



Teaching the Unit

Unit 14: Preserving New Hampshire

Unit Summary

This unit explores how New Hampshire dealt with the environmental challenges brought about by industrialization and the rise of tourism. For nearly 150 years, the Granite State has been a national leader in the conservation movement, prompted, in part, by the state's early role in the development of mills and factories, which generated substantial amounts of pollution. Tourism also impacted the state's natural spaces as amenities such as roads, railroads, hotels, restaurants, and tourist attractions infringed on the environment, even as tourists arrived in the thousands to bask in New Hampshire's scenic beauty. In response, wealthy summer residents, artists, hotel owners, and manufacturers joined in an uneasy alliance to protect the environment, while Granite Staters banded together in grassroots efforts to prevent damage to the state's forests and waterways. Whether saving Franconia Notch from Northern Pass or from early-20th-century timber companies, the people of New Hampshire have always valued the natural landscape for both its economic and aesthetic value.

Full Educator Overview

The Big Picture

As you think about the development of conservation movements in New Hampshire, keep in mind the following ideas:

- Industrialization had negative consequences for New Hampshire's natural environment, especially the pollution of waterways and the loss of its forests. As a result, the conservation movement focused on two main interconnected points of concern—woodlands, particularly in the White Mountains, and the state's lakes and rivers.
- Although efforts at preserving New Hampshire's natural landscape encompass the entire state, particular attention has always been paid to the White Mountains region, which has been recognized as exceptional and unique for its natural beauty since the 18th century.
- Preservation in New Hampshire during the first few decades of the 20th century was influenced by the broader Progressive-era conservation movement, which was itself part of the larger Progressive reform movement. Although Progressive conservation initially focused on protecting Western land from exploitation, the movement expanded eastward as well and began to address forest management throughout the United States. In New Hampshire, the movement reflected local concerns and interests as well as national ideas and strategies.

Introduction

The turn of the 20th century was a time of rapid, disorienting growth in the United States, which included substantial economic expansion, a massive increase in population fueled by the Great Wave of immigration, and the rise of cities. Economic power in America became concentrated in the hands of a few big businesses and banks, while municipal politics were dominated by a few powerful, usually corrupt, politicians. The Progressive reform movement arose as a response to this sense of upheaval and the inequalities that went along with it. Progressivism was a very broad and loosely defined movement, addressing problems in many areas of American life, such as education,



public health, politics, and the environment. In general, Progressives were united in believing that government action was necessary to solve these problems, and that professionally trained experts, such as scientists, social scientists, doctors, and teachers, were the best people to propose solutions to society's ills.

One of the problems that Progressives sought to solve was the reckless exploitation of the country's natural resources during the Industrial Revolution. Factories all over the country consumed forests, interfered with waterways, blasted into mountains, and generally reshaped the natural environment while extracting as many resources as possible from it with little concern for long-term sustainability. The country's vast natural resources became the raw materials for ever-expanding industries.

Championed by President Theodore Roosevelt, the Progressive-era conservation movement initially focused on the American West and the creation of national parks to preserve millions of acres of western lands and regulate scarce water resources. As the movement shifted eastward, it focused more on forest preservation and management. Two groups of reformers with different motivations worked toward this goal—those who wanted to preserve natural beauty for its own sake and to provide a respite for city-dwellers, and those who believed that the scientific management of the country's forests would preserve the nation's commercial advantage and ensure its continued progress. Conflict often arose between these two groups, since the former had a romantic and spiritual view of nature, and the latter wanted to steward resources so that, to put it simply, the country did not run out of timber and bring the economy to a grinding halt.

Industrialization and Deforestation

Why did New Hampshire face environmental challenges in the late 19th and early 20th centuries?

By the early 1900s, New Hampshire, and specifically the White Mountains, became a focus point of the forest preservation movement. The once heavily forested area had been decimated by logging and forest fires. By 1907, over 12% of the White Mountains was completely barren, and ugly bare patches marred the scenic vistas that made the region famous. Hotel owners, summer tourists, outdoor sports enthusiasts, and local residents whose livelihood depended on the beauty of the White Mountains joined together in a grassroots movement to reverse the aesthetic, ecological, and economic damage done to the forests.

