. Inform landowners about their property's special features that make them priorities for permanent protection. Inform them of conservation options and offer support with the process of protecting their land.	Southeast Land Trust (SELT) The Nature Conservancy Society for the Protection of NH Forests local conservation commissions Piscataqua Region Estuaries Partnership (PREP) Great Bay National Estuarine Research Reserve NH Fish and Game Department University of New Hampshire Bear-Paw Regional Greenways Coastal Conservation Plan NH Wildlife Action Plan Trails for People & Wildlife Guidebook
Continue to support research on the resources of the Lamprey rivers and their corridors to identify additional key lands to protect. This includes inventories of rare wildlife and plants, important agricultural soils, sensitive or otherwise important habitats, and recreation and cultural assets. Other topics to study include how climate change could impact river flow dynamics or the degree to which wildlife can connect with the critical resources they need while identifying the barriers that prevent these animals from reaching these resources.	
Seek out funding opportunities and partnerships that support permanent land protection efforts in the landscape of the Lamprey River and its tributaries.	
Support broad outreach programs that foster stewardship of private lands by landowners.	

To view the map of land protection projects that have included LRAC funding, click here or see page 41 in Appendix B.

Project Review

Goal:
Ensure that river protection goals are adequately considered during project review at local, state, and federal levels.



Sample engineering plan detail sheet.

Background:
Under the New Hampshire Rivers Management and Protection Act, RSA 483:8-a III, Chapter 483 NEW HAMPSHIRE RIVERS MANAGEMENT AND PROTECTION PROGRAM (state.nh.us), Local River Management Advisory Committees (LACs), including the subcommittees of the Connecticut River Joint Commissions, have been given the duty of reviewing permit applications for projects with the potential to impact the resources for which the river was designated. Specifically:

> *RSA 483:8-a III. The duties of such committees shall be:*
> *(b) To consider and comment on any federal, state, or local governmental plans to approve, license, fund, or construct facilities or applications for permits, certificates, or licenses, that may alter the resource values and characteristics for which the river or segment is designated.*

This jurisdiction covers the quarter mile corridor on both sides of a designated river. (See Designated River Corridors map in Appendix B, page 38.) The Lamprey River Advisory Committee (LRAC) is responsible for reviewing projects along the Lamprey, Little, North, North Branch, Pawtuckaway, and Piscassic rivers. Similarly, the Wild and Scenic Subcommittee is advisory to the National Park Service relative to the National Wild and Scenic River designation, with a goal of protecting and enhancing the designated segment river (covering the main-stem Lamprey River from West Epping to the confluence of the Piscassic River in Newmarket) where federal permits or projects are concerned. The LRAC is “the local voice of the river” in these processes, with state and federal legislative charters to back that voice and ensure that it is heard. Comments generated by the LRAC are advisory and must be considered by the New Hampshire Department of Environmental Services (NHDES); however, the LRAC does not have the authority to grant or deny permits.

In addition to projects that require permit(s) from NHDES, the Committee welcomes the opportunity to confer with local planning boards on projects that might impact the rivers but that do not require NHDES authorization.

The LRAC typically reviews four types of permits that are under the jurisdiction of NHDES. If any part of the project includes alterations in the quarter mile river corridor, the entire project is subject to review.

- Alteration of Terrain-For projects that would convert at least 100,000 square feet (or 50,000 in a protected shoreland zone) from a natural or lightly developed condition to a heavily developed condition (example, converting farmland or forest into a housing development).
- Shoreland- For projects that would remove natural vegetation to enable construction within the state-protected 250-foot protected buffer zone. (Example, building a residential structure that cannot feasibly be built farther back from the river).
- Wetlands- For projects that propose to dredge or fill a wetland (example, creating a stream crossing or filling wetlands to expand a parking area).
- Permits-by-Notification- These are expedited wetlands permit projects that meet certain criteria and will result in minimal disturbance. The LRAC chair has the authority to waive review and intervention (example, culvert repair or minor utility line repair). If the chair does not sign the waiver, the project is subject to full review as a major wetland impact.

In addition to review of proposed projects, NH RSA 483 also directs local river advisory committees to advise the NHDES commissioner on matters that pertain to the management of the designated rivers. In this capacity, the LRAC makes advisory comments to NHDES and others concerning proposed changes to legislation (e.g., land protection funding by towns and town conservation commissions, shoreland protection, and change-of-use tax revenue) or issues of concern that might impact the rivers.

In order to perform this important advisory duty, project review is undertaken by LRAC members who have a variety of backgrounds and skills. When possible, a representative from the town in which the project is proposed contributes to the review. The members look at local and state regulations and best watershed protection standards that pertain to riverside buffers, stormwater management, construction practices, and post-construction maintenance plans. Special attention is given to the presence of rare or threatened wildlife species or habitats, steep slopes, public access, public water supply areas, changes to infiltration into the soil, and cultural/historic features.

Key Future Actions:

- Review and comment on local, state, and federal permits and projects within LRAC's jurisdiction that have the potential to affect the quality and quantity of water, stream flow, ecology, and other river resources.
- Participate, when possible, in preliminary project design meetings, studies, and similar processes that could help streamline and optimize planning for beneficial actions,

projects, or permits related to the river and its resources. Communicating about projects early in the planning process can help to reduce conflict later in the process.

- Create or adopt a project review training program to help new LRAC members gain skills and confidence to perform this important responsibility.
- Submit letters of testimony pertaining to proposed legislation as needed.
- Create a formal procedure for handling requests for pre-application reviews making use of best watershed protection standards.
- Send annual reminders to town managers and zoning boards that RSA 483:8-a III requires that local river advisory committees be provided the opportunity to review materials and offer comments for proposed projects in the quarter mile corridors of the designated rivers, regardless of whether a state permit is required.

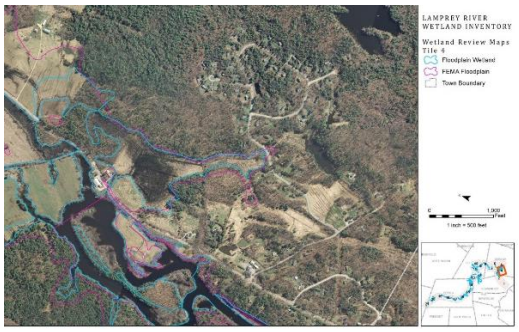
Wildlife and Ecology

Goals:

- *Work with towns and landowners to expand existing wildlife habitat inventories and conservation plans for the Lamprey River watershed area.*
- *Protect and restore the ecological functions and resources of the Lamprey River that are critical to wildlife and humans*.

Setting up equipment to detect bat calls.

Blanding's turtle



Riparian wetland inventory map

Background

The Lamprey River and its tributaries drain a land area, or watershed, of 214 square miles. This is the largest river watershed of the Great Bay Estuary, a National Estuarine Research Reserve. Despite an increasing human population, this largely forested and relatively undeveloped area supports important floodplain forests, extensive shrub and emergent marsh wetlands, and scattered openings and fields among the forested uplands. The floodplains, backwaters, vernal pools, fields, and forests are home to a great diversity of wildlife including significant populations of Blanding's, spotted, and wood turtles, each of which is a species of conservation concern in New Hampshire.

The Lamprey is one of the state's most significant rivers for anadromous fish (fish that migrate between fresh and salt water) such as river herring and American eels, as well as many strictly freshwater fish. More than 150 species of birds use the river corridors to breed, over-winter, or stop during migration. Protection of natural habitat ensures benefits for both wildlife and people, such as low or no-cost maintenance of clean groundwater, river water, healthy soils, and flood protection. In addition, the Lamprey supports the ecosystem and ecosystem services of the Great Bay Estuary by providing fresh water and habitat for the many species found there.

Compared to other rivers in the region, the Lamprey River's headwaters, channel, floodplain, and adjacent wetlands are still relatively intact, making possible the wide variety of plants, fish, and other wildlife that live here. Undeveloped riverside areas (buffers) and associated wetlands help to protect the river from soil erosion and sediments, excessive nutrients, pollutants, and overheating in summer sun, as well as slowing the flow of seasonal or storm flood waters.

Wildlife and habitats depend on maintaining clean water, natural flow patterns, riverside vegetation, and uplands that are developed in a sensitive manner and are not fragmented by haphazard development. Similarly, protecting and managing these natural areas is the most cost-effective way to ensure the services they provide to people, such as clean, abundant water, flood control, and quality of life.

The ecology of the Lamprey, as summarized above, was found by the National Park Service to represent an "outstandingly remarkable" resource worthy of recognition and protection through the National Wild and Scenic Rivers System (1995 Draft Report to Congress). In 2011, the entire Lamprey River and its five major tributaries were designated into the NH Rivers Management and Protection Program based on many of the same values.

The ecological integrity of the river corridor is being challenged by several issues: the human population increased 38.3% from 1990 to 2020 and more than tripled from 1960 to 2020; the amount of natural land lost to development is increasing even faster than the population. (See Appendix A.) As the landscape is developed, habitats are being fragmented and lost; invasive, non-native species are becoming more common; climate change is delivering more numerous and more extreme weather events; and stormwater runoff is carrying more sediments and nutrients into the rivers, resulting in more challenges to wildlife and local ecology.

Key Future Actions

- Encourage sustained ecological integrity in the watershed.
    - Partner with UNH and the NH Fish and Game Department to monitor a few key indicator species over time and synthesize the data into a trend analysis. Share with policy makers and town leaders.
    - Support research to discern why key fish species are missing from otherwise suitable habitat as identified in New Hampshire Fish and Game's Lamprey River Watershed Fish Surveys from 2012.
    - Seek out and conserve land that increases the degree of connectedness for aquatic organism and wildlife passage within the watershed.
    - Review the NH State Wildlife Action Plan | State of New Hampshire Fish and Game and the Climate Action Plan | NH Department of Environmental Services for guidance on research needs and best management practices.
    - Work with partners to conduct programs that inform riverside landowners about wildlife needs on their property.
    - Promote wide riverside buffers as important to wildlife and water quality.
    - Work with towns to enact buffer protection regulations.
    - Help people to understand their connection to nature and wildlife: how to maintain wildlife habitat, how to safeguard soil and clean water.
    - Protect headwater streams through land purchase/easement.
    - Collaborate with regional planning commissions to update the map of stormwater outfalls and barriers to aquatic organism passage with a goal of

prioritizing retrofit projects to ensure that the worst offending systems are dealt with first.

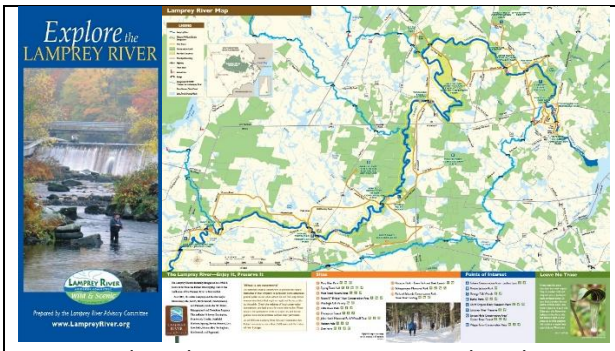
- Provide outreach that encourages the public to appreciate the importance of wildlife and ecology to clean, abundant water, public enjoyment, education, and land protection:
    - Continue to make wildlife and ecological considerations a priority in land protection efforts.
    - Identify key audiences and work with the outreach program to develop targeted materials.
    - Explore hosting a “big night” event to assist vernal pool amphibians.
    - Increase public awareness of wildlife and their habitats.
    - Address road salt and encourage towns to reduce it; study possible effects of extra road sand (from less salting) on wildlife.
    - Tap into local knowledge: landowners, recreationists, conservation commissions, etc..
- Prioritize projects and identify funding sources for research and restoration projects.
- Educate the public about invasive species and the problems they can cause.
- Engage with wildlife partners to track rehabilitated wildlife.
- Encourage people to report all rare wildlife sightings to the NH Fish and Game Department.

To view past Wildlife Accomplishments, click here or go to Appendix C, page 50.

Recreation

Goal:

Improve and increase appropriate, non-motorized opportunities for public enjoyment along and in the Lamprey River and the designated tributaries (Little, North, North Branch, Pawtuckaway, and Piscassic rivers).



Explore the Lamprey River map and guide

Lee Public Canoe Access sign

Background

People have a natural affinity for water; they seek to be near it and enjoy activities associated with it. These activities include walking, bird-watching, picnics, photography, fishing, boating, and swimming. When people can enjoy the natural and cultural assets of the rivers and their corridors, they form a connection to the rivers and are inspired to protect them. Long-term enjoyment of the rivers is dependent on being able to access the rivers and enjoy them appropriately through low-impact activities. The recreational resources along the rivers were recognized by the State of New Hampshire in designating the rivers into the NH Rivers Management and Protection Program. Analytics reveal that information about recreation is the primary reason people visit www.LampreyRiver.org.

Key Future Actions

- Offer public recreational activities that combine fun and education, such as guided walks or paddles.
- Expand and enhance plans for recreation and public enjoyment activities that include the entire Lamprey River and the five designated tributaries. Expand recreational opportunities for people with disabilities.
- Work with partners to support river-based activities for the public at riverside parks:
    - family fun day
    - river regatta
    - walks that feature conserved properties or town forests.

