

New England Forests: The Path to Sustainability

CHAPTER 3 • PROVIDE MORE RECREATION



A TECHNICAL REPORT BY NEW ENGLAND FORESTRY FOUNDATION

INTRODUCTION

This project documents both the existing value and potential of New England's working forest lands: Value – not only in terms of business opportunities, jobs and income – but also nonfinancial values, such as enhanced wildlife populations, recreation opportunities and a healthful environment. This project of the New England Forestry Foundation (NEFF) is aimed at enhancing the contribution the region's forests can make to sustainability, and is intended to complement other efforts aimed at not only conserving New England's forests, but also enhancing New England's agriculture and fisheries.

New England's forests have sustained the six-state region since colonial settlement. They have provided the wood for buildings, fuel to heat them, the fiber for papermaking, the lumber for ships, furniture, boxes and barrels and so much more. As Arizona is defined by its desert landscapes and Iowa by its farms, New England is defined by its forests. These forests provide a wide range of products beyond timber, including maple syrup; balsam fir tips for holiday decorations; paper birch bark for crafts; edibles such as berries, mushrooms and fiddleheads; and curatives made from medicinal plants. They are the home to diverse and abundant wildlife. They are the backdrop for hunting, fishing, hiking, skiing and camping. They also provide other important benefits that we take for granted, including clean air, potable water and carbon storage. In addition to tangible benefits that can be measured in board feet or cords, or miles of hiking trails, forests have been shown to be important to both physical and mental health.

Beyond their existing contributions, New England's forests have unrealized potential. For example, habitats for a wide variety of wildlife species could be enhanced by thoughtful forest management. Likewise, wood quantity could be increased and the quality improved through sustainable forest management. The virtues of improved forest management and buying locally produced goods are widely extolled, but what might that actually look like on the ground? More specifically, how could enhanced forest management make more locally produced forest products available to meet New Englander's own needs, as well as for export, improve the local and regional economies and provide the greatest social and environmental benefits?

The purpose of this project is to document that potential by analyzing what we know about how improved silviculture can enhance wildlife habitat, the quantity and quality of timber, recreational opportunities, and the environment. The best available data from the US Forest Service, state forestry agencies and universities was used to characterize this potential.

The technical reports produced for this project document the potential for:

- Mitigating climate change;
- Increasing timber production to support a more robust forest products industry;
- Restoring important wildlife habitat;
- Replacing fossil fuels with wood to produce thermal energy;
- Reducing greenhouse gas emissions, not only by substituting wood for other fuels, but also wood for other construction materials;
- Enhancing forest recreation opportunities and related tourism;

- Expanding production of nontimber forest products;
- Maintaining other forest values such as their role in providing clean air and potable water – taken for granted but not guaranteed;
- Enhancing the region’s economy by meeting more of our own needs with New England products and retaining more of the region’s wealth within the New England economy; and
- Other related topics.

These technical reports are viewed as “works in progress” because we invite each reader to bring their own contributions to this long term effort of protecting, managing and enhancing New England’s forests. The entire set may be viewed at www.newenglandforestry.org. If you have suggested improvements please contact the New England Forestry Foundation to share your thoughts. These technical reports were used as the background to prepare a summary – *New England Forests: The Path to Sustainability*, which was released on June 5, 2014.

If you are not familiar with NEFF's work please visit www.newenglandforestry.org. Not already a member? Please consider joining NEFF – <https://41820.thankyou4caring.org>.

New England Forestry Foundation
32 Foster Street, PO Box 1346
Littleton, MA 01460

The New England Forestry Foundation is a recognized leader in conserving working forests, educating the public about forestry, and assisting landowners in the long-term protection and stewardship of their properties. For almost 70 years, we have demonstrated that well-managed working forests can provide landowners and the community with the prime ingredients for healthy living: clean air and water, sustainable production of an array of forest products, healthy forests for hiking and relaxation, a diversity of wildlife and habitats, periodic income, and renewable natural resources that help support rural economies.

Our Mission is to conserve New England’s working forests through conservation and ecologically sound management of privately owned forestlands in New England, throughout the Americas and beyond.

This mission encompasses:

- Educating landowners, foresters, forest products industries, and the general public about the benefits of forest stewardship and multi-generational forestland planning.
- Permanently protecting forests through gifts and acquisitions of land for the benefit of future generations.
- Actively managing Foundation lands as demonstration and educational forests.
- Conservation, through sustainable yield forestry, of a working landscape that supports economic welfare and quality of life.
- Supporting the development and implementation of forest policy and forest practices that encourage and sustain private ownership.

THE PATH TO SUSTAINABILITY



TABLE OF CONTENTS

A. Overview	7
B. The New England Forest Resource and its Recreational Uses	9
C. Forest Land Available for Recreation in 2060.....	24
D. Trends in Forest-Based Recreation.....	25
E. Capitalizing on New England’s Forests.....	27
F. How Can Economic Benefits to Communities, Businesses and Landowners be Realized?	33
G. Potential Economic Benefits to the New England Region	37
1. Scenario Analysis	39
2. Losing Ground (Pessimistic Scenario)	39
3. Business as Usual (Status Quo).....	40
4. Gaining Ground (Optimistic Scenario)	41
H. Conclusions	43
I. References	45
1. Academic Literature	45
2. Institutional Publications	45
3. News Outlets.....	46
4. Primary Data Sources	46

PROVIDE MORE RECREATION: Forest Recreation Trends and Opportunities in New England: Implications for Recreationists, Outdoor Recreation Businesses, Forest Land Owners and Policy Makers

Prepared by Craig Ten Broeck and Aaron Paul

Part of a larger project on the potential of New England's forest lands coordinated by R. Alec Giffen for the New England Forestry Foundation. Component parts include the following of the larger effort:

1. **KEEP NEW ENGLAND FORESTED:** Assessing the Current Conservation Status of New England's Forests by Jerry A Bley
2. **GIVE WILDLIFE HOMES:** Potential of New England's Working Forests as Wildlife Habitat by Jerry A. Bley
3. **PROVIDE MORE RECREATION:** Forest Recreation Trends and Opportunities in New England: Implications for Recreationists, Outdoor Recreation Businesses, Forest Land Owners and Policy Makers by Craig Ten Broeck and Aaron Paul
4. **PROTECT US FROM CLIMATE CHANGE** by R. Alec Giffen and Frank Lowenstein
5. **CLEAN AND COOL THE AIR:** Forest Influence on Air Quality in New England: Present and Potential Value by Aaron Paul
6. **PURIFY OUR WATER:** The Potential for Clean Water from New England Forests by Aaron Paul
7. **GROW MORE WOOD:** The Potential of New England's Working Forests to Produce Wood by R. Alec Giffen, Craig Ten Broeck and Lloyd Irland
8. **CREATE LOCAL JOBS:** Vision for New England's Wood-Based Industries in 2060 by Innovative Natural Resource Solutions, LLC and The Irland Group
9. **CULTIVATE NEW BUSINESSES:** New England's Nontimber Forest Products: Practices and Prospects by Craig Ten Broeck
10. **PROVIDE MORE WOOD FOR BUILDINGS:** The Greenhouse Gas Benefits of Substituting Wood for Other Construction Materials in New England by Ann Gosline
11. **REDUCE USE OF FOREIGN OIL:** The Potential for Wood to Displace Fossil Fuels in New England by Innovative Natural Resource Solutions, LLC
12. **GROW AS MUCH AS WE USE:** Production versus Consumption of Wood Products in New England by Craig Ten Broeck

Henry David Thoreau appreciated the many values of New England forests.