During the period after the Civil War, the White Mountains and the Great North Woods saw unprecedented development due to the expansion of the logging industry and growth of tourism. Timber harvesting was one of the earliest industries in New Hampshire (see Unit 3: Settling New Hampshire), but it was limited to areas near rivers and streams until the mid-19th century, when railroads penetrated the White Mountains. Railroads dramatically expanded the reach of logging companies. Instead of a long and dangerous journey downriver, railroads quickly and easily transported the harvested timber to sawmills, where it was processed into lumber and pulp used to manufacture paper, bobbins for textile mills, and shoe pegs, not to mention construction of houses and factories in the rapidly growing economy. At the same time, tourists were flocking to New Hampshire's mountains each summer, bringing in millions of dollars in revenue (see Unit 13: Tourism in New Hampshire).

In 1867, the state of New Hampshire approved the sale of 172,000 acres of state-owned forestlands in the White Mountains to local landowners and speculators. The profits—which



ultimately totaled \$25,000 in gross sales—were supposed to benefit public education. (Mount Washington, for example, sold for \$500. Eventually, in 1964, it became a state park.) Logging companies bought up much of these lands and cleared them. By 1890, more than 800 lumber mills were operating in New Hampshire, mostly in the White Mountains. This period of rapid deforestation destroyed hiking trails and eroded the mountainsides, disappointing tourists who expected to find pristine wilderness.

The most dramatic consequence of deforestation was the heightened risk of forest fires. As logging became easier, faster, and cheaper, loggers shifted from selective cutting to clearcutting, harvesting all of the timber from a lot, no matter how small or young the trees were. They left behind haphazard piles of branches and leaves, called “slash.” These piles of slash dried out into highly flammable kindling that could be easily ignited by a carelessly discarded match, lightning, or a spark from logging equipment or railroad locomotives.

Not coincidentally, forest fires were endemic in New Hampshire during the same period that logging peaked, between 1875 and 1915. Tens of thousands of acres burned during these decades. The worst year was 1903, when more than 10% of the forestlands in the White Mountains were destroyed in a series of more than 500 forest fires throughout the region. Observers noted that laundry hanging on lines in Manchester turned gray with ash when the White Mountains were burning. The fires came closer and closer to the grand resort hotels, alarming hotel owners and summer visitors alike.

By the 1890s, the conservation movement had gained momentum in New Hampshire. In 1893, J. H. Ward, a well-known minister and author who was a summer resident of the White Mountains, wrote an article in the *Atlantic Monthly* titled, “The White Mountain Forests in Peril.” Ward decried the destruction of the forests and argued that it was in the public interest to preserve them by making them public property. That same year, the *White Mountain Echo* reported that logging operations had begun encroaching on lands visible to tourists, reminding readers that people visited the White Mountains to experience stunning vistas and the solitude of nature, not encounter sawmills, workers’ shanties, or piles of slash. Also in 1893, the state legislature created the State Forestry Commission, forerunner of the current Division of Parks and Recreation, to promote the forests as multiple-use areas for both commercial and recreational purposes.

Forest preservation supporters gained allies from government and industry at the turn of the 20th century. New Hampshire’s business and political leaders began to fear that the state would lose out on the \$10 million in revenue that visitors to the White Mountains brought in each year. Factory owners in the southern part of the Merrimack Valley, including the powerful Amoskeag Manufacturing Company, complained about heavy logging at the headwaters of the Merrimack. The factories needed a steady water flow to maintain production, and deforestation caused erosion that filled the rivers with silt and produced unpredictable water levels. The Merrimack River had begun to flood in the spring and dry up in the summer, threatening industrial output. In fact, flooding in Manchester’s millyard in the spring of 1896 forced Amoskeag to shut down operations for two months.

In 1901, a citizens’ advocacy group organized by outgoing Governor Frank Rollins formed the Society for the Protection of New Hampshire Forests (SPNHF). The group included legislators, businessmen, newspaper editors, and women reformers. The SPNHF’s mission and tactics were influenced by the broader national Progressive conservation movement. It worked toward the establishment of public forests by advocating for federal and state legislation. It also educated the



public about forestry issues through lectures and school programs. The SPNHF argued for protecting the White Mountains as a unique national resource, not just a New Hampshire treasure. It promoted scientific forestry practices as well as the scenic and historic value of the White Mountains forests. Through the first two decades of the 20th century, the SPNHF coordinated the donation and purchase of land in the White Mountains. It not only persuaded the state government to buy Crawford Notch and make it a state park but also to appoint a state forester and pass forest fire prevention laws.