- Work with towns to improve existing recreational areas:
    - Durham: Create a universally accessible picnic area.
    - Epping: Create signage for the natural playground at Mary Blair Park.
    - Raymond: Investigate the plausibility of refurbishing and reopening the beach area at the Lamprey River Elementary School.
- Advocate for appropriate, non-damaging use of river recreational resources:
    - Work with towns to identify and reduce erosion issues at parks.
    - Use maps and kiosks to inform the public on ways to reduce recreational erosion.
- Explore sponsoring a road race, volksmarch, cycling tour, or paddling event along the river. If successful, make it an annual, signature event.
- Enhance or create additional recreational tour maps to include the towns in the middle and upper Lamprey River and the tributaries. List appropriate activities and accessibility status at all sites.
- Encourage riverside landowners to allow public access along the river. Provide information on amendments to RSA 212:34 that limit landowner liability when the public uses private property.

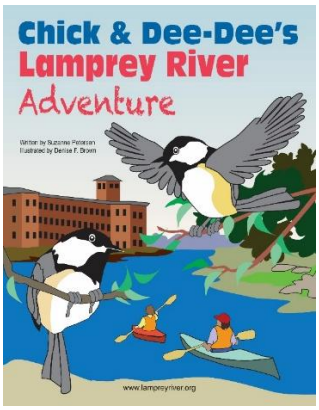
potential partners and resources
town recreation departments
town conservation commissions
town historical associations
National Park Service
NPS River Access Planning Guide
NH State Parks
SELT
National Recreation and Park Association
River Management Society

To view past Recreation Accomplishments, click here or go to Appendix C, page 51.

Community Engagement and Education

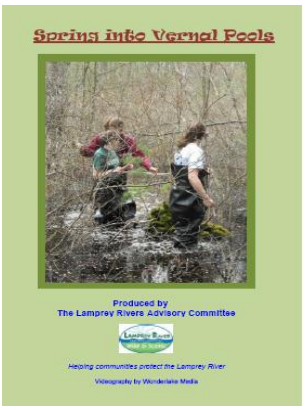
Goal:

Engage people of all ages to appreciate and protect the resources and services provided by the Lamprey rivers and the surrounding landscape using a variety of educational media and experiences.



Lamprey River kids' book


sea lamprey at Herring Aid event



vernal pool video

Background

Since its formation in 1991, the Committee has offered brochures, newsletters, videos, displays, and a website to the public. It has provided educational materials and training for teachers. Committee members have given testimony to local and state officials and presented programs to the public to support legislation that protects the rivers. Committee members have offered recreational programs that help to build relationships between people and the rivers.

Community engagement and educational activities are viewed by the Committee as vital underpinnings of resource conservation. The Committee's efforts seek to engage the public to appreciate and protect the outstanding resources of the rivers: clean, abundant water, wildlife, scenic beauty, historic and archaeological features, and recreation. These resources depend on an informed and appreciative public. Enjoyment of the rivers in a manner that preserves the resources must be a part of the Committee's efforts.

Key Future Actions

- Create a continuing education program for Committee members and extend it to the public when appropriate.
- Continue to expand community engagement and education efforts beyond the four lower Wild and Scenic towns to all Lamprey River towns.

    - Inform the public, town governments, and state and federal partners about LRAC goals and achievements through written annual reports.
    - Distribute quarterly newsletters to all towns.
    - Work with upstream towns that might want to consider Wild and Scenic designation.
    - Fund and guide the LRAC community engagement and education specialist.
    - Partner with schools to offer river-related science trips.
    - Partner with local colleges to assist with environmental education instruction.
- Offer information and programs to a wider audience.
    - Provide articles to local media with wide public appeal and distribution.
    - Offer at least one outreach component per year in conjunction with the working groups that are engaged in land protection, recreation, history and archaeology, water resources, and wildlife.
    - Offer Community Grants to teachers to integrate Lamprey River topics into their classroom studies.
- Enlist the help of partners to inform the public about the rivers and the committee's work.
    - Invite members of regional planning commissions, land trusts, and conservation organizations to speak to the committee on specific subjects or projects that could be co-sponsored, e.g., public tours of conserved land, film festivals.
    - Continue to support Community Grant outreach projects that support management plan objectives.
    - Continue to inform the public about invasive, non-native species that threaten native wildlife and habitats.
    - Strengthen partnerships with schools, libraries, and town recreation departments as a way to offer programs to a wider audience, especially those people for whom access can be challenging due to financial or physical limitations.
- Develop and promote a program to encourage wide buffers around streams in the watershed. Share a one-page sheet of best-management-practices that includes ten tips and lists additional resources.
- Recognize influential conservationists of the watershed. Invite them to make presentations.

To view past Community Engagement Accomplishments, click here or go to Appendix C, page 52.

History

Goal

Help local citizens understand the historic and cultural importance of the rivers in this region and encourage a deeper appreciation of their own sense of place in the on-going history of the rivers.

map of historic mills in Lamprey River watershed

history panel at Wiswall Falls

Background

People have long recognized the valuable resources that the Lamprey River and its tributaries provide. Early Indigenous peoples left evidence of a campsite in Lee that University of New Hampshire archaeologists can date back at least 8,000 years and modern Indigenous people continue to utilize the river. European settlers were drawn to the rivers as an energy source and they built mills there as early as the 1660s. Over the years, more than 100 mills processed timber, grain, cloth, paper, wallpaper, leather, shoes, and iron agricultural tools to supply local and regional needs. The largest mill on the Lamprey was the Newmarket Manufacturing Company founded in 1822. It controlled dams as far inland as Northwood. At one time, this mill housed the largest weaving room in the world. River valleys supplied brickyards with extensive deposits of glacio-marine clays that were left following the last Ice Age 11,000 years ago. Epping still sits atop a vast deposit of such clay.

The historic resources of the Lamprey were recognized by both the State of New Hampshire and the U.S. Congress as reasons for designating the Lamprey River for protection. The National Park Service's 1995 *Draft Report to Congress* cited the "outstandingly remarkable" archaeological resources of the Lamprey, thus warranting protection through the National Wild and Scenic River designation. The *Lamprey River Resource Assessment* (1994) lists more than

thirty historical sites, including two (Wiswall Dam area and the mill district of Newmarket) that are on the *National Register of Historic Places*. Other sites include hotels, camps, bridges, railroads, churches, and homesteads as indicated on maps and in several historical publications.

Understanding the cultural history of the rivers can help landowners, newcomers, and the general public to develop an appreciation of the rivers. Although many river resources have not changed significantly over time, the focus of *human use* has diversified over the years. Recognition of the historic uses is needed if people are to be expected to assist in protecting the rivers, especially as newcomers settle in the communities along the river.

Key Future Actions

- Assist towns to implement planned historic activities at river parks.
- Partner with historical committees to help local citizens understand and appreciate the importance of the rivers in human history of the region.
    - Partner with local historical societies to arrange events at historical sites.
    - Identify and encourage protection of historic and archaeological resources on a site-specific basis, using methods such as signage, barriers, or easements.
    - Work with the recreation workgroup to include historic features on the proposed middle/upper river map and guide.
- Work with towns to develop river-based historic and cultural resources, if not completed already.
- Engage local residents in discovering and conserving local history to help promote a "sense of place."
- Fund or seek funding for professional research on the archaeology and history of the rivers. Report findings on the website and in appropriate media, presentations, etc..
    - Study and document archaeological sites along the rivers in addition to those in the Wadleigh Falls area.
    - Partner with Durham to study Packers Falls history and possibly create a kiosk for the site.
- Work with Indigenous scholars to improve understanding and recognition of Indigenous history and on-going presence in LRAC materials.
- Work with UNH to develop a set of guidelines for working with Indigenous people.
- Work with the Newmarket Historic Association to promote understanding of the history of the Newmarket Mills and their impact on the Lamprey River watershed, including establishment of flowage rights and construction of Mendum's Dam and other impoundments, and their use to manage flow at Newmarket.

To view past History Accomplishments, click here or go to Appendix C, page 54.

Glossary

401 Water Quality Permit – permit allowing the discharge of water into a waterbody, under Section 401 of the federal Clean Water Act

Clean Water Act impairment—official status of a waterbody that does not meet standards for biological, chemical or physical integrity and that available pollution controls currently cannot maintain.

conservation easement-- a legal agreement between a landowner and a qualified conservation organization or agency in the form of a deed that permanently protects the land from harmful development.

MS4 – Municipal Separate Storm Sewer Systems Stormwater Discharges from Municipal Sources | US EPA

watershed-- an area of land that drains all the streams and rainfall to a common outlet. The Piscassic River watershed is a subwatershed of the Lamprey River watershed. The Lamprey River watershed is a subwatershed of Great Bay.

Bibliography and Resources

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Lamprey River Wild and Scenic River Study, June 1995.

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New Hampshire Fish and Game Department, New Hampshire State Wildlife Action Plan, 2015.

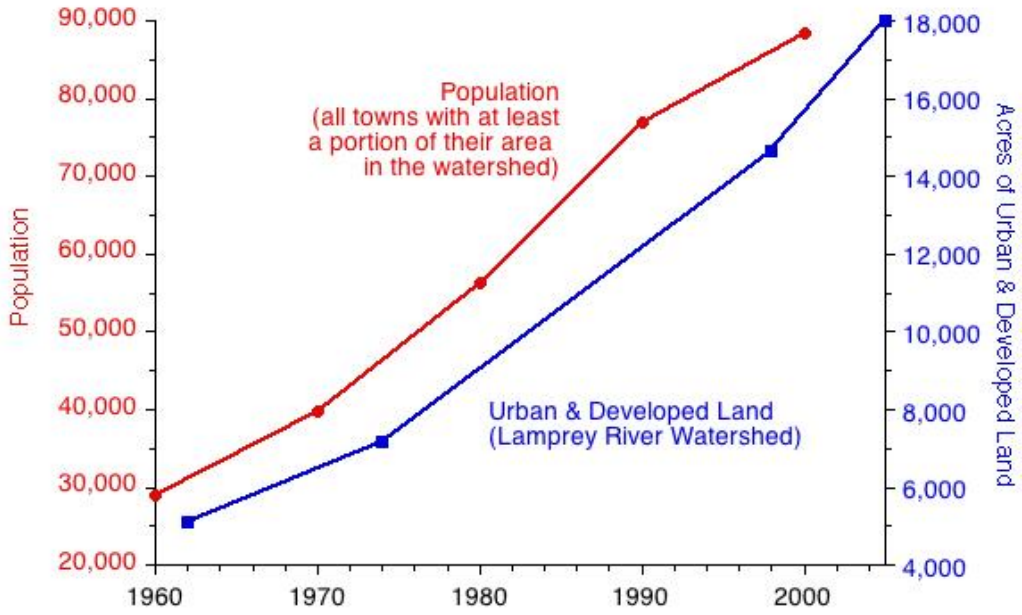
New Hampshire Rivers Management and Protection Program; Lamprey, North Branch, North, Little, Pawtuckaway, and Piscassic Rivers Report to the General Court, 2011.

UNH Stormwater Center, New Hampshire Stormwater Manual, 2025.

Appendix A: Population Growth in Lamprey River Watershed

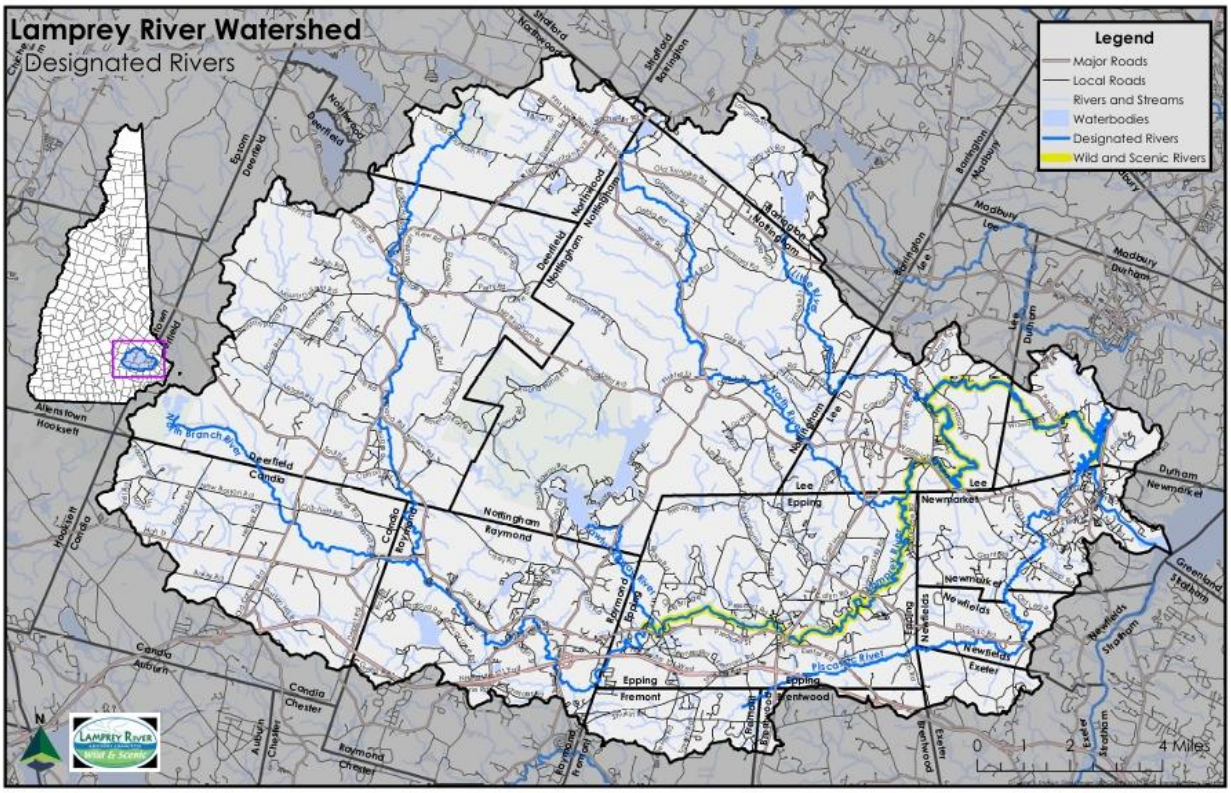
Population Growth in Lamprey River Watershed Towns 1990-2020
Data from 2020 Census | State Data Center | NH Office of Strategic Initiatives and New Hampshire Community Profiles | Data and Analysis | Economic & Labor Market Information Bureau (ELMI) | NH Employment Security