In 1848, Thoreau writing in *The Maine Woods* extolled the values of this portion of New England's forests—he wrote: “The mountainous regions of the State of Maine stretches from near the White Mountains, northeasterly one hundred and sixty miles, to the head of the Aroostook River . . . a primitive forest, more interesting, perhaps, on all accounts, than [a traveler] would reach by going a thousand miles westward.”

Thoreau recognized the values of New Hampshire's forests in *Huckleberries (Notes On Fruits)* Posthumous publication: “Thousands annually seek the White Mountains to be refreshed by their wild and primitive beauty--but when the country was discovered a similar kind of beauty prevailed all over it-- and much of this might have been preserved for our present refreshment if a little foresight and taste had been used.”

Thoreau recognized the values of what we now refer to as community forests in *Autumnal Tints*, 1862: “A village is not complete, unless it have these trees to mark the season in it. They are important, like the town clock. A village that has them not will not be found to work well. It has a screw loose, an essential part wanting.”

A. Overview



As for Thoreau, forests and trees hold a special place in many New Englanders' hearts. Have you been in awe of the bright yellow, red and orange of sugar maples in the fall or picnicked in the shade of a stately oak in town or at a state park? Forests form a backdrop that defines that we are living our lives in New England. Our forested mountains, river and lake shores are a quintessential part of the region's natural beauty and inviting charm.

Amazingly, forests still cover 80 percent of New England's landscape. 73% of New England's 32 million acres of forests is exclusively in private ownership. 11% is in private ownership with conservation easements (3,461,307 acres). Much of this 84% of the New England forest land base is managed for timber supporting a \$9.8 billion forest products industry (see companion report *Vision for New England's Wood-Based Industries in 2060*). 16% of the region's forests are either in fee ownership by public agencies or conservation organizations (5,156,612 acres).

The vast majority of this forest region has been made available to the public for recreation at no cost through public ownership, conservation organizations and the good will of both large and small private forest landowners. New England is unique in the US in that private forest landowners have for centuries allowed the public to use their land to walk on, hunt and access public waters for fishing. Native and tourist alike seek solace and adventure hiking, rafting rivers, paddling, skiing, snowmobiling, riding ATVs, hunting and fishing. New England's forest recreation opportunities are the most diverse and interesting in the eastern US. Retired Bowdoin College economics professor David Vail who studies recreation trends in New England estimates

that "Forest-based tourism's direct and indirect contribution to New England's combined gross state product (GSP) is on the order of \$5 - 7 billion dollars annually – close to ten percent of the forest region's total economic activity and more than ten percent of its total employment." For further discussion of this topic see Section G. Potential Economic Benefits to the New England Region.

If New Englanders are to ensure that forests and forest-based recreation continue to be a vital part of the region's life style and if we are to take advantage of the tourism-related economic opportunities our forests present we need to implement state and regional strategies centering on five complementary types of investments:

- First, support making forest management as profitable as possible to keep forests as forests including buying locally made forest products when possible;
- Second, work with landowners to ensure continued public access;
- Third, improve regional capacity to bolster forest-based recreation and recreational infrastructure;
- Fourth, provide high quality private sector amenities, including dining, lodging and support businesses; and
- Fifth, provide education and training for tourism operators and their employees.

In rural areas, these strategic investments could improve family income and community sustainability with new jobs in a robust forest tourism-based economy. As the US population grows and ages recreation experts expect an increased demand for improved hospitality amenities and low-impact physical activities. The right suite of public and private investments could add tens of millions of dollars a year to the New England economy.

This report will identify forest recreation trends and opportunities of interest to recreationists, businesses, land owners and policy makers. Along the way, we will try to answer the following questions:

- **What is the extent of New England's forests and their use for recreation?**
- **How much of New England private forest land could be available for recreation in 2060 given current trends?**
- **What are the trends in forest-based outdoor recreation?**
- **What can be done to ensure that as many opportunities as possible are available to the public to enjoy recreational activities?**
- **How can New Englanders by working with private forest landowners create an even more robust outdoor recreation industry?**
- **How can economic benefit to communities, businesses and landowners be realized? And, what is the likely range of these economic benefits?**

B. The New England Forest Resource and its Recreational Uses

Of the 32 million acres of New England forests 8.6 million acres or about 27% have various levels of protection due to fee ownership by public agencies or conservation organizations or through conservation easements granted by private landowners (see companion report *Assessing the Current Conservation Status of New England Forests*). The remaining 23.4 million acres or 73 percent is entirely in private ownership without easements.

Future recreational use of public lands is largely assured, however, forest recreational activities on private lands is dependent on the willingness of landowners to allow public access and use.



Overall, forests make up 80% of the New England landscape as shown in Table 1. In the southern portion of the region, Connecticut, Massachusetts and Rhode Island, they cover 58% of the landscape and are interspersed with residential, commercial, industrial and agricultural land uses. Forests are dissected by roads and utility corridors and extensive forest tracts are a rarity. While in the north, in Vermont, New Hampshire and Maine, the forests make up 86% of the landscape and are more continuous except in a few highly productive agricultural areas such as the Vermont dairy country, the potato, hay and oat fields of Aroostook County Maine; and the blueberry barrens in Down East Maine.