The SPNHF and its allies in the forest conservation movement hoped to create publicly owned forests that would be managed for multiple uses, including sustainable timber harvesting, protecting the tourist industry, and reducing fires, floods, and irregular stream flow. But New Hampshire had too small of a population and tax base to protect the White Mountains on its own. The state government simply could not afford to purchase enough land.

By this time, the federal government had already created millions of acres of national forests in the American West. Forest preservationists looked to the U.S. Forest Service to protect eastern forestlands as well. The crucial difference, though, was that the western land had been in the public domain, while forestland in the east was owned by private individuals or corporations. Many politicians believed that purchasing private property to create nationally protected places would be unconstitutional. No clause in the Constitution explicitly granted the federal government the authority to buy privately owned land.

The White Mountain National Forest

How were the forests of the White Mountains preserved?

The SPNHF lobbied the U.S. Congress intensively for a federal law to protect not just the White Mountains but all forests east of the Mississippi River. It was joined by business leaders from the tourism and textile industries, the Appalachian Mountain Club, and a variety of women's clubs, forestry organizations, and civic groups from across the nation. Their efforts saw success when Massachusetts Representative John Wingate Weeks joined the fight. A native of Lancaster, New Hampshire, who summered each year at the family home, Weeks proposed a bill that passed constitutional muster. The Weeks Act allowed the federal government to purchase private land to protect the headwaters of rivers in the eastern United States. This rationale fell squarely within the federal government's authority over interstate commerce, as guaranteed by Article 1 of the U.S. Constitution. The federal government has the right to act to protect the flow of rivers and streams carrying interstate trade or providing water power to businesses engaged in interstate trade. In 1911, the Weeks Act was signed into law, affirming the importance of federal stewardship of the nation's forests.

The Weeks Act represented an important shift in the conservation movement's focus from publicly held lands in the west to privately owned lands in the east. It is one of the most important pieces of legislation in conservation history, resulting in the creation of a robust network of millions of acres of eastern national forests, including the White Mountain National Forest.

In 1914, the federal government purchased a tract of land near Mount Moosilauke from a private landowner, the first piece of land owned by the federal government in the state of New Hampshire. Within four years, enough acreage was added to this initial purchase to officially establish the White Mountain National Forest (WMNF), the first national forest in the northeast. The WMNF is one



of the most successful forest reclamation projects in the country. The White Mountains look very different today than they did at the turn of the 20th century, when thousands of acres were denuded, hillsides eroded, and streams blackened by silt and ash. Thanks to federal protection, 100 years later, several million visitors come to the “people’s forest” each year for recreation and renewal. It is an important economic engine for the state and a source of pride for all Granite Staters.

Saving Franconia Notch

How did public efforts save Franconia Notch?

The creation of the WMNF was a success story, but New Hampshire’s forest preservation community could not rest on their laurels. Franconia Notch, home to two of the most iconic landmarks in the state—the Flume Gorge and the Old Man of the Mountain—was in danger. In response, the SPNHF and the New Hampshire Federation of Women’s Clubs coordinated one of the largest and most successful grassroots preservation projects of the early 20th century.

In 1923, the famed grand resort hotel called the Profile House burned down, and its owners decided not to rebuild. Their landholdings in Franconia Notch totaled 6,000 acres, including the Old Man, the Flume, and Profile Lake (the source of the Pemigewasset River). The landowners wanted the state to preserve the land as a state park but needed to be compensated for its value. Otherwise, it would be sold to timber companies.

The state legislature agreed to pay half of the \$400,000 purchase price, and another \$100,000 was raised by a private donation. The remaining \$100,000 of required funds was raised through a combination of efforts, mostly a partnership between the SPNHF and the New Hampshire Federation of Women’s Clubs (NHFWC), which had chapters in towns all across the state. The SPNHF focused on public relations and marketing, while the NHFWC concentrated on raising the funds.