town	1990	2000	2010	2020	change (2020 – 1990)	% change
Barrington	6164	7475	8576	9326	3162	51.3
Brentwood	2590	3197	4486	4490	1900	73.4
Candia	3557	3911	3909	4013	456	12.8
Deerfield	3124	3678	4280	4855	1731	55.4
Durham	11818	12664	14638	15490	3672	31.1
Epping	5162	5476	6411	7125	1963	38.0
Exeter	12481	14058	14306	16049	3568	28.6
Fremont	2576	3510	4283	4739	2163	84.0
Lee	3729	4145	4330	4520	791	21.2
Newfields	888	1551	1680	1769	881	99.2
Newmarket	7157	8027	8936	9430	2273	31.8
Northwood	3124	3640	4241	4641	1517	48.6
Nottingham	2939	3701	4785	5229	2290	77.9
Raymond	8713	9674	10138	10684	1971	22.6
all 14 towns	74022	84707	94999	102360	28338	38.3

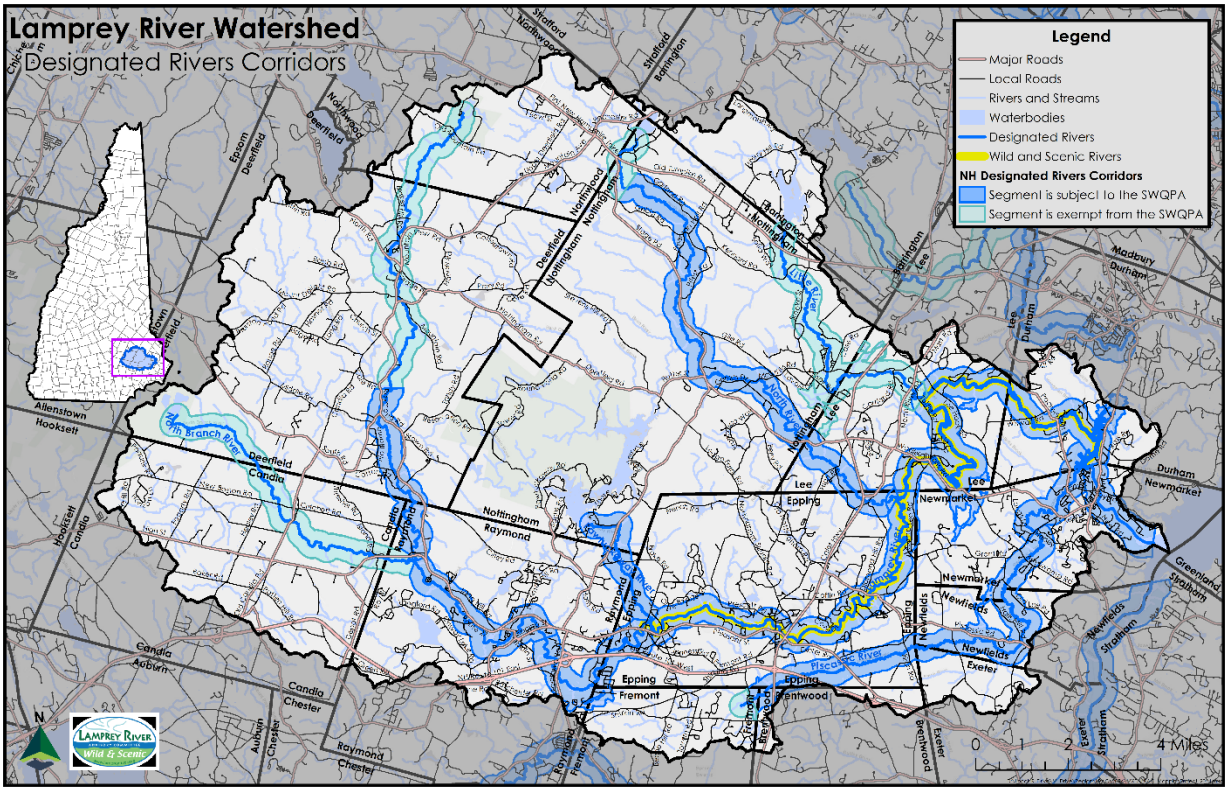


Land use and population change over time, by town in the Lamprey River Watershed. (Cameron Wake)