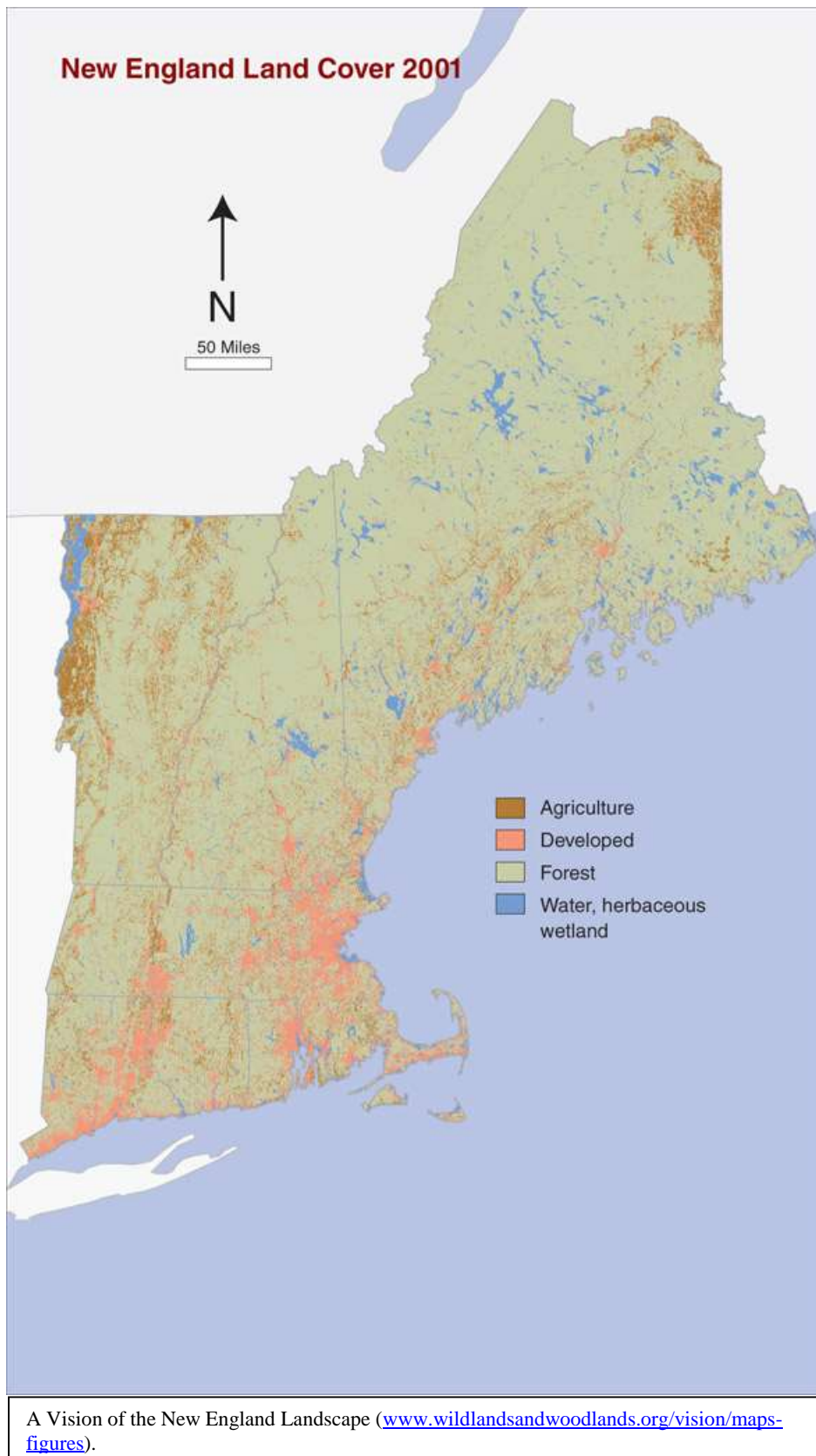
Table 1. Forest land in the New England states

State	Total land area (in acres)*	Total forest area (in acres)**	Percentage of land in forest
Connecticut	3,098,880	1,711,749	55%
Massachusetts	4,992,000	3,024,092	61%
Rhode Island	661,760	359,519	54%
Vermont	5,898,880	4,591,280	79%
New Hampshire	5,729,920	4,832,408	84%
Maine	19,739,520	17,660,246	90%
TOTALS	40,120,960	32,179,294	80%

* US Department of Commerce (2010).

** USDA-FS (2011).

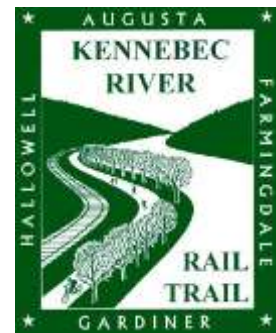
The following map – New England Land Cover 2001 – shows the extent of forest land cover in New England. *Source:* Modified from the National Land Cover Database (NLCD), 2001.



In addition to thinking about current and potential recreational use of forests state by state, it is also useful to think about them—from a regional perspective—in terms of distinct landscape types each with forested areas and associated recreational uses. Each of these landscape types has its distinct land ownership pattern, its own sets of rules for land uses and different economic roles for the forests:

- **Urban areas, suburbs and towns** – found throughout New England, but most extensively in the southern part;
- **Rural and farming areas** – found throughout New England except in The North Woods;
- **Rural fringe areas** - low population density rural areas with minimal commercial development abutting large undeveloped forest lands in northern New England;
- **The North Woods** – largely undeveloped forest land in northern Vermont, New Hampshire and Maine. Sometimes referred to in Vermont as the Northeast Kingdom and in New Hampshire as “le Grand Bois du Nord”.

In the **urban areas, suburbs and towns** there are a surprising number of trees, not only in parks. Urban forested areas are used daily for low impact recreation including walking, picnicking and birding. Converting abandon railroad lines or situating pathways adjacent to existing rail lines for walking, jogging, in-line skating and biking has opened up new recreational opportunities in urban areas. Paths are often enhanced by fringing trees and water views. These urban recreation opportunities are vitally important as they provide everyday contact with trees and forests and a chance for respite from busy urban and suburban lifestyles.



New England has a longstanding history of town-owned forests. A 2008 article in *Northern Woodlands* magazine highlighted the growing interest in town forests in Vermont. From that article titled – A Forest for Every Town -- “The concept of town commons, and even town forests, is not a new one. In fact, the enabling legislation for creating town forests in Vermont was enacted in 1915. But these forests haven’t been on the top of everyone’s mind....Now, thanks to projects such as the Vermont Town Forest Project, they are experiencing an exciting revival” (http://northernwoodlands.org/knots_and_bolts/a_forest_for_every_town/).

Hinesburg, a small town with a population of 4,300, is located in the Vermont Champlain Valley 12 miles south of Burlington. Hinesburg is fortunate to own two town forests: the “older” dating back to 1940 has 837 acres of mixed woodlands and the “newer” consists of 301 acres including extensive wetlands and calcium-rich soils. Hinesburg’s forests offer recreation opportunities including world-class mountain biking trails, along with skiing, hiking and horseback riding. The forests serve as outdoor classrooms for local teachers and are used by students from the University of Vermont who have conducted dozens of forest-based projects. The older forest is being actively managed for forest products. A recent harvest of white ash was milled into flooring, kiln-dried locally and then installed to replace the well-worn floor of the Hinesburg Town Hall.

“Town forests are reminders of a time of town commons, poor farms, and public lots – when people collaborated on stewardship, made decisions as a group, and reaped the rewards of all that

work together. That kind of model doesn't have to fade into the landscape like an old stone wall. It just needs a renewal – board for board, like an old town hall floor, replaced with thought and care, each board a piece of a tree that was just an eager seedling when the original floor was laid down” (http://northernwoodlands.org/knots_and_bolts/a_forest_for_every_town/).

New approaches are evolving to help conserve forests at the community level. Among them is The Open Space Institute (OSI) which protects scenic, natural and historic landscapes to provide public enjoyment, conserve habitat and working lands and sustain communities. Founded in 1974 to protect significant landscapes in New York State, OSI has been a partner in the protecting 2.2 million acres across North America. Their strategy emphasizes permanent protection on a landscape-level scale to prevent forest fragmentation, which disrupts key wildlife corridors, impairs water and air quality, and diminishes the beauty and scenery of natural areas. They see community forests as having the potential to stabilize ownership of the region's productive forestland, expand the assets of rural communities and build civic capacity. Their Community Forest Fund supports towns seeking to conserve their natural resources. Their website states “Stewardship is often best assured through local involvement in the sustainable management of these resources for a variety of purposes, including timber revenues, watershed protection and other ecosystem services, and recreation” (www.osiny.org).

The region's ***rural and farming areas*** have a landownership pattern shaped by past farm uses; much of the forest is re-growing farm woodlots or abandoned pastures. These areas occur in patches across New England. Vermont remains a strong dairy region; parts of Maine have dairy as well and extensive areas growing potatoes, apples and blueberries; but in southern New England the area of development has exceeded that of farmland for many years. In all New England states, an exciting recent phenomenon is the growth of small and part-time farming, producing a wide array of products for local markets.