The media campaign used the Old Man of the Mountain as its centerpiece, declaring that “the Old Man of the Mountain belongs to the nation.” The effort drew national attention, with articles appearing in publications like the *New York Times Magazine*, *Nature*, and *Field and Stream*. One of the most compelling images of the media campaign showed the Old Man as he would look surrounded by bare land, driving home the idea that the region’s natural beauty was in jeopardy.

A crucial component of the NHFWC’s fundraising drive was the “Buy a Tree for a Dollar” campaign. Preservationists estimated that there were 100,000 trees in Franconia Notch and “sold” them for \$1 each. Donors received a certificate of purchase and could mark “their” trees, provided they didn’t cause any lasting damage to them.

The state’s schoolchildren were another important source of support for the Franconia Notch campaign. The SPNHF persuaded New Hampshire’s superintendent of schools to declare January 28, 1928, “Franconia Notch Day.” Students across the state were encouraged to spend the day studying the natural features, history, legends, and literature of Franconia Notch. They sang songs about the Old Man of the Mountain, studied Nathaniel Hawthorne’s story “The Great Stone Face,” and read 19th-century guidebooks to the White Mountains. New Hampshire’s schoolchildren were inspired to contribute approximately \$1,000 to the final total, sending in their own pennies and nickels and collecting donations from the public. The children’s enthusiastic participation



highlighted the argument made by conservationists that the unique beauty and history of the Notch should be preserved for future generations.

The fundraising goal was met, and Franconia Notch State Park was dedicated in September 1928. Grassroots efforts had saved the Old Man and the Flume. Like the creation of the WMNF, the Franconia Notch campaign reflected the national importance of the White Mountains. The nation had experienced big changes from rapid industrialization, urbanization, economic instability, and a world war. For many Americans, the White Mountains symbolized the importance of nature as a refuge from the chaos. This belief animated the forest preservation movement for the remainder of the 20th century. Rather than focusing on protecting timber resources for the nation's economic advantage, conservationists focused on the physical and spiritual benefits of access to outdoor recreation and natural beauty.

Protecting New Hampshire's Waterways

What environmental challenges threatened New Hampshire's waterways?

Industrialization not only threatened New Hampshire's forests, it damaged its waterways as well. In fact, the two are intimately connected. Within the White Mountains are the headwaters of five major rivers carrying water throughout New England: the Connecticut, the Androscoggin, the Merrimack, the Kennebec, and the Saco. The health of the rivers and of the forests and surrounding ecosystems are intertwined. An important part of forest management, in fact, includes maintaining the health of waterways. Starting in the 1870s, for example, Manchester Water Works began purchasing land along the Merrimack River and planting trees to maintain healthy forests. The trees filtered the rainwater that ran into the river, which provided drinking water for Manchester residents.

The Industrial Revolution came early to New England, in large part because its rivers provided a source of power for factories. But the growth of new industries damaged the region's waterways, particularly the Merrimack River, where the earliest textile mills were located. The mills depended on the river for water power to run their machinery. Beginning in the 1820s, the mill owners constructed dams and canals to manipulate the water levels of the river to ensure a steady supply of power.

At the same time, for more than a century the mills dumped the byproducts of textile production into the river, such as cotton fibers, bleach, dye, oils from the machinery, detergents, and chemicals. Further upriver, sawmills used by the logging companies expelled sawdust, wood chips and shavings, sanding dust, and wastewater into the river. Clearcutting by timber companies led to erosion that filled the rivers with silt, a problem worsened by forest fires. Later, paper processing plants contaminated the Merrimack and Androscoggin Rivers with chemicals such as chlorine. As early as 1839, author Henry David Thoreau wrote about the pollution of the lower Merrimack. A century later the river bottom was covered in sludge, the water was unsafe for drinking, swimming, or boating, and its shellfish beds had been closed.

Human waste was an issue, too. By the 1890s, larger cities began constructing sewer systems, which often dumped untreated domestic waste into nearby bodies of water. Communities downstream which got their drinking water from the same waterways suffered from typhoid and other waterborne diseases. As late as the 1960s, Merrimack River fishermen sometimes found themselves standing in water coated with a reddish scum—raw organic waste from upriver toilets.