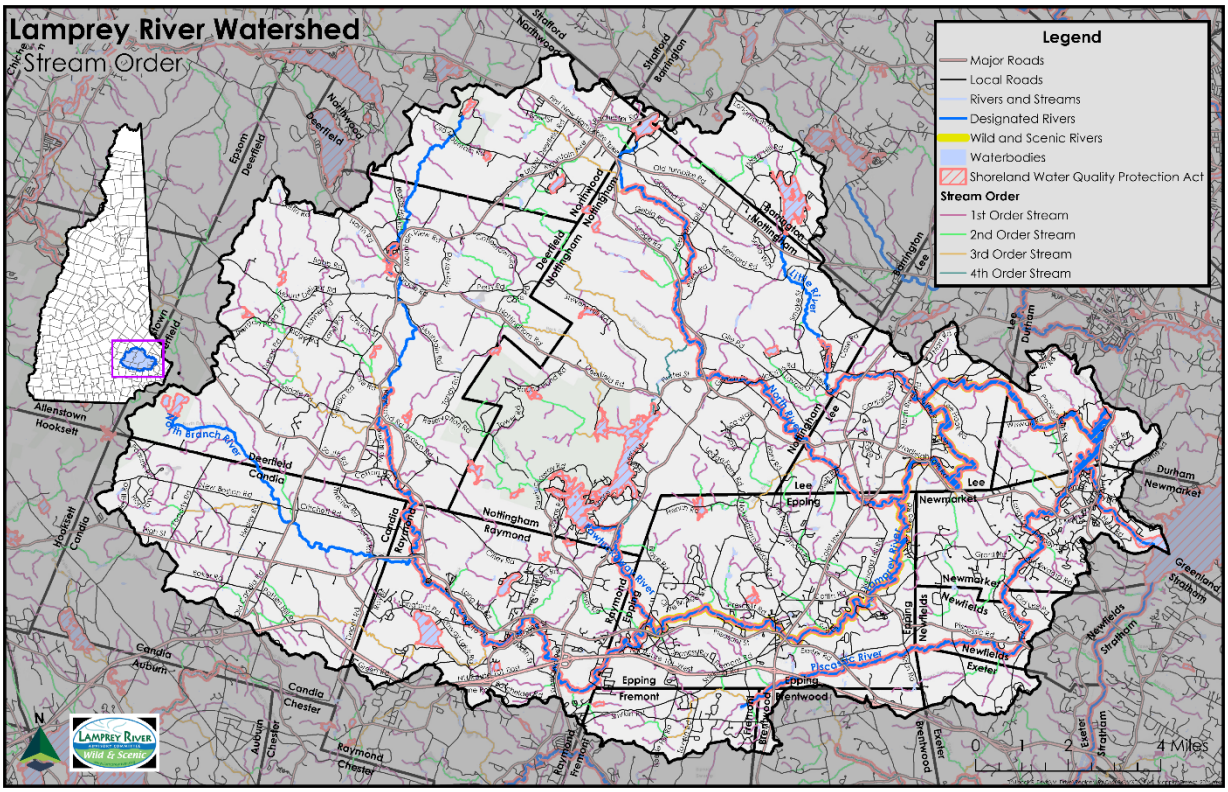
Appendix B: Maps



Designated Rivers

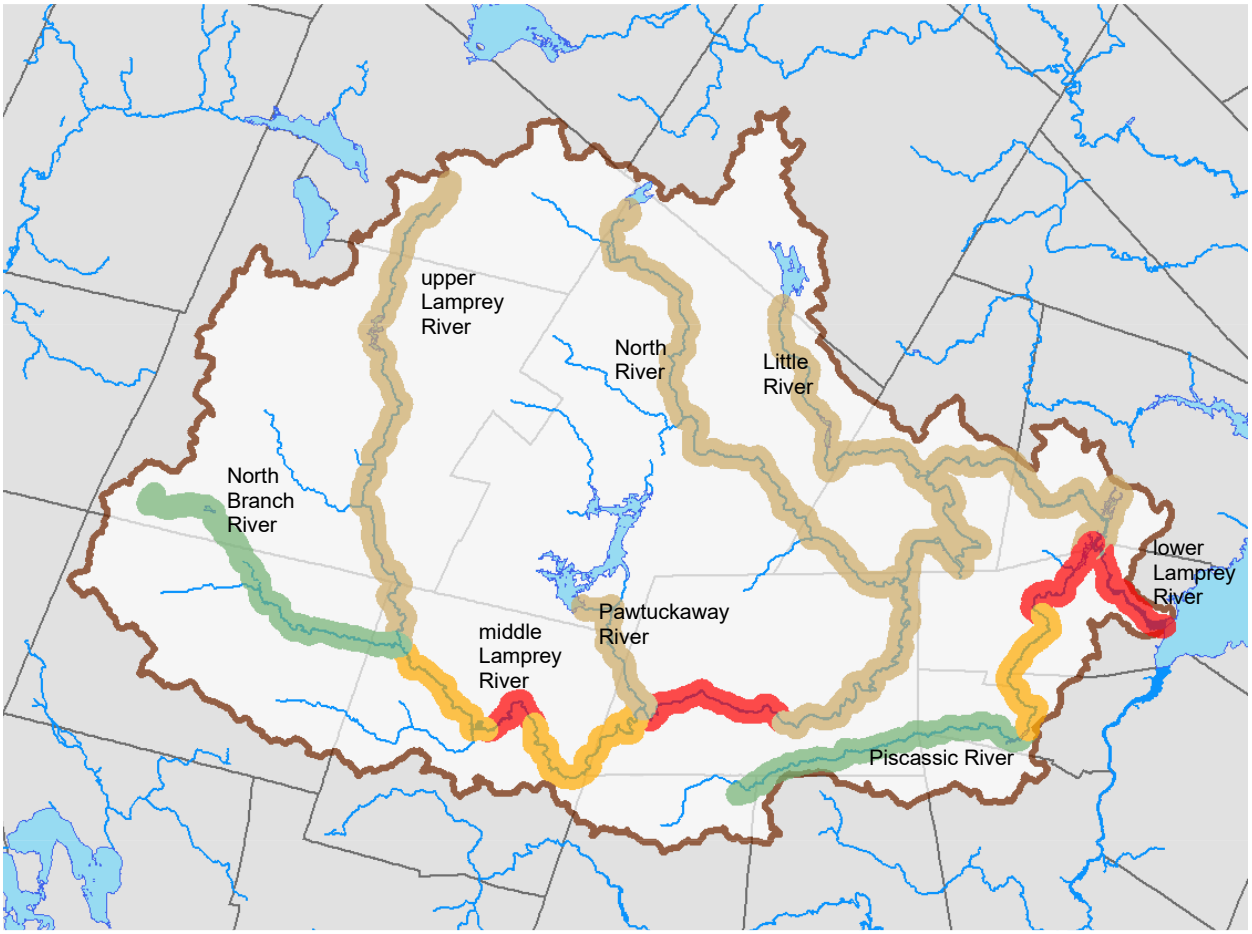


Designated River Corridors



Stream Order

NHDES Designated River Classifications



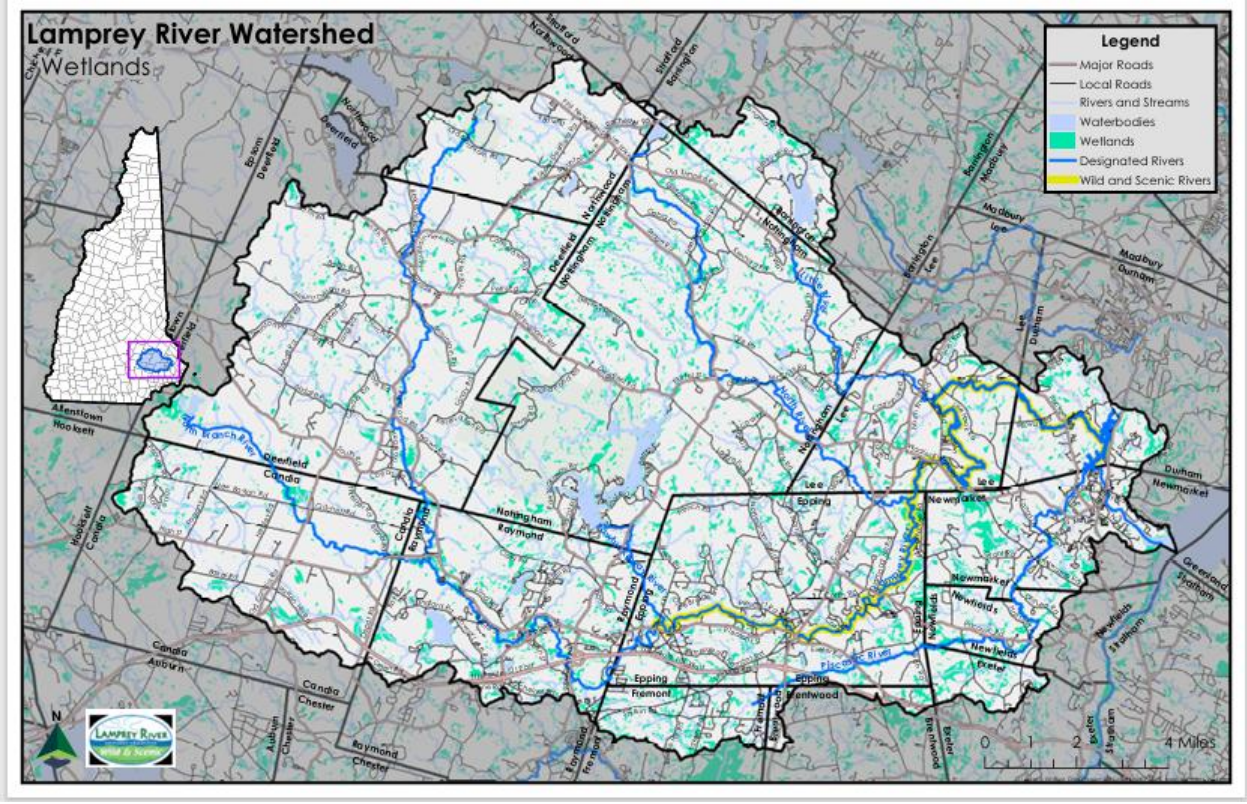
LEGEND

- natural
- rural
- rural-community
- community

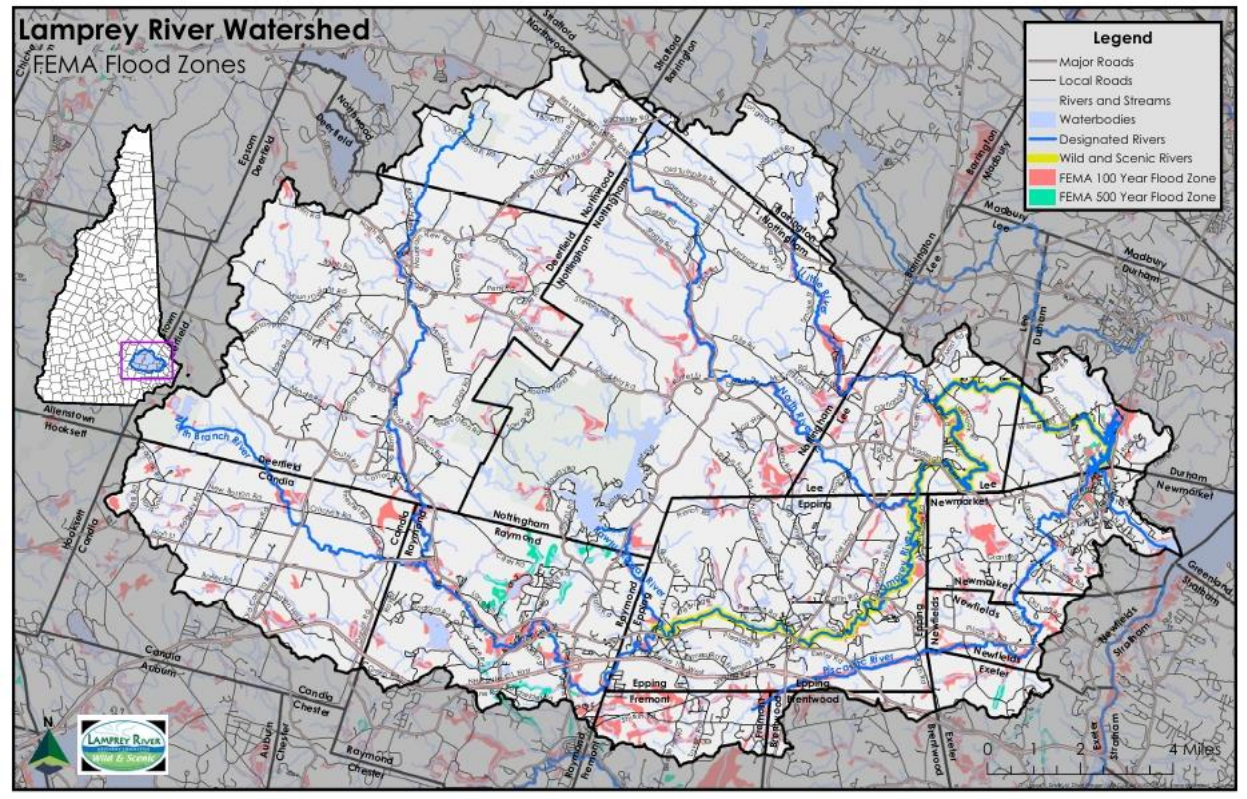
NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Source: The data layers are derived from NHDES data and are under constant revision. NHDES is not responsible for the use or interpretation of this information. Not intended for legal use. Watershed Management Bureau, August 2012.

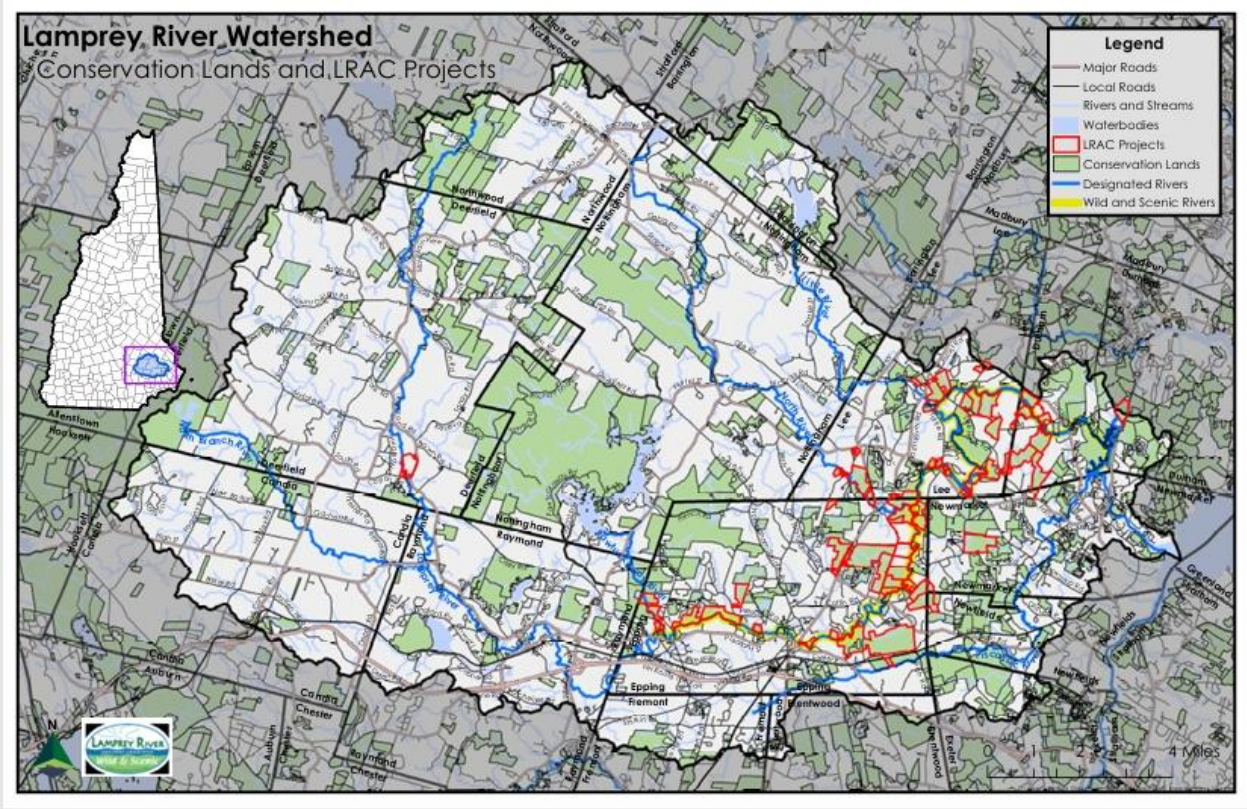
For rules and requirements for designated uses, see **Section 483:7-a River Classification Criteria; Management.**