New Englanders have enjoyed the use of private lands for hunting, walking and gathering forest products for centuries. It is a tradition that is unique in the US. In Maine this tradition goes back to the 1600s and is encoded in the Great Ponds Act. The colonial ordinance states [spelling as in original], “and for great Ponds lying in common...it shall be free for any man to fish and fowl there, and may passe and repasse on foot through any man's propieter for that end, so they trespassse not upon any man's corn or meadow” (Mills 2004). “The idea of not trespassing upon “any man's corn” is now interpreted as not doing damage to someone else's property” (Acheson 2006). “Maine law facilitates the public use of private land, if land is not posted it is assumed that

the public has a right to use it under the doctrine of ‘implied access’ ” (Mills 2004). It has been the policy of the State of Maine to encourage landowners to continue to allow the public to have access to their land. One important way to support landowners who make their land available for trails for snowmobiling and ATVing has been the enactment of legislation that relieves them of liability should accidents occur on their land.

The ***rural and farming areas*** of Southern and central New England offer significant forest recreation opportunities that include:

- Open space conserved by non-profits near urban areas such as the areas managed by the Trustees of Reservations in Massachusetts, e.g. World's End in Hingham – a spectacular ocean peninsula only a few miles from Boston with 251-acres of rocky shores, broad hillsides, and open fields bracketed by pockets of woodlands used for walking, picnicking, jogging, horseback riding and cross-country skiing;
- State and municipal parks throughout the region;
- Mountain peaks such as Monadnock, designated as a National Natural Landmark, in Jaffery State Park in New Hampshire and Mount Greylock in northwestern Massachusetts, the highest peak in the state;
- River corridors, such as the Deerfield in southern Vermont and central Massachusetts, offer white and flat water canoeing, white water rafting, areas for motor boating and fishing, and day uses such as swimming and picnicking on a string of lakes and river segments. The Ipswich River in eastern Massachusetts, which is largely free of development for its entire course, offers canoeing, fishing and wildlife viewing. The Housatonic in western Massachusetts and Connecticut and the Farmington in Connecticut offer white water boating, tubing and trout fishing;
- Forest trail corridors; and
- Many other activities.

These areas, while not as exceptional in character as the areas in Northern New England, nonetheless are especially important because of their proximity to the region's population centers.

Rural fringe areas occur here and there around the region; from the “Quiet Corner” of Connecticut to the Berkshires; to the areas surrounding the two National Forests; and the regions fringing the more remote ***North Woods*** of northern New England. Here, leisure communities are often the most important settlements and are focused on lakes, streams or ski areas. Rugged scenery becomes an important forest value.



The Green Mountain and White Mountain National Forests are two major attractions in the ***rural fringe area***. The Green Mountain National Forest, located within a day's drive of more than 70 million people, is a destination for visitors seeking a variety of recreation opportunities. The Forest encompasses more than 400,000 acres in southwestern and central Vermont, forming the largest contiguous public land area in the state. It is characterized by striking scenery that combines mountain peaks with quintessential Vermont villages. Management

focuses on multiple-use through providing science-based forest stewardship, clean water, diverse vegetation, high-quality forest products, educational opportunities and backcountry recreation. The Forest includes three nationally designated trails: The Appalachian National Scenic Trail, Long National Recreation Trail, and the Robert Frost National Recreation Trail. The Forest also includes three alpine ski and seven Nordic ski areas, and approximately 900 miles of trails for hiking, cross country skiing, snowmobiling, horseback riding and bicycling (www.fs.usda.gov/main/greenmountain/about-forest).

The 800,000-acre White Mountain National Forest is a powerful presence in the White Mountains of New Hampshire. Adjacent to or part of every surrounding village and town, the National Forest ensures that this region will remain largely undeveloped. The Forest has a long and rich history for hikers with over 1200 miles of non-motorized trails. There are a variety of camping experiences: from family-friendly developed campgrounds, to popular backcountry sites, to the solitude of a 'wilderness' setting. The White Mountain National Forest works in partnership with nine permit holders to provide year-round recreation opportunities for visitors including hosting 1,000,000 skier visits on eight Nordic and alpine ski areas as well as non-winter recreation opportunities including scenic gondola rides, ziplines, a ropes course, and mountain biking (www.fs.usda.gov/recmain/whitemountain/recreation).

Both the Green Mountain and White Mountain National forests are surrounded and complemented by private forest lands adding all the more to the sense of expansive mountain scenery and extensive undeveloped character of these forest regions. These forests attract tourists seeking hiking, camping and skiing, among other adventures, to the significant economic benefit of the towns fringing these public and private forests.

The North Woods stretch across the entire northern region of New England and include the northern most counties in Maine, north and central Coös County in New Hampshire and the Northeast Kingdom of Vermont--comprising Essex, Orleans and Caledonia Counties. The lumber and paper industries have been dominant in this region for more than a century. They have over the last couple of decades reduced employment through mechanization to remain competitive in the global markets. These areas can support truly remote backcountry recreation including camping, canoeing, hunting, fishing, ATVing, snowmobiling and more. Major recreation destinations of the ***North Woods*** are: the 3.5 million-acre North Maine Woods, Inc. region and a smaller area to the south encompassing 178,000 acres known as KI Jo-Mary; Baxter State Park; the Appalachian Trail with its northern terminus on Mount Katahdin; the Allagash Wilderness Waterway; The St. John River; the West Branch of the Penobscot River; Moosehead Lake; the Western Maine Mountains lakes and ski areas—Sunday River, Sugarloaf and Saddleback; Coös County, the northern most county in New Hampshire, which also offers a diversity of outdoor recreation opportunities; and the Vermont Northeast Kingdom along with its ski areas—Burke Mountain and Jay Peak. This entire region has an extensive network of snowmobile trails. We will briefly explore each of these destinations and their recreational attractions.



Bangor Daily News Photo

Landowners with both large and small forest land holdings in northern Maine have banded together to form the non-profit North Maine Woods, Inc. to allow public access on 3.5 million acres used by 97,000 visitors in 2013 with fees set to cover recreation management costs. This is an example of providing public recreational benefits at an exceptional scale on private land where timber pays the bills. Included within its boundaries are most of the St. John River and all of the Allagash River—both are discussed in more detail below. North Maine Woods manager Al Cowperthwaite reports that big game hunting supports over 20% of their operating budget. Their websites affirms “Harvesting wood products and providing recreation are compatible if managed properly. Providing proper management of day use and camping is the main goal of the North Maine Woods organization” (www.northmainewoods.org).



Photos from North Maine Woods Website

North Maine Woods, Inc. is contracted to manage the 178,000 acre KI Jo-Mary, Inc. Multiple Use Forest, which a consortium of landowners formed in 1986 to cooperatively address rapidly increasing public demand for recreation opportunities in the KI Jo-Mary Forest. Located between Millinocket, Greenville and Brownville, KI Jo-Mary includes over 30 miles of the Appalachian Trail, the Gulf Hags Reserve, the Hermitage--an old growth pine stand, the east and west branches of the Pleasant River, more than 50 lakes and ponds, and over 100 miles of brooks, streams and rivers. Camping is available at 60 maintained sites. User fees offset the costs of checkpoint operations and campsite development and maintenance. The area attracts about 25,000 visitors each year.