The Rivers and Harbors Act, passed by the U.S. government in 1899, prohibited dumping solid waste in waterways to keep navigation clear, but water pollution was left largely unchecked until the mid-20th century. In the 1950s and 1960s, Granite Staters began to think differently about the Merrimack and other rivers. Urban renewal led to a new focus on the recreational and aesthetic benefits of waterways. As industry declined in New Hampshire, business and political leaders realized that tourism would play an even more important role in the state's economy, and part of that tourism involved fishing, swimming, and boating. This shift in thinking occurred within the context of the global environmental movement of the mid-20th century, kicked off by the publication of Rachel Carson's landmark study of the influence of pesticides on the environment, *Silent Spring*, in 1962.

Environmental laws and regulations, such as the 1972 Clean Water Act, have resulted in great improvement in water quality in New Hampshire and throughout the United States during the 21st century. Yet according to the nonprofit group American Rivers, the Merrimack River is unfortunately at risk once again, both from the loss of farmland and forests and the increased levels of storm water runoff and pollution caused by climate change and increases in population. Road salt, petroleum products, chemicals from manufacturing sites, fertilizer and animal waste from farms, and myriad other toxins run into not just the Merrimack but all of New Hampshire's rivers. This pollution threatens the delicate ecosystem in the rivers and the drinking water supply for hundreds of thousands of New Hampshire residents. In addition, while waterways no longer power textile mill machinery, rivers are now an important source of power for electric grids in New Hampshire and Massachusetts, which depend on maintaining a consistent water level.

Grassroots Activism

How has grassroots activism shaped the modern environmental movement in New Hampshire?

In the decades after World War II, New Hampshire experienced another period of growth that taxed the state's natural resources and infringed on the environment. The population doubled between 1950 and 1985, and the number of vacation homes doubled between 1960 and 1990. As they had earlier in the century, Granite Staters joined together to protect New Hampshire's environment.

Olympic Refineries on the Seacoast. In 1973, Greek shipping magnate Aristotle Onassis announced that his company, Olympic Refineries, planned to build the nation's largest oil refinery on the shore of Great Bay at Durham Point. Supertankers, each as large as two or three islands in the Isles of Shoals, would transport crude oil from Saudi Arabia to a deep-water terminal off the coast, where it would be funneled through underwater pipelines to the onshore refinery to be processed into products like gasoline, diesel fuel, and heating oil.

With the country in the midst of an economic recession, the project brought the prospect of new jobs, lower taxes, and cheap and plentiful oil and gasoline. It also had the strong support of Governor Meldrim Thomson and William Loeb, the influential publisher of the only statewide newspaper, the *Manchester Union Leader*. Despite these seeming advantages, opposition to the plan sprang up almost immediately, which coincided with an emerging national interest in environmental issues. The first Earth Day celebration, for example, was held in California in 1970 and quickly spread to other parts of the country. In New Hampshire, a grassroots organization called Save Our Shores produced research on the refinery project that challenged many of the



claims of economic benefits made by Onassis's company, publishing them in a local weekly newspaper called *Publick Occurrences*. In addition, Save Our Shores highlighted the disastrous environmental and economic consequences that a potential oil spill would wreak on the Atlantic coast from Portland to Cape Cod.

At the Durham town meeting in March 1974, residents effectively killed the project. They were backed by a new state law, passed the day after the town meeting, that required local communities to approve the construction of oil refineries within their borders.

Opposition to the refinery project was led by three women from Durham—Nancy Sandberg, who organized and led Save Our Shores; Dudley Dudley, a state representative from Durham who proposed the new state law; and Phyllis Bennett, the publisher of *Publick Occurrences*. Their efforts saved the last remaining undeveloped area on Great Bay, along with the scenic Isles of Shoals, from becoming industrial wastelands.

Seabrook Nuclear Power Plant. Grassroots activists who opposed the construction of the Seabrook Nuclear Power Plant in the late 1970s and 1980s were less successful. The Public Service Company of New Hampshire (PSNH) began to plan for a nuclear power plant in the 1960s. In the early 1970s they settled on a site directly on the coast in Seabrook, about 10 miles south of Portsmouth.

