Wildlife and Ecology

Blanding's turtle rests by a vernal pool. Photo by Jon Bromley.

Background

The Lamprey River and its tributaries drain a land area, or watershed, of 212 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 shad, 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 ecosystem services 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 over-heating 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 NH Rivers Management and Protection Program designated the entire Lamprey River and its five major tributaries into the State's program, citing many of the same values. The ecological integrity of the river corridor is being challenged by several issues: the human population increased 15% from 1990 to 2000 and more than tripled from 1960 to 2000 (http://100yearfloods.org); the landscape is rapidly being developed resulting in fragmented and lost habitat; invasive, non-native species are becoming more common; fish passage is obstructed by dams and numerous culverts; demand for public water is high; and stormwater runoff is carrying sediments and nutrients into the rivers.

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.

Accomplishments

- Sponsored research on turtles, mussels, birds, plant and plant communities, floodplains, and dragonflies along the main-stem Lamprey River. Co-sponsored research on fish that rely on the main-stem and the tributaries. This body of research has been used to guide land protection and instream flow management priorities.
- Worked with NH Fish and Game 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 and 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.
- Worked with the Outreach Subcommittee to sponsor a Small Grant to research other opportunities at dams that might lead to improved fish passage along the lower Lamprey River.
- Worked with partners to test methods for managing invasive Japanese knotweed.
- Worked with the Outreach Subcommittee to fund 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. As of 2013, the tools have been used

on 65 restoration projects. The library is housed at the Great Bay Discovery Center in Greenland, NH.
- 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.

Key Future Actions

- Encourage sustained ecological integrity in the watershed.
    - Pick a few key indicator species to monitor over time.
    - 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 Wildlife Action Plan and the NH Climate Action Plan 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 and beaver dams.
    - Map stormwater outfalls to prioritize retrofit projects to ensure that the worst offending systems are dealt with first. Initially focus on mapping outfalls in towns that have seen a significant increase in impervious surfaces.
    - Conduct a comprehensive stream crossing survey to identify barriers to aquatic organisms and prioritize stream crossing replacement projects.
- 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.
    - Continue to grow the vernal pool program.
    - Continue to arrange opportunities for family dragonfly hunts.
    - 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.