Baxter State Park is the gift of Governor Percival Baxter (Maine Governor 1921- 1924) to the people of the State of Maine. He enjoyed vacationing in the Maine woods throughout childhood and his affection for the land and wildlife were instrumental in his creation of a park for the people of the State of Maine. He began to fulfill his dream in 1930 with the purchase of 6,000 acres that included Mount Katahdin, Maine's highest peak. In 1931, Baxter formally donated the parcel to the State of Maine with the condition that it be kept forever wild. Over the years, Governor Baxter purchased additional lands with his final purchase made in 1962. Since then, additional purchases and land gifts have increased the Park's total size to 209,644 acres. About 75% of the Park (156,874 acres) is managed as a wildlife sanctuary. In the northwest corner of the Park 29,537 acres (about 14% of the Park) was designated by Governor Baxter to be managed as a Scientific Forest Management Area. He recognized the need to have working forest managed to promote exemplary forest management as well as areas protected for their ecological value. He called for what he termed 'scientific forest management'; patterned after the careful management he had seen in Europe. He was clearly a man well ahead of his time (www.baxterstateparkauthority.com/about/history.htm).



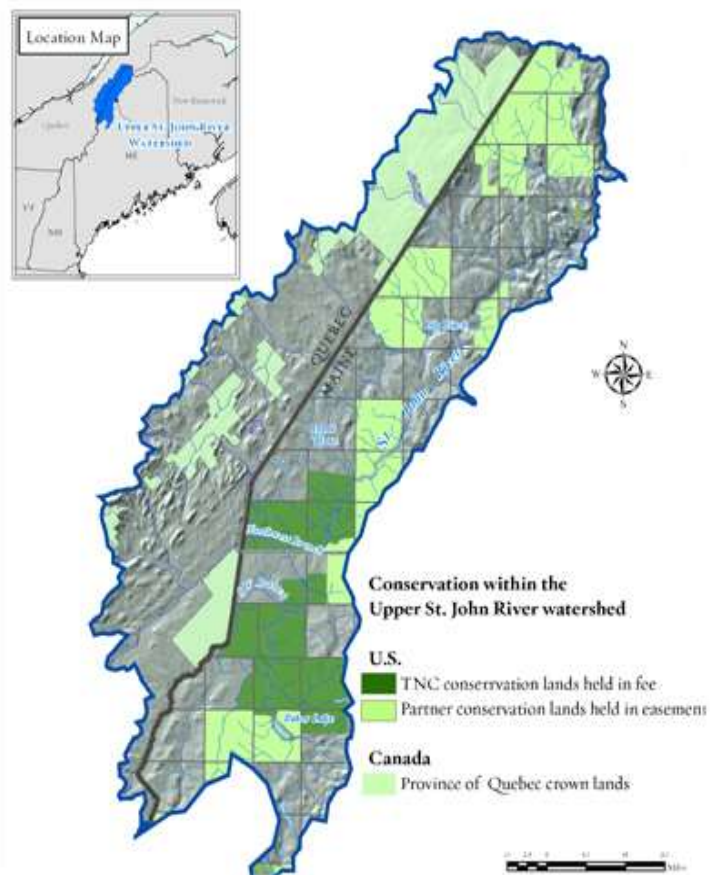
The Beauty of the Park Photo Courtesy of Alice Frati. From the Baxter State Park Website, www.baxterstateparkauthority.com/about/info.htm

Twenty-five percent of the Park (52,628 acres) is open to hunting and trapping with the exception that Moose hunting is prohibited. "The Park was designed primarily to be a hiking park with vehicular access on the limited and very primitive road system intended not as a means to thoroughly experience the wilderness, but only as a way for visitors to reach their starting point." There

are over 200 miles of trails ranging from the heavily-used boardwalks around Sandy Stream Pond—a favorite area for seeing moose – to the remote and little traveled Freezeout and rugged Northwest Basin Trail” (www.baxterstateparkauthority.com/about/nature.htm). Campsites include tent sites, lean-tos, small cabins and bunkhouses. Some campsites in the Park have been used for nearly a century (www.baxterstateparkauthority.com/camping/campgrounds.htm).

The Allagash Wilderness Waterway was established by the Maine Legislature in 1966 to preserve and protect a 92-mile-long ribbon of lakes, ponds, rivers and streams winding through the heart of northern Maine's commercial forests. In 1970, the Waterway was named the first state-administered river in the National Wild and Scenic River System. For more than a century "The Allagash" has been appreciated as a sportsman's paradise. Henry David Thoreau is among those who have enjoyed its natural beauty. The Maine Bureau of Parks and Lands controls water flow from the upstream lakes through a concrete dam constructed in 1997 to ensure adequate summer flows in the river for recreational use.

The wild St. John River in the remote forests of northern Maine flows 130 miles without passing any human settlement. It starts at the outlet of Baker Lake as a stream and as it flows northeast, bolstered by its tributaries, grows into a major river. In the early spring, quick runoff from melting winter snow results in fast water and rapids offering the most rewarding wilderness canoe experiences in the East. North Maine Woods maintains 53 campsites along the St. John that make river trips with overnights stays possible in an otherwise remote region. These sites are on private lands but made available for public use. Al Cowperthwaite reports that "St. John River traffic has decreased significantly over the past several decades. We have fewer parties canoeing the river all year than we encountered in one busy day in the 1980s." Because of reduced use they have been eliminating campsites in recent years.



The Nature Conservancy, Conservation Lands in the St. John River Watershed, Maine.

The Nature Conservancy has purchased forest bordering 70 miles of this remote, wild river. The balance along the river is privately owned. On Conservancy land their staff and other scientists discovered the largest population of purple false-oats in the US, as well as stands of black spruce over 300 years old and a dozen rare dragonflies — one of which was entirely new to science. The land also offers prime habitat for the endangered Canada lynx and ponds with full complements of native minnow populations; rare in a state where the 'naturalness' of so many water bodies have been compromised by alien species. The Conservancy's vision for the upper St. John River watershed is one in which its most important natural features and recreational lands are permanently preserved and where compatibly managed forests provide habitat for

Maine's wildlife and essential economic opportunities for the region. With significant portions of the land in forever-wild status, the Conservancy also manages sustainable forestry operations within its forests. The Conservancy sees this as a model of sustainable silviculture that serves as a large-scale example of how a non-profit conservation group can partner successfully with for-profit businesses

(www.nature.org/ourinitiatives/regions/northamerica/unitedstates/maine/placesweprotect/st-john-river-forest-overview.xml).



Photo from New England Outdoor Center (www.neoc.com/penobscot-river-white-water-rafting/#).

The West Branch Penobscot River is a 117-mile-long tributary of Maine's Penobscot River. Downstream from Seboomook Lake it is noted for both wild brook trout and landlocked salmon. In this uppermost section the river drops over slate ledges into deep pools offering ideal fishing from shore, although short stretches can also be fished from a canoe. Despite its relatively remote location, the river is accessible by gravel road from either Greenville or Millinocket.

Day fishing trips to this section are possible, and several primitive campsites along the river are available to anglers wishing to stay and fish for more than a day (www.visitmaine.com/things-to-do/recreation-areas/penobscot-river/).



Photo from website of Maine Fishing Adventures. www.maine-fishing-adventures.com.