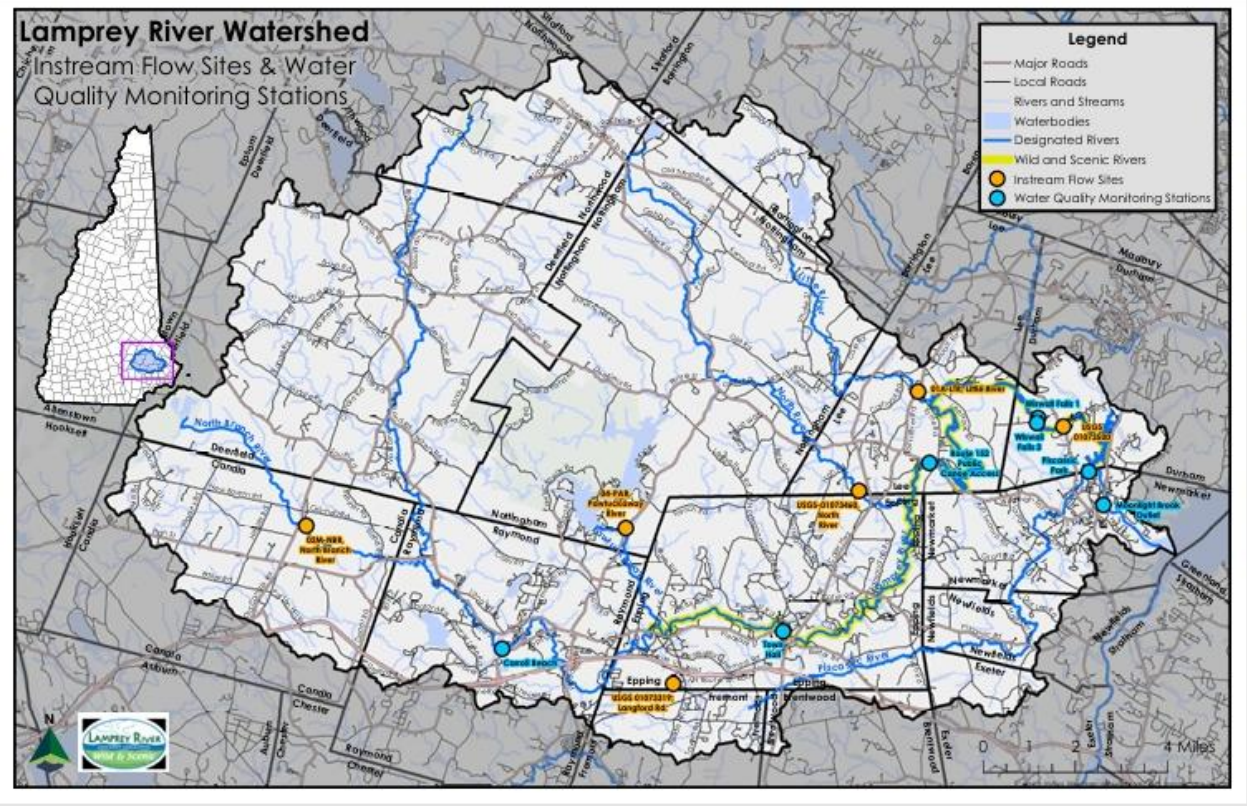
Wetlands



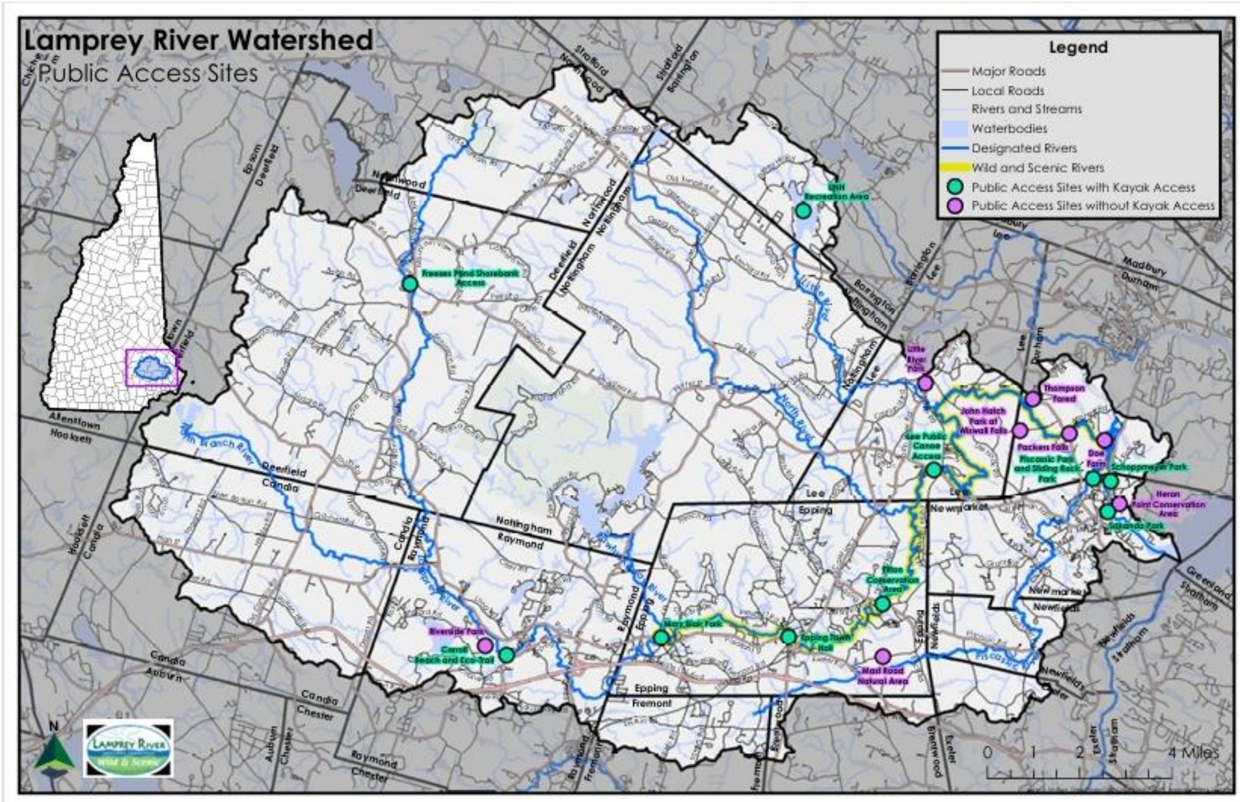
FEMA Flood Zones



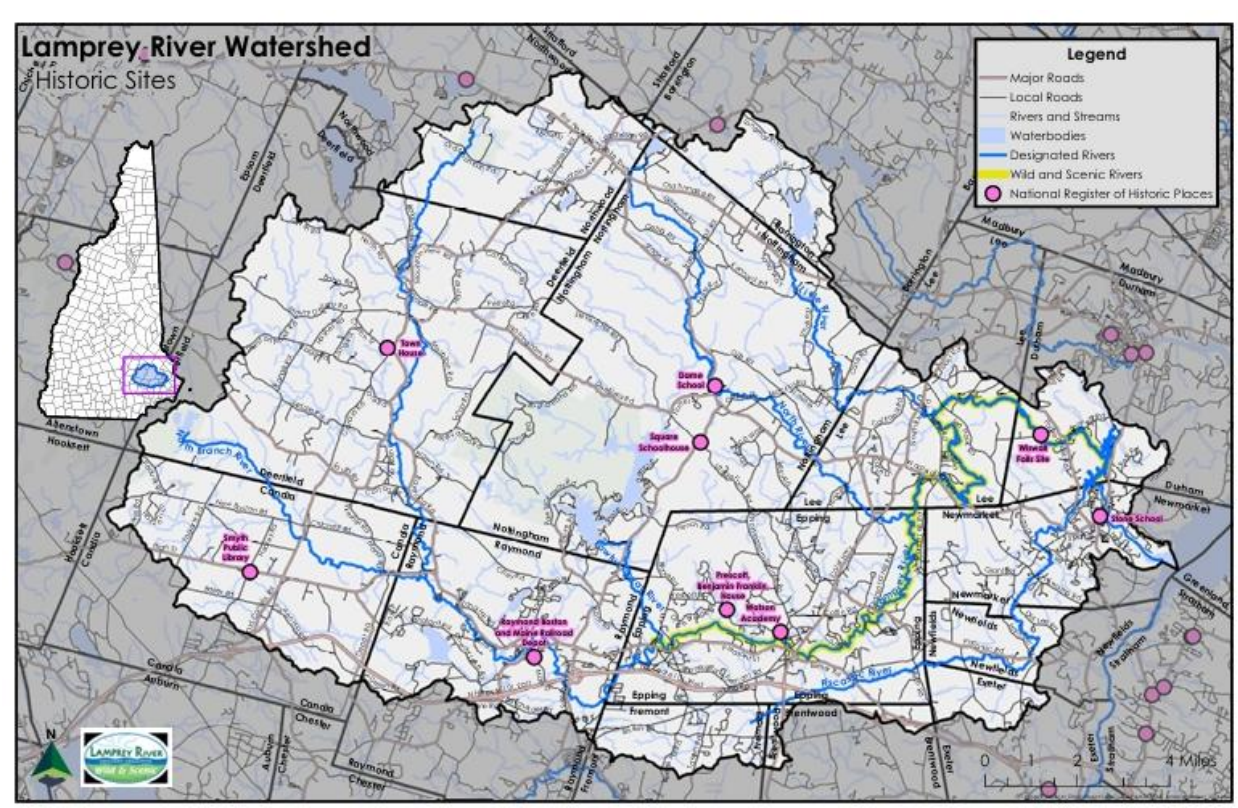
Conservation Lands and LRAC Projects



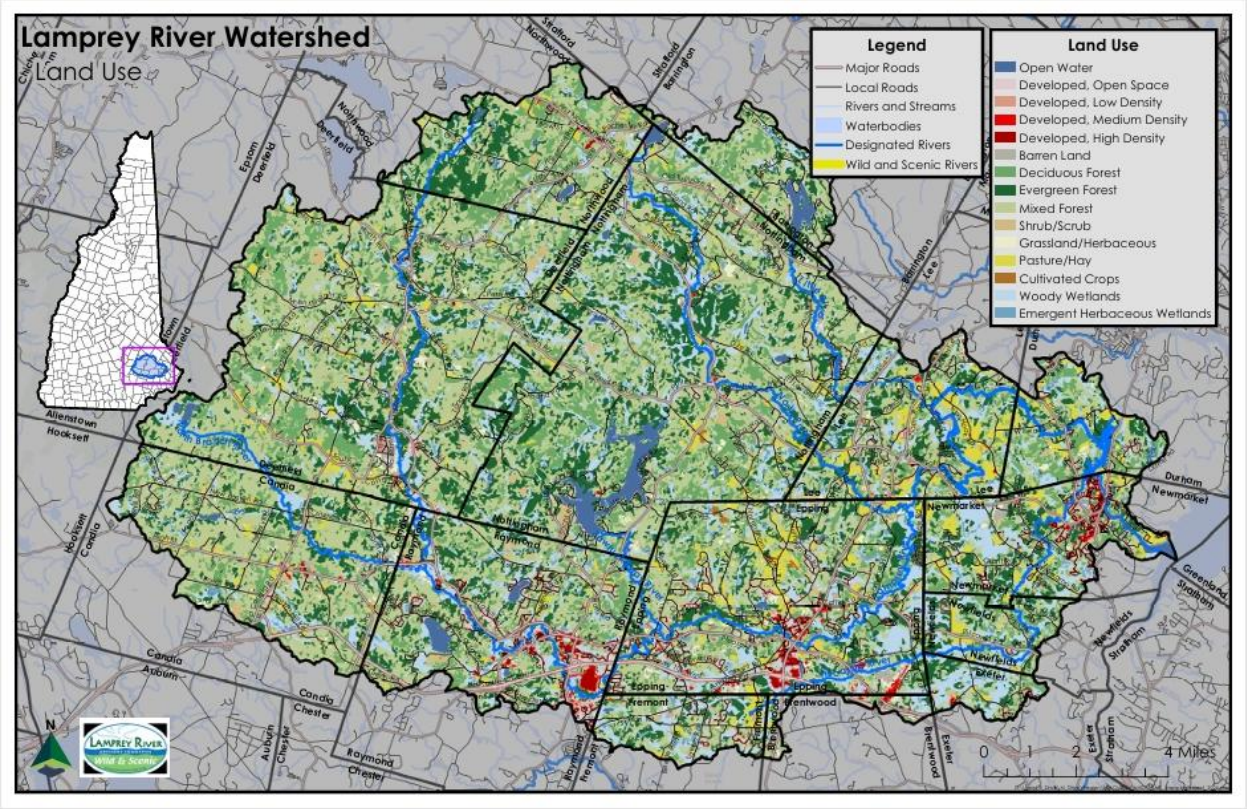
Instream Flow and Water Quality Monitoring Sites