Opposition came from many different quarters, including established conservation groups and national organizations opposed to nuclear power. Many local leaders and ordinary citizens grew alarmed about the risks of nuclear power after two high-profile nuclear accidents, Three Mile Island in Pennsylvania in 1979 and the Chernobyl disaster in 1986.

But even before these accidents, opposition to the nuclear power plant had become well organized in New Hampshire. On August 1, 1976, the Clamshell Alliance held the first of several protests and attempted occupations of the proposed site. The "Clams," as they were called, practiced nonviolent civil disobedience and inspired the formation of other anti-nuclear power groups in the United States, such as the Abalone Alliance in California and the Crabshell Alliance in Washington state, even though their efforts were ultimately unsuccessful in New Hampshire.

Despite the best efforts of environmental groups and in defiance of public opinion poll data, which showed widespread opposition to the plant, Seabrook opened in 1990 and remains operational today.

Northern Pass. Nearly 100 years after the successful fight to save Franconia Notch, Granite Staters launched another grassroots effort to preserve the landscape of the White Mountains when they rallied against a project known as Northern Pass. In 2011, EverSource (the successor to PSNH) and Hydro-Quebec (a Canadian public utilities company) proposed a project to run 192 miles of new power lines from Canada through northern New Hampshire and Franconia Notch, south to Concord and then east to Deerfield. The power lines, supported by massive towers, would transport electricity from hydroelectric dams in Quebec to the New England power grid.

Opposition to the project quickly coalesced in the Great North Woods and then spread to the rest of the state, with a proliferation of orange buttons, bumper stickers, lawn signs, posters, and banners with the slogan "Stop Northern Pass." Governor John Lynch received more mail about Northern Pass than any other issue during his eight-year tenure. Opponents argued that the project would



irreparably mar the landscape and damage the tourist economy, property values, and small businesses. They also contended that New Hampshire would disproportionately bear the burden of the powerlines while Massachusetts and southern New England enjoyed the benefits. The SPNHF joined the fight, securing conservation easements to block a number of potential paths for the power lines.

In the face of this opposition, EverSource and Hydro-Quebec agreed to make some concessions such as downsizing the wattage of the power lines, pledging to bury portions of the lines, and shifting the route so that the lines would be built along state roadways through the White Mountain National Forest instead of untouched land. Nevertheless, in February 2018, the state denied the permit for Northern Pass, a decision that was later upheld by the New Hampshire Supreme Court. The project is, for all intents and purposes, dead.

Land Conservation

Although grassroots activism has been an important feature of environmentalism in New Hampshire, the state government has also played an crucial role in conserving land. Recognizing that the state's rural character is a draw for tourists and a vital facet of Granite State life, political leaders have often worked to balance growth with conservation of the landscape.

State Parks. Almost half a million acres, or 8% of New Hampshire's total land, is managed by the state under the auspices of the Division of Parks and Recreation and the Division of Forest and Lands. The first state park in New England, Miller State Park, was created in 1891 when two landowners donated to the state of New Hampshire a three-acre tract of land on Pack Monadnock Mountain. The state park system expanded throughout the 20th century, especially during the 1930s, when federal and state work relief programs, such as the Civilian Conservation Corps, prioritized the development of park facilities (for more on this topic, see Unit 15: Forging a Modern Identity). Today, the Division of Parks and Recreation manages 93 sites statewide, including campgrounds, beaches, natural areas, ski areas, historic sites, and recreational trails. Some sites, like ski areas, are managed for recreation and produce revenue, while others are managed for preservation.

Public-Private Partnerships. The state has also partnered with private nonprofit conservation organizations to preserve land.

In 1968, a state constitutional amendment decreased the tax burden on property owners who left their land undeveloped. In 1987, the state legislature created the Land Conservation Investment Program (LCIP). LCIP worked with a private nonprofit partner, the Trust for New Hampshire Lands, which was initiated by the SPNHF. Under this public-private partnership, LCIP used a combination of state and private funds to purchase over 100,000 acres of land to protect it from development and preserve its conservation and recreational value. At the local level, many towns began to embrace planning tools like zoning regulations, wetlands ordinances, and shoreline protection zones to encourage conservation.