Twenty miles downstream the river enters Chesuncook Lake and from the Lake's outlet at Ripogenus Dam the West Branch flows through a gorge, at one point dropping over 70 feet per mile, through a narrow, granite walled canyon. Here two Class V rapids known as the Exterminator and the Staircase make the West Branch one of the most exciting white water rafting experiences in Maine. The heavy rapids, deep runs, large pools, and two sections of slower moving water in the 12 miles of river immediately downstream from Ripogenus Dam offer a variety of opportunities to fish for salmon. A road along the entire south side of this section provides access for fishing. Anglers can fish from rocks and ledges, wade along the shore, or fish from a canoe. Forested slopes along the south side of the river, together with the hills and mountains of Baxter State Park to the north, provide an exceptionally scenic setting for fishing this section of the West Branch (<http://oldtalesofthemaine-woods.com/the-west-and-east-branches-of-the-penobscot-river/>).

In 1981, two conservation easements donated by Great Northern Paper to the State of Maine permanently gave up rights to develop the land within 500 feet of the Penobscot River for commercial or residential structures, except those related to the generation of hydroelectric power; timber harvesting; mineral extraction; and the development, in accordance with Maine Land Use Regulation Commission (LURC) requirements, of camps and campgrounds on existing lease lots within the easement areas. New roads within the corridor are limited by the conservation easements to those that provide access to roads existing within the corridor; those used in connection with hydropower projects; and realignments and reconstructions of roads and bridges. The conservation easements also transferred to the State of Maine the right to regulate and manage recreational activities within the Penobscot River corridor. The State exercises these rights primarily through leases of various recreation access and use areas (Lower West Branch Penobscot Plan, 2002).

Maine's Moosehead Lake is 74,890 acres and one of the largest lakes in the US. The Town of Greenville is situated south of the Lake and Rockwood to the northwest. There are over 80 islands in the lake, with the largest being Sugar Island. Mount Kineo dominates the Lake with its 700-foot sheer cliffs. In 2012, [The Nature Conservancy](#), the [Forest Society of Maine](#) and [Plum Creek](#) created an historic conservation easement, one of the largest in US conservation history. The Moosehead easement, held by the Forest Society of Maine, includes 363,000 acres east and west of Moosehead Lake. The easement guarantees public access for traditional recreational uses, including: hunting, fishing, camping at designated sites, canoeing, cross-country skiing and snowmobiling on 160 miles of trails. It also allows forestry that meets the standards of the Sustainable Forestry Initiative (SFI®), so that forest products will continue to benefit the local economy. The easement permanently protects more than 80 lakes and ponds with 200 miles of shoreline and more than 800 miles of river and stream shore. The easement conserves habitat for dozens of protected fish and wildlife species, as well as 30 sites that have

been identified as habitat for rare and endangered plants (see, http://www.fsmaine.org/moosehead_forest_outcomes.shtml).

“The Maine's Lakes & Mountains Region is truly a four season recreational destination, boasting some of Maine's highest peaks, the Bigelow Range and Mahoosuc Mountains, and hundreds of glacial lakes. Some of Maine's largest lakes are located here, including Sebago, Flagstaff, and Rangeley lakes” (see, www.minelakesandmountains.com/). This region offers year round outdoor recreation New Englanders seek with small towns providing services needed for extended visits. Because of its close proximity to southern New England it has been a popular recreation area for more than a century. Here can be found the popular ski areas-- Sunday River, Sugarloaf and Saddleback.



www.minelakesandmountains.com/

Maine has 3,000 miles of ITS (Interconnected Trail System) snowmobile trails and 12,000 miles of local trails. New Hampshire has 7,000 of snowmobile trails and an effort underway in its most northerly region--Coös County--to connect many of the County's ATV trails into an integrated trail system that may eventually grow to over 1000 miles.

The **North Woods** also includes northern and central Coös County, the most rural region of New Hampshire. The Great North Woods Region is known for wildlife including moose, bear and deer. Moose are common, particularly along Route 3 north of Pittsburg where a thirteen-mile scenic roadway is known as "Moose Alley". This northern New Hampshire area offers opportunities to enjoy snowmobiling, hiking, camping, fishing and hunting. The region has a long history of forestry; early loggers floated logs down the Connecticut River to waiting mills downstream every spring (<http://www.nhliving.com/greatnorthwoods/>).

Located in the northwest part of the City of Berlin New Hampshire is Jericho Mountain State Park. The Park consists of 80+ miles of trails open to ATV's and Trail Bikes. The terrain varies from easy, wide gravel roads to single track trails offering riding for all abilities. There are two pavilions with picnic tables and a warming hut open year round for riders to get out of the elements. The State Park has hosted an annual ATV festival the last four years. In 2014, it will take place from August 1st through the 3rd with mud races, pulling events and other attractions.