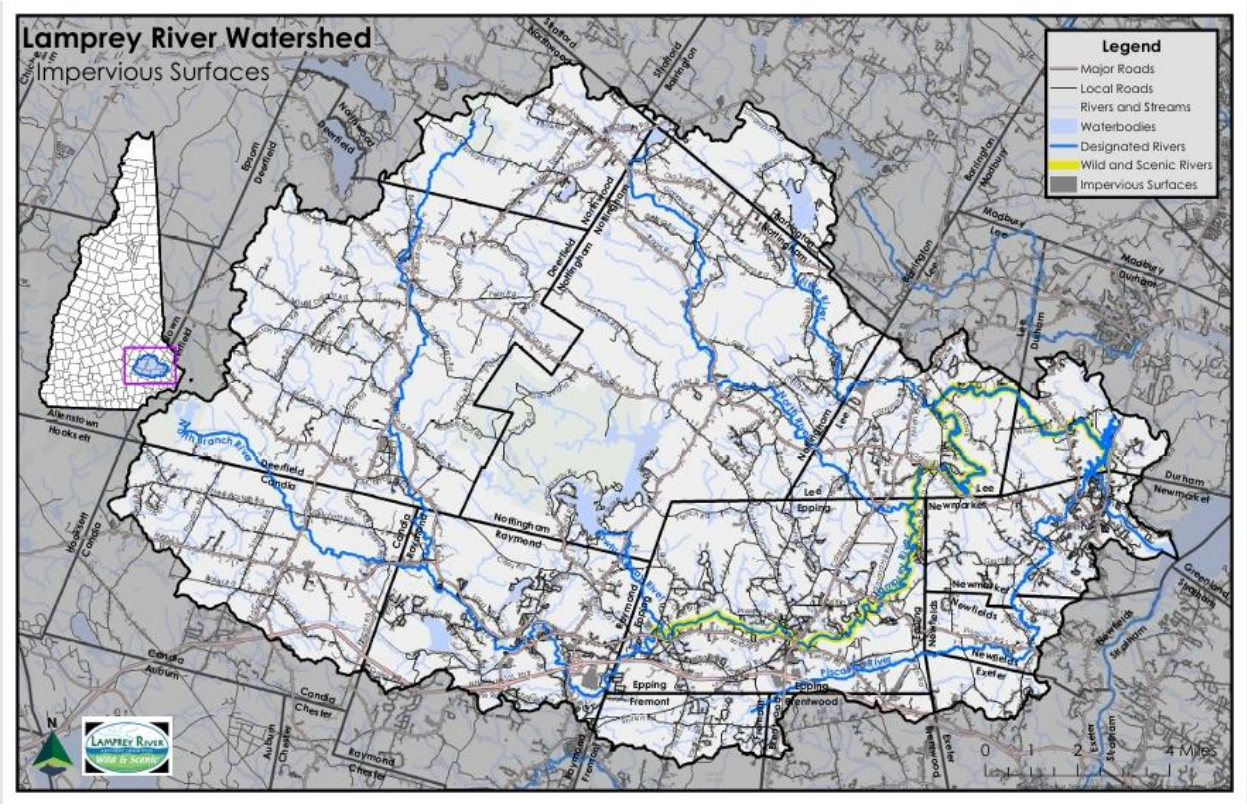
Public Access Sites



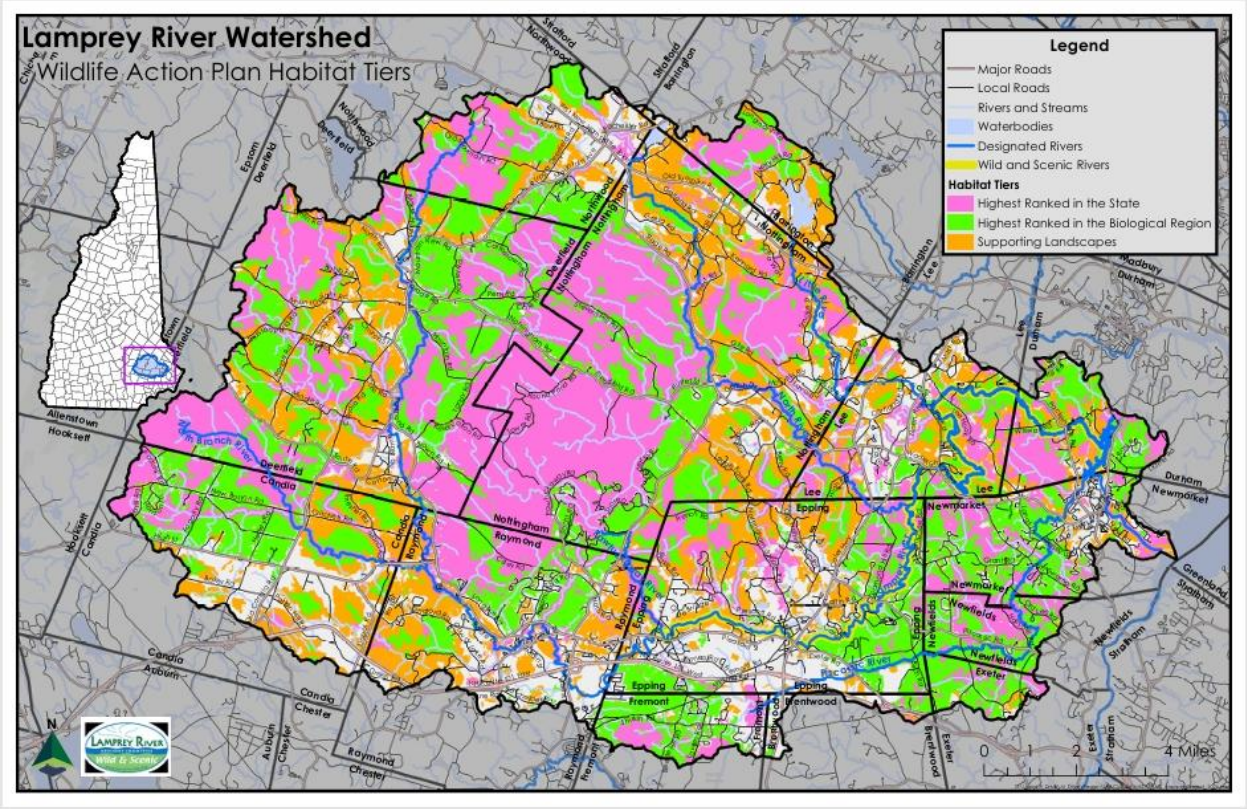
Historic Sites



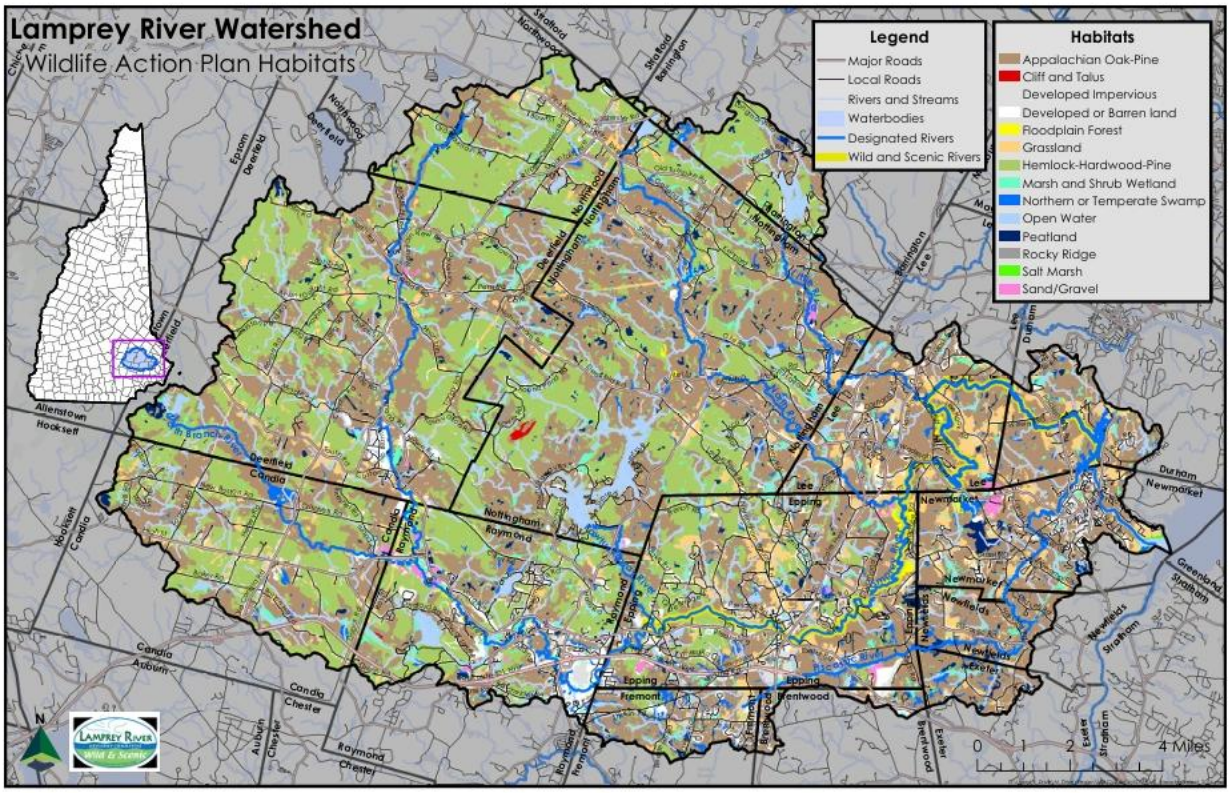
Land Use



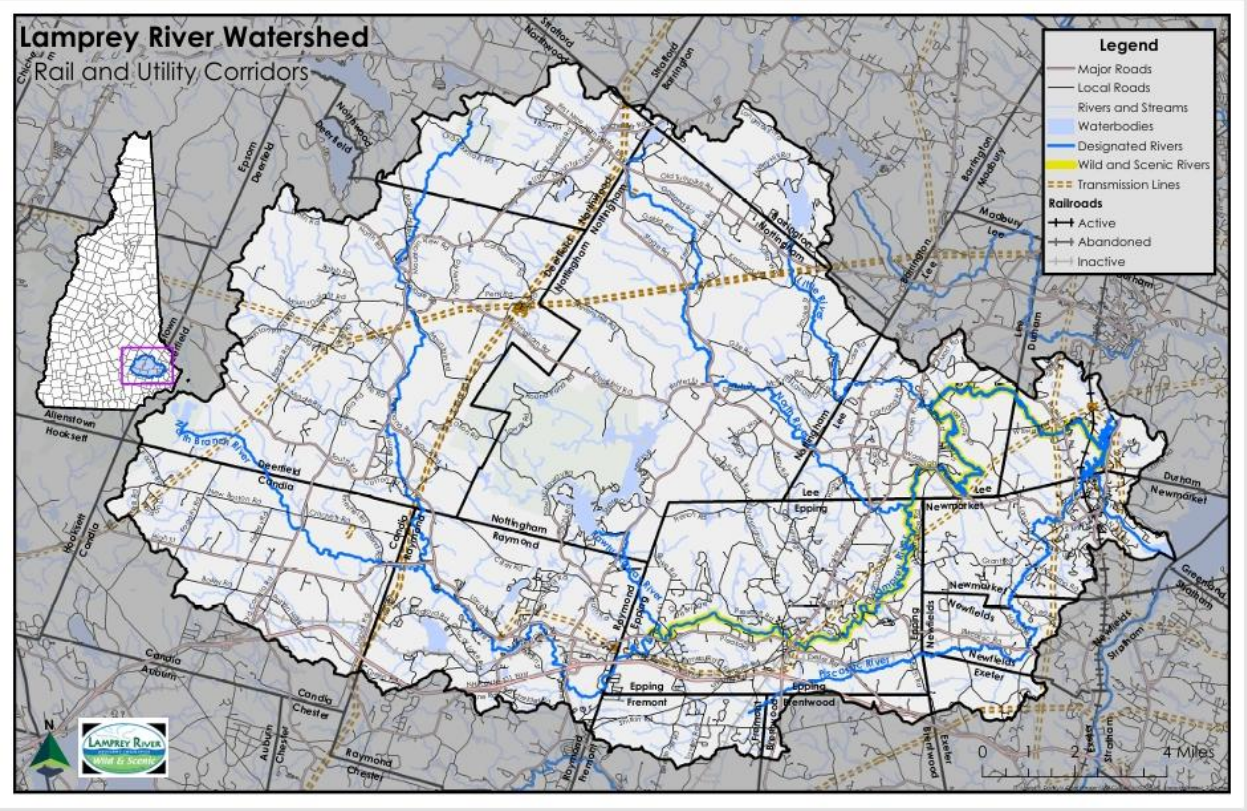
Impervious Surfaces



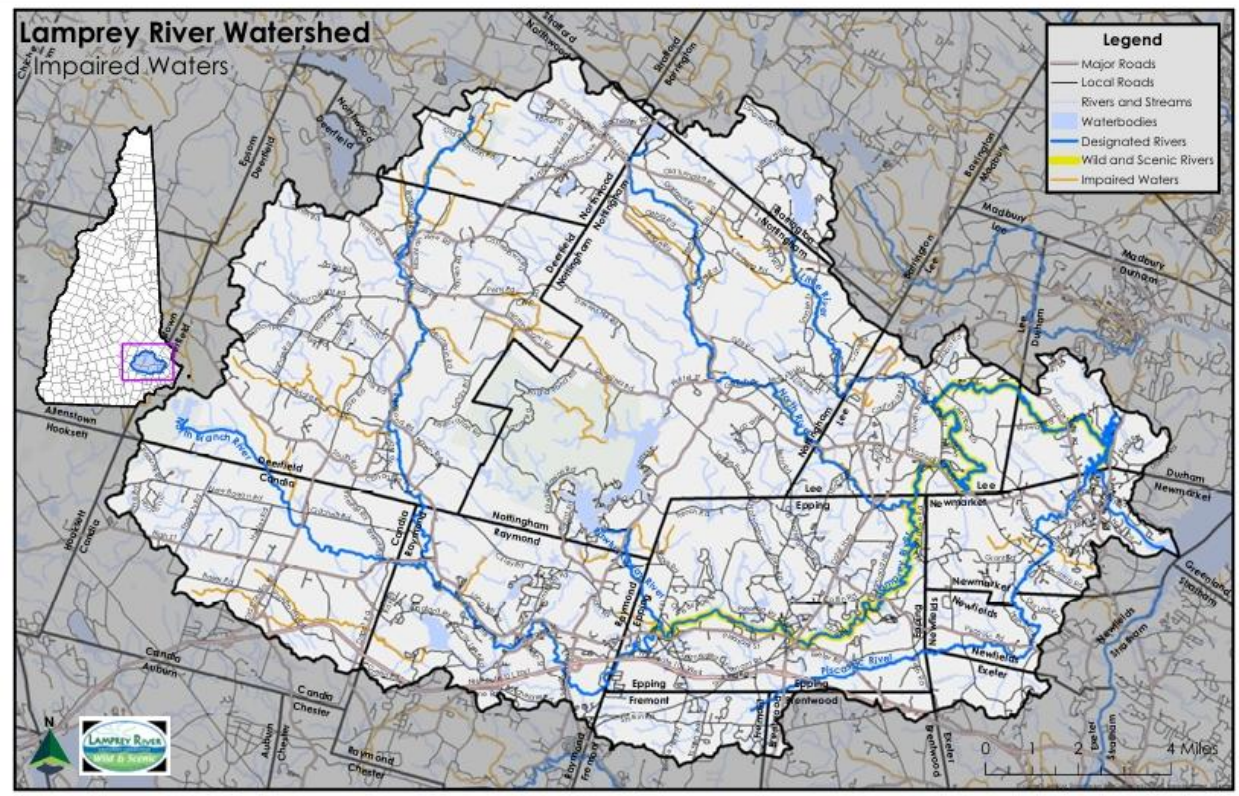
Wildlife Action Plan Habitat Tiers



Wildlife Action Plan Habitats

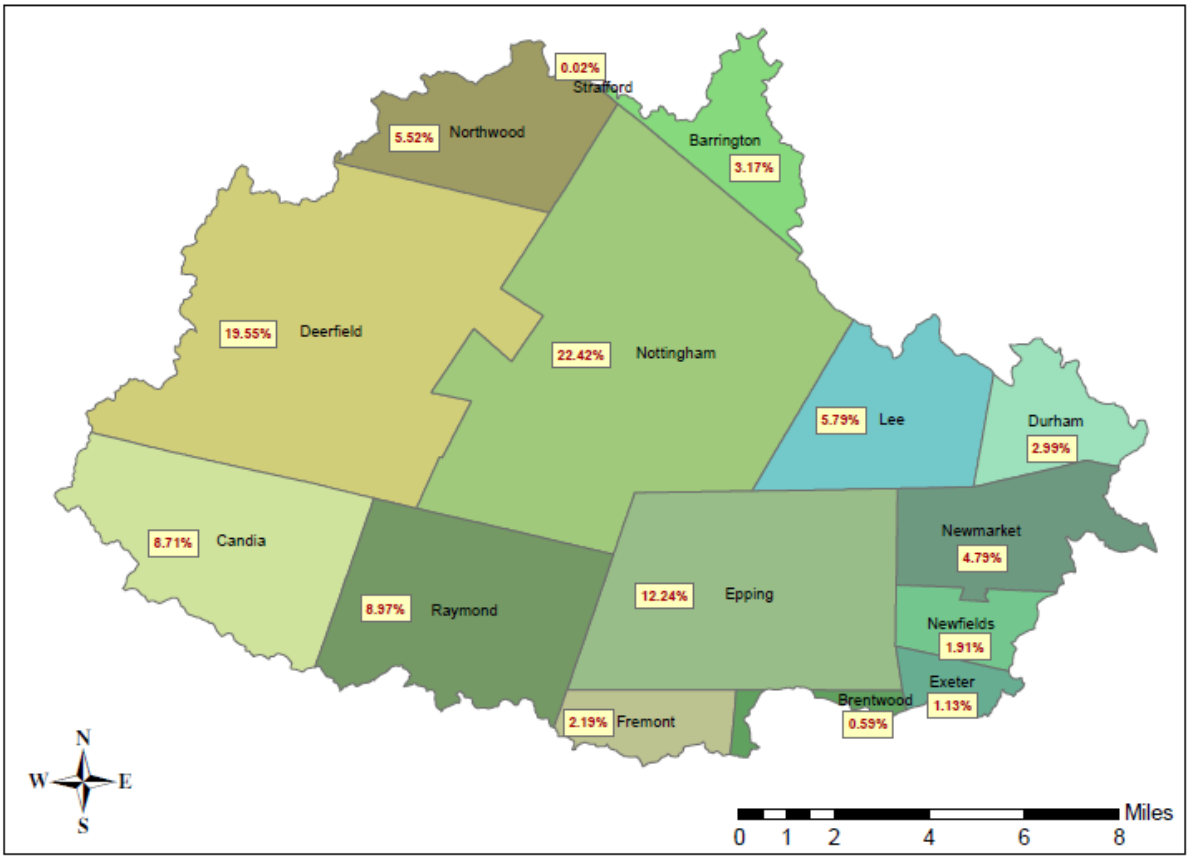


Rail and Utility Corridors



Impaired Waters

Percentage of the Lamprey River Watershed in Each Community



Appendix C: Past Accomplishments

Water Resources Accomplishments

- Provided financial support for volunteer water quality data collection through the NHDES Volunteer River Assessment Program, enabling uninterrupted data 1990 to present.
- Commissioned research to quantify and identify the source of bacterial contamination at recreational areas along the river. At two sites where significant contamination was found, funded additional research to help isolate the source(s).
    - guidance for minimizing recreational bacterial contact
    - bacterial tracking report 2024
    - bacterial tracking report 2023
    - bacterial tracking report 2022
    - bacterial tracking report 2021

- Worked with NHDES to fund and ensure that the mainstem Lamprey River and the five designated tributaries have stream flow gauges, 2022. Real time conditions can be found through the NHDES website: NH Instream Flow Map
- Funded graduate work to determine the effects of Japanese knotweed on riverside erosion, 2021-2022.
- Funded equipment upgrades at Wiswall Falls in Durham for use by UNH researchers, 2021
- Funded graduate student work to create a nutrient budget along segments of the Lamprey River, 2020.
- Funded the Raymond wetland inventory and recommendations for zoning changes to maximize protection of drinking water sources in Raymond, 2020.
- Funded several trend analyses to determine whether water quality is improving or worsening over time.
    - long-term heavy metals and phosphorus, 2019
    - long-term dissolved oxygen, pH, and nitrate, 2016
    - long-term specific conductance, *E.coli*, and turbidity, 2018
    - Lamprey River Water Quality report 1993-2016
- Participated in planning for the Spruce Hole Aquifer recharge project in Durham, which went into service in 2016. The project, the first of its kind in New Hampshire, involves moving raw water from the Lamprey River during periods of plentiful flow to the Spruce Hole Aquifer for later use by the Durham-UNH Water System during periods of low flow which often coincide with peak water demands during the fall semester at UNH.
- Funded supervised undergraduate work to determine the source of turbidity in Woodman Brook, 2015.
- Co-sponsored a road salt reduction workshop and commissioned *The Road Less Salted* DVD for public and private snow plow drivers, 2010.

- Sponsored septic system outreach, including a pilot on-site program for riverside landowners to understand and improve their septic systems.
- Created brochures to promote clean water and protect wildlife habitat along riverfront lands.
- Co-sponsored a series of workshops on maintaining vegetated buffers to protect the river.
- Held workshops to inform citizens about the connections between economics and ecological integrity.
- Co-sponsored "Your Water, Your Wallet, Your Watershed" workshop to encourage towns to work across municipal boundaries in addressing water issues.
- Reviewed proposed development projects within one quarter mile of the Lamprey River and its state-designated tributaries to assure that water will not be degraded during and after construction.

Wildlife and Ecology Accomplishments

- Offered annual "Herring Aid" events at the Macallen Dam fish ladder with NHFGD personnel to inform the public about river herring, sea lampreys, and American eels.
- Funded *Interweave©* public art participation project in Newmarket as a way of connecting participants with the river's wildlife and natural history through art. (2024).
- Commissioned a videographer to create two videos featuring David Carroll (turtle researcher, artist, and author) (2019).
- Provided funding to NHFGD to support the creation of nesting habitat for Blanding's turtles in Durham/Newmarket (2018).
- Provided seed money for the establishment of the Lamprey River Elementary School Eco-trail in Raymond (2016).
- Worked with high school students to study vernal pools and produced *Spring into Vernal Pools* DVD to educate the public about these special ecological habitats.
- Funded a Small Grant that led to the creation of a lending library of tools to eradicate invasive plants in the Great Bay Estuary drainage area (2010). The original tool inventory has been expanded and has been used on hundreds of restoration projects. The library is currently housed at the Southeast Land Trust headquarters in Epping.
- Worked with partners to test methods for managing invasive Japanese knotweed.
- Worked with NHFGD and the US Fish and Wildlife Service to advocate for fish passage at the Wiswall Dam in Durham. In 2011, a fish ladder was installed. That year, more than 30,000 river herring were able to travel past the dam and access breeding areas that had been unavailable to them for 200 or more years. The fish ladder continues to see high numbers of successful passage.

- Commissioned the following wildlife or ecological research:
    - Genetic characterization and local ecological prevalence of a novel pathogen affecting American toads (2024, 2025)
    - Erosion Modeling: Japanese Knotweed Areas Versus Natural (2021)
    - Wetland Mapping and Prioritization Project in Raymond (2020)

- Pilot Project for Detecting Invasive Eurasian Milfoil in Pawtuckaway Lake (2020)
- Land Conservation Co-occurrence Mapping in Barrington (2019)
- Acoustic Bat Survey (2018)
- Lamprey Watershed Stream Crossing Assessment (2017)
- Mussel Survey, targeted sites on Lamprey River (2015)
- Rothwell Reserve Bioinventory and Management Plan (2014)
- Dams of the Lower Lamprey: Highlighting Opportunities to Improve Fish Passage (2013)
- Floodplain Mapping and Bioinventory of Lamprey River Wetlands in the towns of Epping, Lee, Durham, and Newmarket (2011)
- Dragonfly and Damselfly Inventory (2011)
- Tributary Fish Survey (2010-2011)
- Mussel Survey, main stem Lamprey River (2010)

Recreation and Public Enjoyment Accomplishments

- Created the popular *Explore the Lamprey River* map and guide for passive, river-based recreational opportunities in the Wild and Scenic towns of Epping, Lee, Durham, and Newmarket 1996. Updated and reprinted 2020 and 2024.
- Purchased land near Wadleigh Falls in Lee, donated it to the Town of Lee, and installed a public canoe access and signage. With permission from the Town of Lee, secured construction permits and hired a contractor to address safety and erosion issues by adding a new granite step and water bars to direct stormwater to a vegetated area and improve ease of access (2024).
- Published Public Paddling Access along the Lamprey River (2020).
- Provided seed money for the establishment of the Lamprey River Elementary School Eco-trail in Raymond (2016).
- Provided the Town of Newmarket with funding to purchase and install kayak racks at three Lamprey River public access sites: Schanda Park, Piscassic/Sliding Rock Park, and Schoppmeyer Park. These racks hold town-owned kayaks that are available for use by the public through town recreational programs and individual rentals.