In the 21st century, the public-private partnerships model has been the dominant feature of preservation in New Hampshire. The LCIP and Trust for New Hampshire Lands program ended in 1993, but the state legislature created its successor, the Land and Community Heritage Investment Program (LCHIP), in 2000 to preserve New Hampshire's most important natural, cultural, and historic resources. LCHIP funds come from fees on documents such as mortgages and deeds, as well as the conservation license plate (Moose Plate) program. Grant recipients must raise at least



one additional dollar from other public and private sources for every dollar provided by LCHIP. Nearly 300,000 acres of land has been protected through LCHIP, such as the Surry Mountain Forest in Gilsum, Mount Pleasant in Tuftonboro, the Connecticut Lakes headwaters in Pittsburg, and the Oyster River Forest in Durham.

Thanks to LCHIP, other state programs, and several public-private partnerships since the 19th century, over 1.7 million acres of New Hampshire land has been permanently conserved as of 2013. This land provides recreational opportunities like hiking, fishing, and snowmobiling, manages the state's timber and wildlife resources, and supports working farms. The state has long recognized the importance of conserving land to maintain these benefits and has worked together with private groups to achieve this goal.

Course Essential Questions

Essential questions are designed to be answered repeatedly throughout the entire curriculum. This unit particularly addresses the following essential questions:

- How has New Hampshire come to be the way it is?
- How has New Hampshire been shaped by many voices?
- How have New Hampshire's people shaped its government?
- How has New Hampshire impacted the nation?

Unit Focus Questions

Lessons in this unit are geared towards students answering the unit focus questions comprehensively through a variety of methods. This unit's focus questions are:

1. How did industrialization threaten the landscape in New Hampshire?
2. How did people work together to protect the environment in the Granite State?

Lesson Plans

Two lesson plans in Unit 14: Preserving New Hampshire examine the threats to Franconia Notch and the Merrimack River brought by industrialization and how communities came together to preserve these essential resources.

Lesson Plan 14.1: Neglected Waterways

Students first use primary and secondary sources to investigate the history of the Merrimack River before they explore watershed systems and how human pollution affects them.

Lesson Plan 2: Tune In and Save the Notch!

After discussing pros and cons of deforestation and the preservation movement, students create a radio ad to help motivate the public to save Franconia Notch from deforestation.

Unit Vocabulary

advertisement	(noun) An announcement promoting an event, service, or product
canal	(noun) A manmade waterway
carbon footprint	(noun) The amount of carbon dioxide that is produced by a building
clear-cutting	(verb) Cutting down every tree in an area
climate change	(noun) Changes in Earth's average temperatures, which influence all plant and animal life on the planet



conservation	(noun) The act of protecting an environmentally or culturally important place or thing from harm
deforestation	(noun) The removal of trees from an area
downstream	(adjective) Describing the direction of the flow of water towards the mouth of a river
energy	(noun) Another word for power; energy is the ability to make things move or happen
environment	(noun) All of the things of the earth, both things that are living (plants and animals) and things that are not living (the land and water)
environmentalism	(noun) A movement of people who believe we need to protect the earth from harm by things like pollution or using up natural resources
factory	(noun) A building designed to house machines and other technology
glacier	(noun) Large masses of ice that also contain dirt, rocks, and other debris. Glaciers form during ice ages. Most of them melt when the ice age ends, carving out valleys, lakes, and mountains. Some glaciers survived the last ice age and remain near the North and South Poles.
grassroots	(noun) Groups of people who are trying to bring about political change but who are not in political office themselves
Industrial Revolution	(noun) A period of major change in the economy focusing on the change from making things at home to making things in factories
industrialization	(noun) The shift to making many products on a large scale, using machinery and factories
landscape	(noun) A view of an outdoor setting and all the things that can be seen there
littering	(verb) Throwing things away on the ground or in the water rather than in a garbage can
lumber	(noun) Wood that has been processed from a tree into usable boards or pieces
natural resources	(noun) Something found in nature that is used by people, such as animals, plants, or fossil fuels
pollute	(verb) To put harmful or poisonous material in the environment
pollution	(noun) Harmful or poisonous material that enters the environment
public awareness	(noun) Making people aware of something that they didn't know about before
recreation	(noun) Activities people do to rest or have fun, based on their own interests
renewable resource	(noun) Any material, such as wood or solar energy, that can or will be replenished naturally in the course of time
river mouth	(noun) The end point of a river, where a river enters a lake, ocean, or larger river
river source	(noun) Where a river begins
root system	(noun) Roots are parts of plants that are in the soil; a root system is how plants get the nutrients they need to survive from the ground
runoff	(noun) Rainwater that washes over land and roads into waterways