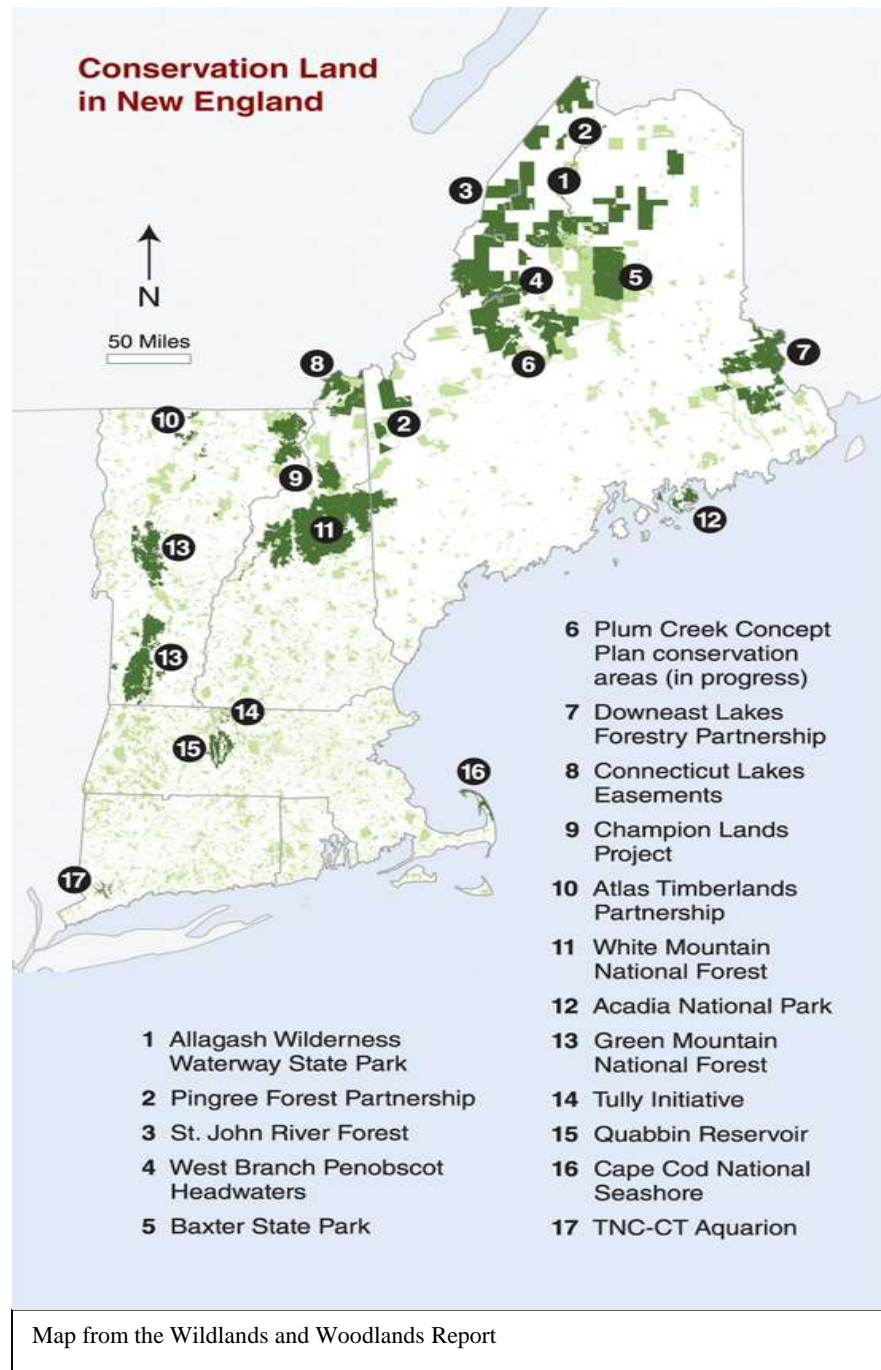


<http://www.nhstateparks.org/explore/state-parks/jericho-mountain-state-park.aspx>.

The *North Woods* includes Vermont's Northeast Kingdom, sometimes simply referred to as the Kingdom. The Northeast Kingdom Travel and Tourism Association describe the area as Vermont's largest and least populated region. "This leaves plenty of room for vast forests, pristine rivers, deep lakes, rambling roads, spectacular vistas, prominent peaks and still marshes. Quite simply, the Kingdom is a nature lover's delight. In fact, Vermont's Northeast Kingdom contains more than 1,300,000 acres of land of which almost 200,000 acres are either publicly

owned or have public recreation/access easements which provide some of the finest, most remote, and diverse outdoor recreation opportunities in New England. Public Lands include Big Falls State Park in Troy, Victory Basin Wildlife Management Area, Willoughby State Forest, Averill Mountain WMA, Bill Sladyk WMA in Holland, the Long Trail State Forest in Jay and the Nulhegan Basin Division of the Silvio O. Conte National Fish & Wildlife Refuge" (<http://www.travelthekingdom.com/parks-public-lands.php>).

The map below shows important conservation lands in New England; some of these areas were discussed above.



C. Forest Land Available for Recreation in 2060

While conservation efforts have conserved nearly a quarter of New England's forests for posterity, ensuring the future of forest recreation opportunities is far from accomplished. If New Englanders are to hold on to forests so vital to our way of life--contributing to our social, environmental and economic well-being--then steps need to be taken in the next ten to fifteen years to conserve additional forest lands by working with forest landowners to make timber management financially rewarding, to keep forests as forests, and to keep forest lands available for public recreation.

The importance of conserving forest land has been recognized by 85 New England organizations that signed on to *A Policy Agenda for Conserving New England's Forests – Priorities for 2013*.

In the proposal they recognize that “forest cover is declining in all six New England states” and that “there are significant indications that development is accelerating the rate of deforestation in New England:

- Two thirds of the Northern Forest region of northern New England and New York changed hands in the last two decades as the economics of the forest products industry altered dramatically.
- A study of Maine, New Hampshire and Vermont forest loss from 1992 to 2001 estimated an approximate net loss of 495,000 acres of forest.
- A national analysis by the US Forest Service found that three of Maine's southern watersheds are in the top 15 nationwide for largest projected increase in housing density.
- A Mass Audubon analysis found that Massachusetts lost 30,000 acres of forestland between 1999 and 2005 alone.
- US Forest Service researchers estimate that by 2050, 60-70 percent of Rhode Island and Connecticut could well be urbanized.
- A 2006 survey of New England's aging forest owners revealed that 41,000 owners of 1.72 million acres planned to sell some or all of their land in the next five years, and a group of 28,000 owners managing another 560,000 acres planned to subdivide their land over the same period” (see, www.nature.org/ourinitiatives/regions/northamerica/unitedstates/massachusetts/newsroom/policy-agenda-ne-forests-13.pdf).

In a companion report *The Potential of New England's Working Forests to Produce Wood* we estimated that forest lands total a little over 32 million acres (see Table 2 in that report).

However, over the next 50 years it is inevitable that some of this forest will be converted to development. Developed land now occupies 4 million acres in New England. Based on US Forest Service trend data on conversion of forest land to other uses it is projected that over two million acres (using information on forest land conversion between 1997 and 2011) of forest land in New England could be converted to development by 2060. If this comes to pass, that will leave 30 million acres of forest land in 2060. It is expected that most of the conversion of small woodlots to non-forest uses will occur in southern New England and in the southerly portions of

New Hampshire and Maine. Loss of forests in these areas will limit opportunities for forest recreation ‘close to home’ and adversely affect the forest’s contribution to quality of life for people living in these areas.

Of the 30 million acres we project to be available for forest-related recreation in 2060, 5.2 million acres are already in public ownership (17%). Subtracting the 5.2 million conserved acres from the 30 million acres, results in 24.8 million acres of forest exclusively in private ownership. Some of these acres already have conservation easements to conserve natural resources and/or allow public access. To enable additional public use of private forest lands will require working with private landowners to help them meet their ownership and management objectives if public access is to continue. In some instances, conservation easements might prove to be the most cost effective and only available means to achieve this goal—serving both landowner’s and public interests.

Fortunately, there is a growing land trust movement in New England that is playing a vital role in preserving natural areas that in many instances also provide recreational opportunities. With some 500 land trusts in New England there will be opportunities to achieve resource conservation that will greatly benefit wildlife by maintaining habitat corridors and offer more opportunities to establish recreation trails of various kinds. While it may be a challenge to coordinate land trusts to achieve contiguous protection of important landscape features, such as river corridors or large undeveloped tracts of forest land, it will be important if we are to retain recreation opportunities, wildlife habitat and have the benefits of important ecosystem services provided by forests such as clean air and water. Regional conservation partnerships among land trusts offer an emerging opportunity to do so.

D. Trends in Forest-Based Recreation

New England contains the largest undeveloped area east of the Rocky Mountains. The diversity of recreational opportunities in close proximity to urban populations is striking and includes unusual opportunities such as multiday canoe trips on the St. John and Allagash Rivers, hiking the wildest section of the Appalachian Trail, alpine and Nordic skiing and mountain biking. These opportunities may not be on par with the Rocky Mountains, the High Sierras or the Cascades, but they afford a wide variety of high quality experiences that has kept recreationists returning to New England for two centuries. Ready access to these opportunities creates a part of New Englander’s sense of place. Our metropolitan areas offer forest recreation opportunities of their own and are only a few hours’ drive from wild rivers, barren peaks, undeveloped lakes and expansive forests. Nowhere else in the US can be found so many recreational opportunities in close proximity to large population centers. Further, these recreational opportunities can be experienced in conjunction with the amenities of charming villages graced by historic architecture, which adds considerably to their appeal. Many of these villages are steeped in the history of interesting events dating back to colonial settlement.