- Provided funding for improvements and/or kiosk signage at several town-owned parks along the main stem Lamprey River and tributaries:
    - Wiggin Farm in Newmarket (2025)
    - Old Lee Trail in Newmarket (2024)
    - Sliding Rock Conservation Area/Piscassic Park in Newmarket (2023)
    - Heron Point Park in Newmarket (2022)
    - Little River Park in Lee (2022)
    - Thompson Forest in Durham (2020)
    - Tilton Conservation Area in Epping (2020)

    - Lamprey River Elementary School Eco-trail in Raymond (2016), main kiosk panel plus 12 station panels
    - John Hatch Park at Wiswall Falls in Durham NRCS Fish Ladder Panel (2012), John Hatch memorial panel (2014)
    - Mary Blair Park in Epping (2009, 2012)
    - Schanda Park in Newmarket, 2011
- Partnered with the Lamprey River Watershed Association and Trout Unlimited to document canoe passage obstacles and hazards between Wadleigh Falls in Lee and the Route 87 crossing in Epping (2015-2016). Funded a pilot program to improve safe passage by removing and relocating several in-stream fallen tree hazards (2018). Canoe_Passage_Enhancement_summary_report_2018.pdf (lampreyriver.org)
- Funded the manufacture and installation of public canoe access signage on Route 152 Lee (2014) and on Route 87 in Epping (2018).
- Partnered with the Town of Newmarket to offer kayak race training (2018).
- Made a large contribution of funding and expertise for the creation of Schoppmeyer Memorial Park in Newmarket, 2016.
- Recruited partners to offer guided eco-paddles on the river (2017- 2019).
- Partnered with the Town of Newmarket to establish the Splash and Dash paddling event that includes a race out to Great Bay (2016-2018).
- Investigated and mapped a potential walking path along the Wild and Scenic section of the river (2015) Final Report and Full Footpath Map.
- Awarded a Small Grant toward the publication of *Big Trees of New Hampshire*, 2013, which includes a separate section for the *Lamprey River Big Tree Tour.* Two guided tours were offered to the public.
- Provided a Small Grant to the Town of Deerfield to develop the Deerfield Community Trail Plan (2011).

Community Engagement and Education Accomplishments

- Developed (1990) and updated (2012) The Lamprey River Curriculum for elementary, middle and high school students.
- Commissioned *The Story of Peter Little Bear, A Lamprey River Adventure*, a story that describes life along the Lamprey in the late 1600s through the eyes of a native boy (2004). (This book is no longer available due to historical omissions and inaccuracies.)
- Contracted a specialist to assist with education and outreach efforts.
- Produced several professional-quality videos and made them available to local libraries and town cable channels, the LRAC website, and You Tube:
    - River Story: The Lamprey River Through History
    - Mary Blair Park
    - Spring into Vernal Pools
    - Wiswall's Mills
    - Streamwalk

    - Connecting Lives on the Lamprey River
    - Interview with David Carroll
- Created, updated, and continue to maintain the LRAC website, www.lampreyriver.org. Website was most recently updated in 2021.
- Partnered with regional planning commissions, land trusts, and other organizations to provide documents and workshops promoting stewardship, land protection, sport fishing, and public enjoyment.
- Developed portable displays, brought them to local events and libraries, and used them as a platform for informing participants about LRAC and the resources of the rivers.
- Created a Community Grants Program that provides seed money for education and outreach projects that help implement management plan objectives.

2009	• development of database and soil conservation outreach to Lamprey River landowners in Strafford County • *Wiswall's Mill: A Short History* DVD • *The Lamprey River Tour: Mary Blair Park* and *Streamwalk* DVDs • documentation and mapping of historic mills along the Lamprey River
2010	• nitrogen pollution outreach in Durham and making rain barrels • creation of lending library of invasive weed removal tools housed at Great Bay Discovery Center • development of the Deerfield Community Trail network and map
2011	• pilot project for on-site septic system review and outreach for homeowners • revision and update of *The Lamprey River Curriculum* • fly-over filming and production of *Connecting Lives on the Lamprey River* DVD
2012	• enhanced database of dams along the lower Lamprey River with focus on improving fish passage • creation of natural playground plan for Mary Blair Park • creation of historic and nature trail system at Mary Blair Park
2013	• creation of "The Lamprey River Big Tree Tour" booklet and guided tour • outreach about local and global water issues and creation of a public participatory "Stream of Conscience "art installation • creation of "Reflections of a River" video to celebrate 30 years of volunteer service to protect the Lamprey
2014	• bioinventory and stewardship plan for the Rothwell Reserve in Lee
2015	• eradication of invasive weeds at Rothwell Reserve in Lee • documentation of process and findings for limited large woody material relocation • watershed-wide stream clean-up event • identifying stormwater improvement demonstration sites and potential barriers to implementation
2016	• stormwater demonstration project in Newmarket • first annual Lamprey River Splash & Dash kayak race in Newmarket
2017	• Blanding's turtle nesting area enhancements pilot project in Durham
2018	• trail and signage improvements at the Route 87 access in Epping • Hammock to 3K kayak race preparation and river education series

	• updating conservation action plan and co-occurrence map in Barrington
2019	• wetlands mapping and prioritization for protection in Raymond • Thompson Forest kiosk panel in Durham
2020	• Little River Trail enhancements and signage in Lee • equipment to track and control variable milfoil in Pawtuckaway Lake • nutrient budgets along the Lamprey River
2021	
2022	• Heron Point improvements and signage in Newmarket
2023	• Sliding Rock/Piscassic Park improvements and signage in Newmarket
2024	• Wadleigh Falls historic panels in Lee • Willey House Central Park river-based art in Newmarket • Old Lee Trail safety and signage improvements in Newmarket • Wiggin Farm trail improvements

- Beginning in 2014, worked with NH Fish and Game Department biologists to host the annual Herring Aid program at Macallen Dam in Newmarket.
- Developed and offered salt marsh ecology programs for adults.
- Wrote quarterly newsletters to share on website and with municipalities.
- Offered numerous programs for children at local libraries.
- Helped fourth grade teachers at Mast Way School in Lee to prepare students for Lamprey River science field trips.
- Partnered to offer public education programs about septic systems.
- Created a guided eco-paddle program with local science experts to help citizens see local science issues in action.
- Wrote *Chick and Dee-Dee's Lamprey River Adventure* (2016) to help children and their adults learn about the history and ecology along the Lamprey River. Free copies were provided to all local libraries and schools.
- Began work on a citizen participation "Stream Team" to help document problems along the rivers (2023).