slash	(noun) Small trees, branches, leaves, and needles that are left behind when an area has been clear-cut of trees; because slash has been cut, it dries out quickly and may catch fire easily
timber	(noun) Trees that have been cut into large beams or small planks to be used in construction
tourism	(noun) Travel for recreation
tributary	(noun) A smaller river that empties into a larger one
upstream	(adjective) Describing the direction of the flow of water away from the mouth of a river and toward a river's source
waste	(noun) Anything that we throw away or get rid of
watershed	(noun) An area of land that drains into a particular river
watershed boundary	(noun) The border around an area of land that drains into a particular river
waterway	(noun) A body of water that boats can travel on

Using the Student Content Readings

The student content for this curriculum is designed to be used in many ways. Here are suggestions for reading activities and strategies that support independent and guided reading at different stages of each unit. Please note that some lessons in this unit use the student content in their learning activities.

- **Introducing Units:** Preview the student content before diving into lesson plans and activities. Ask students to skim the text by looking for key design elements. What are the headings? What do they tell us about the big ideas of the unit? Look for words in bold. What are the important vocabulary words used in this unit? Which are familiar? Which are not? What kinds of graphics or images are used in this content? Which important ideas do they illustrate?
- **Developing Understanding:** Some lesson plans direct you to specific sections of the student content, but the student content should be revisited throughout completion of a unit. Students can create visual representations of specific sections, summarize paragraphs, or complete jigsaw chunking and present their section summaries to other students.
- **Reviewing Concepts:** After lessons, return to the student content to look for evidence of the concept explored in the lesson. Students can create timelines, cause and effect charts, mind maps, and Venn diagrams using the information provided in each section.
- **Extending Comprehension:** Students can develop a review quiz for fellow students by writing their own questions about the information in each section. Translating the content into data that can be displayed on a map or graph is another way to extend comprehension of the text.

Additional Resources

Format: Book

Title: *Can You Hear the Trees Talking? Discovering the Hidden Life of the Forest*

Author/Creator: Peter Wohlleben

Audience: For Students and Educators.

Description: Activity book with projects that explore the science of forest life



Format: Book

Title: *Franconia Notch and the Women Who Saved It*

Author/Creator: Kimberly Jarvis

Audience: For Educators.

Description: A case study of early-20th-century grassroots preservation and the role of women in the American conservation movement

Format: Video

Title: *The Merrimack: River at Risk*

Author/Creator: New Hampshire PBS

Audience: For Students and Educators.

Description: This documentary spotlights the threats to the Merrimack River in the past, present, and future. The film includes interviews with all kinds of experts from water treatment professionals to river guides to community builders, and takes viewers throughout the Merrimack watershed, whether it's a peek inside a Coca-Cola plant or whitewater rafting on the river

Website: www.youtube.com/watch?v=62mWQcQvM3w

Format: Website

Title: NH State Parks

Author/Creator: State of New Hampshire

Audience: For Educators.

Description: Online resource about the many state parks in the state, including historic sites

Website: www.nhstateparks.org/

Format: Book

Title: *A River Ran Wild: An Environmental History*

Author/Creator: Lynne Cherry

Audience: For Students.

Description: This picture book is an environmental history of the Nashua River. Illustrations depict the watershed from prehistoric times through the present, along with smaller pictures of animals, plants, and objects found in and around the river

Format: Website

Title: VisitNH

Author/Creator: By VisitNH

Audience: For Students and Educators.

Description: Official New Hampshire tourist website, which includes things to do, trip ideas, places to stay, getting around, and information on different regions

Website: www.visitnh.gov/

Format: Book

Title: *What Is a River?*

Author/Creator: Monica Viacnaviciene

Audience: For Students and Educators.

Description: A overview of different ways to look at rivers—geography, history, science, environmentalism