History Accomplishments

- Partnered with the Lee Historical Society and local Indigenous representatives to create Indigenous and mill history kiosk near Wadleigh Falls (2025).
- Funded *Interweave ©* public art participation project in Newmarket as a way of connecting participants with the river's history through art. (2024).
- Produced *Explore the Lamprey River* map and guide (2008), including highlights of history in the lower four towns. Updated in 2020 and 2024.
- Commissioned the Phase I archaeological assessment of Sullivan's Falls mill site in Durham (2016).
- Published *Chick and Dee-Dee's Lamprey River Adventure* storybook highlighting historical sites along the river (2016).

- Offered participants opportunities to learn about local history and nature through outdoor recreational activities through “Hike it, Bike It, Like It” (2013-2014).
- Partnered to create four historic panels at the Wiswall Falls kiosk (2010-2012).
- Funded planning for the historic trail at Mary Blair Park featuring Folsom Mills in Epping, completed as part of a Small Grant (2012).
- Worked with the Newmarket Conservation Commission to create the Schanda Park kiosk panel (2011).
- Funded the re-use of salvaged foundation stone from the Wiswall Falls Bridge to provide historically compatible facings on the concrete abutments of the replacement bridge. (2010)
- Produced The Lamprey River Curriculum (1990), social studies and science for elementary school children, updated and expanded in 2011 to include middle and high school students.
- Funded a grant to produce Wiswall’s Mill: A Short History DVD (2010), documenting the history at Wiswall Falls in Durham.
- Commissioned *The Lamprey River Tour: Mary Blair Park* DVD (2009), documenting both the history and present at Epping’s Mary Blair Park.
- Funded a study of more than 100 dams and mill sites in the Lamprey River watershed area that were documented and mapped (2009).
- Created River Story: The History of the Lamprey River Through History (VHS 1997 and DVD 2009).
- Assisted with the history kiosk at Mary Blair Park in Epping (2008)
- Published *The Story of Peter Little Bear* (2005), based on local history in the late 1600s. This was an early attempt to be inclusive that was too reliant on local non-Indigenous sources. It helped us to reach out and work with present-day Indigenous historians and resources so as to include their presence in our narratives of Lamprey River history. The 2025 Wadleigh Falls history panels reflect that commitment.

Appendix D: Topics for Future Consideration

Since the Lamprey River was initially designated as a protected river in 1990 by the NHRMPP, several topics have been added that NHDES requires to be addressed in river management plans per RSA 483:10. Some of these topics affect most or all rivers, while others are not necessarily pertinent to all New Hampshire rivers.

Aquatic Connectivity:

Goal: Take advantage of culvert and bridge repairs to advocate for improved aquatic passage in our reviews of proposed projects.

Aquatic connectivity refers to the ability of fish to migrate freely up and down streams. Natural waterways usually lack rigid barriers and connectivity is high. When people develop the landscape, barriers become more common. Dams are obvious obstacles, but culverts can also become barriers, especially when they become "perched", meaning that the water exiting the downstream end of the pipe causes erosion and the pipe becomes suspended over the water, preventing fish from swimming upstream.

The greatest single obstacle to aquatic connectivity in the Lamprey River watershed is the breached dam at Wadleigh Falls in Lee. NH Fish and Game personnel have meticulously documented that alewives cannot pass the falls here. Despite multiple attempts to work with the landowner to soften the slope of the falls to enable fish passage, correction of the problem is unlikely in the near future.

The NH Fish and Game Department funded research in 2017 that assessed 169 stream crossings in the Lamprey River watershed. Lamprey Watershed Stream Crossing Assessment Summary Southeastern New Hampshire May 19, 2017. The overall goal of the project was to assess and prioritize crossings in the Lamprey River, including all coldwater stream tributaries with wild brook-trout populations.

The report and Maps of Hydraulic Rating Results by Town were shared with all towns in the watershed. Unfortunately, the results were largely ignored by municipal public works departments. We found that most towns had already identified at-risk crossings and had set their own agendas for prioritizing and addressing them. NHDES has recently worked with partner agencies to create the New Hampshire Stream Crossing Initiative mapper to help communities identify geomorphic compatibility and aquatic organism passage issues and opportunities. We hope that municipalities will find this new tool helpful. Correcting ineffective stream crossings is a big expense for communities. Public infrastructure often takes precedence over aquatic passage for fish, but if the two can be combined into one project, we might make progress.

Dams, Bridges, and Other Water Structures

Goal: Take advantage of project review to help protect natural flows, prevent habitat loss, protect habitat functions, and retain important historical features when dams, bridges, or other water structures are repaired, replaced, or removed.

The Lamprey River historically had over 100 mills and associated dams. Most of these mills have vanished, as well as active dams. No active dams in the Lamprey River watershed are used for hydroelectric power. Several are used to provide impoundments for recreation and water supply: Wiswall Dam in Durham, Macallen Dam in Newmarket, Mendum's Pond Dam in Barrington, Drown's Dam on Pawtuckaway Lake, Drown's Dike on Pawtuckaway Lake, Gove Dike on Pawtuckaway Lake, Dolloff Dam on Pawtuckaway Lake, and Meadow Lake Dam in Northwood.

The LRAC funded research in 2012 to assess dams on the lower Lamprey River, Data sheets. The report included condition and assessment of removal potential with associated benefits to aquatic passage.

We are aware of one bridge that has the potential to cause problems upstream and possibly downstream. As part of the study that considered options for the Macallen Dam in Newmarket (2013), engineers determined that the dam is not the cause of constriction in the lower Lamprey River; the cause is the Route 108 bridge that crosses the river just upstream of the dam. To date, we are unaware of any studies that indicate that the bridge is in need of repair or replacement.

Fluvial Geomorphology

Goal: Incorporate fluvial geomorphology when considering NHDES permit applications to protect natural river conditions and prevent problems with water quality, habitat, wildlife, and recreation whenever possible.

Fluvial geomorphology is the science of describing the processes that affect the formation and evolution of a river. The shape (morphology) of a stream's channel is influenced by interrelated variables including slope, width, depth, velocity, discharge, boundary roughness, sediment size and sediment load. A change in any variable, whether naturally occurring or altered by humans, leads to adjustments in other variables and stream morphology as a whole. Data derived from fluvial geomorphology studies help to reveal vulnerabilities in and along the river, such as potential of riverbank collapse, deposition of new sand bars, likelihood of river channel relocation during flood conditions, etc..

The New Hampshire Geologic Survey did an assessment of 63 miles of the Lamprey River watershed rivers in 2011. The research identified the following vulnerable areas to watch and address if and when funding allows:

- Mainstem Lamprey River:
    - Epping– Camp Lee Road: This location was documented in the field as having active channel migration and was directly downstream of a debris accumulation (debris jam) at the time the data were collected in 2010-2011. The Lamprey River has taken multiple flow paths over time in this area. Though a very small possibility, it is possible for any of the former flood chutes to be captured by the Lamprey River as a result of a high flow event.
    - Lee – Parallel to Tuttle Road: This location was documented in the field as experiencing active channel migration (meandering within a floodplain). An examination of LiDAR shows the multiple flow paths that the Lamprey River has taken through this area over time. The possibility, though small, exists that one of these flood chutes could be recaptured by the river during a high flow event.
    - Raymond – Eroding bluff adjacent to Riverview Manor Apartment complex at the right meander bend north of the McCusker Road: There is a high bluff directly adjacent to the Lamprey River on the outside of the left (facing downstream) meander bend adjacent to Routes 27/107 north of Raymond center. Atop the bluff is the Riverview Manor apartment complex. The bank, with its highly erodible sand face, is completely exposed to the forces of river water, which has been experiencing erosion. Erosion and sloughing of the material at the site might continue, and monitoring the situation is warranted.
- Little River:
    - Lee – Adjacent to Tuttle Road: Erosion was documented on the outside bend of the Little River directly adjacent to where Tuttle Road runs close to the outside meander bend. Given the road's position on the outside of the meander bend, monitoring might be appropriate.
    - Nottingham – Kennard Road Stream Crossing: This culvert, based on stream crossing assessments, has been scored as having poor aquatic organism passage and is mostly incompatible with geomorphic processes. This might be a candidate for a stream crossing replacement.
- North Branch River:
    - Candia- West of the Raymond town line and north of Route 27: The site has multiple features, based on the data, suggestive that the river might be susceptible to geomorphic activity. There were multiple locations of noted migration during the time of data collection. Multiple headcuts are present, suggesting that erosion of the channel bed in the upstream direction was occurring at the time of data collection. Erosion of material can be transported downstream and redeposited, potentially altering flow dynamics. Given the multiple points of migration noted, and the presence of infrastructure and development in relatively close proximity to the channel, this reach is identified as one to potentially consider for long-term observation.
- Piscassic River:
    - Newmarket- South of the Grant Road stream crossing on the outside of one of the meander bends: Erosion suggests the site might be considered for monitoring.

Protection of Meander Belts

Goal: Use project review to advocate against or minimize fluvial and habitat harm from altering floodplains and meander belts.

In close concert with fluvial geomorphology, meander belts show where rivers have historically flowed and where future changes are most likely. The Lamprey River is rich in floodplains. The tributaries have not been assessed to the degree that the main stem Lamprey River has. Several NHDES permit applications have come before the committee seeking to fill or alter floodplains. The new on-line LRAC mapper includes FEMA 100-year and 500-year flood zones, so we can scrutinize plans even when applicants do not include floodplains. Protection of these floodplains is a high priority for habitat protection, flood water storage, and preventing the loss of infrastructure and human lives. We have always argued against permitting activities in and near floodplains and will continue to do so.

Dredging, Filling, Mining, and Earth Moving

Goal: Using project review, make recommendations that minimize harm to water quality, wildlife, habitats, and historical resources from dredging, filling, and mining activities in and around the Lamprey River and its designated tributaries.

The Lamprey River includes 2 miles of tidal water and this area is the most likely location for dredging activities. The Town of Newmarket experienced a sewer main break under the Lamprey River in early 2024. The break was repaired, but subsequent assessment of the pipe showed that additional breaks can be expected. The town applied for federal financial assistance, but whether that assistance will be forthcoming any time soon is unknown. Given the industrial history of Newmarket harbor, it is reasonable to assume that the sediments might be heavily contaminated. We are unaware of any plans by Eversource to install underwater cables, as happened in the Oyster River a few years ago.

Most filling activities in the Lamprey River watershed have been limited to projects in wetlands and shoreland that surround the river. We are unaware of any plans to build new dams or expand existing dams. Expanding or building new dams in the National Wild and Scenic River section of the Lamprey River is forbidden by law. Dams upstream and downstream of this section might be subject to National Park Service review in addition to normal state and federal agency reviews.

To date, mining activities in the watershed have been limited to sand and gravel operations and there does not seem to be a plan to increase these activities. The mining of other materials seems unlikely at this time.

State-owned Lands Within the Corridor and Tributary Drainage Areas

Goal: When the State of New Hampshire seeks a permit to manage its properties or desires to relinquish control of its properties, the LRAC will consider values inherent in those parcels as part of project review or commenting on proposed disposition of those properties.

The Lamprey River Advisory Committee is unique in New Hampshire in that its jurisdiction covers not only the Lamprey River but five tributaries that are also designated under the NHRMPP. This gives the committee the ability to comment on many projects that are otherwise outside the jurisdictional area of other LACs. In practical terms, LACs cannot ask or tell the state how to manage its land, but when the state needs a permit from NHDES for these parcels, the project review process enables LACs to have input which NHDES must, by law, take into consideration.

When the state seeks to sell or otherwise relinquish control of state-owned lands in designated river corridors, LACs are asked to provide input. Since each site is unique and the reason for relinquishing control is unique, recommendations for each site must be customized.

NHDES hosts the RMAC/LMAC State Lands Mapper and provides a score for each parcel based on 10 aspects such as water access, habitat and size. This map is useful when considering permits or proposed disposition.