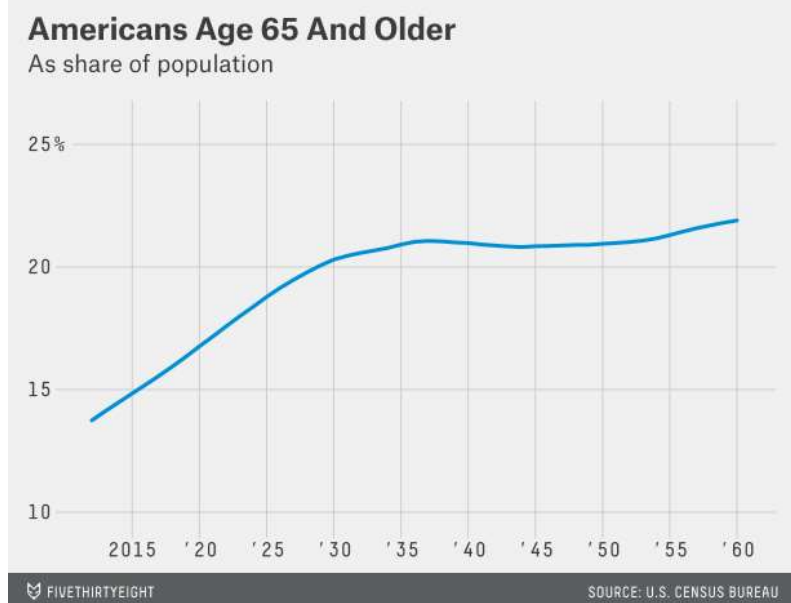
Despite its appeal, most people who recreate in New England live and work in New England or come from the Mid-Atlantic States and Eastern Canada. People from west of the Appalachians, south of Washington DC and international visitors comprise a very small fraction of the region’s travelers (Vermont Tourism Data Center, 2013; Maine Office of Tourism, 2010). These represent huge, untapped markets for New England’s forest-region businesses. With the right

suite of public and private investments, the region could see more recreation jobs, greater economic development and a new generation of guests.

A number of macro-socioeconomic trends are likely to increase demand for recreation in New England forests over the next fifty years. The population of the Northeastern coastal metropolitan area (stretching from roughly Richmond Virginia to Portland Maine) is forecasted to increase by 18.4 million people (34%) by 2050. This rate is in step with US Census Bureau projections for the nation as a whole and will entail significant increases in demand for most all goods and services produced in the region, including recreation in natural settings (America 2050, 2013: US Census Bureau, Population Division, Table 14). Participation in many forms of outdoor recreation, like walking, running, and nature viewing is increasing throughout the US (OIA, 2013). Industry experts believe that this will translate to a greater demand for spending time and money in forests. In addition, demand for recreational services can grow not only because more people participate, but also because the same people demand and are willing to pay for more services. It is likely that both will happen in New England over the next several decades. As discussed above, population growth will exert pressure on existing resources over the long term. In the near term, the age group that most enjoys spending time in natural settings is retiring. Medical and public health advances have improved life expectancy and greatly extended healthy life spans. Improvements in orthopedic surgery and physical therapy have kept 70 year olds hiking, biking and skiing. A 2007 report by the Consilience Group found that Americans age 45 and over have increased their participation in a suite of outdoor activities.

As Baby Boomers leave the work force, they will spend more time in New England's wooded settings where they have vacationed in the past (Consilience Group, 2007). While Baby Boomers are likely to continue to participate in outdoor activities in the forest regions it is also likely that their preference will shift to softer pursuits. Aging Alpine skiers will become Nordic skiers, former white water kayakers will become canoeists and multi-day backpackers will shift to day hiking. Eventually, this boomer group will 'age out'

of most of these activities, but long term demographic data shows that the proportion of older Americans will continue to increase. A big question is whether a large new cadre of outdoor enthusiasts will take the Boomers place? There are too many factors at play to make a confident forecast including New England's growing ethnic diversity, the influence of digital entertainment, the growing cost of transportation to reach recreation destinations in northern New England, and the impacts of climate change on activities such as skiing, snowmobiling and foliage viewing.



Coupled with the demands made by an increasing population are the changing preferences of that population. The economic drivers of the northeastern economy, as a whole, long ago shifted from manufacturing to service and knowledge-based businesses. Success in these businesses depends not so much on location but the ability to attract and retain talented employees at reasonable costs (Powers, 2001). Employees frequently select a place to live and work based on what they consider “quality of life” attributes, including access to open space, recreational options, good air and water quality, social opportunities and other factors. A number of news outlets and national rankings have trumpeted New England states for their quality of life. In 2013, CNBC found Vermont, Maine and New Hampshire the 2nd, 5th and 9th best states to live in based on availability of such amenities. All the other New England states scored in the top twenty (CNBC, 2013). New England states do even better in Forbes Magazine’s health rankings. Out of fifty states, Vermont, New Hampshire, Massachusetts, Connecticut and Maine were ranked 1st, 3rd, 6th, 7th and 9th respectively (Forbes 2008).

Given the picture sketched above—a larger share of 65 and older in the New England population, the importance of the natural environment and amenities to attracting a talented workforce and the uncertainties of demographics and climate change on the future of forest based recreation—we’re left asking this question: *Looking 10 – 15 years out, what course of action should New Englanders take to capitalize on our forests and their long-standing history of supporting forest-based recreation to the benefit of the region?*

E. Capitalizing on New England’s Forests

We see three courses of action if we are to capitalize on New England’s forests:

- Retain Forest Land;
- Promote High Quality Uses that Protect the Environment; and
- Promote Forest-Based Recreation in Ways that Attract New Potential Users.

Retain Forest Land – If we can retain 30 million acres of forest land in 2060, New England would still have its rural character and charm, remain an attractive place in which to live or choose to relocate, wildlife habitat would be preserved and a significant opportunity for forest-based recreation would continue to be available. This is a vast and complex challenge. The greatest likelihood for success lies in creating a shared cultural context that values forests and trees as an integral part of a high quality New England lifestyle. Providing high quality, forest-based recreational experiences for young and old alike will have the greatest impact on their view of the importance of forests and their willingness to retain them wherever they live.

New England’s urban and suburban forest lands are vitally important to the region because on a day-to-day basis they get more use by more people than forests in other areas. Efforts to conserve these forests and provide



<http://www.singletracks.com/photo.php?c=1&p=28441>

high quality recreational facilities such as trails and bike paths are vitally important to our quality of life. For example, Connecticut has over 60 mountain bike trails, attesting to the popularity of this growing outdoor sport.

The most spectacular New England landscapes for forest recreation are found in the regions we have referred to as *The North Woods* and *rural fringe areas*. Significant recreational resources in these areas have received protection through public ownership—Allagash River, Mount Katahdin Region and the two large National Forests; or private conservation ownership---St. John River; or through State-held and administered conservation easements---West Branch Penobscot River.

There is interest in conserving even more forest land in the region around Baxter State Park. One Maine based organization— RESTORE: The North Woods, founded in 1992, seeks to create a Maine Woods National Park encompassing 3.2 million acres, an area larger than Yellowstone and Yosemite combined. The vision is that the park would allow for the restoration of ecosystems, protect headwaters of major Maine rivers and provide a wilderness setting to attract users interested in wilderness types of recreation. The vision is that the Park would be an anchor for a system of ecological reserves stretching from the Adirondacks on the west, the Central Appalachians on the south, and Canada on the north. The proposal has both supporters and critics and its impacts have yet to be formally documented in a ‘feasibility study’ conducted by the federal government. www.restore.org/Restore/mission.html

Another concept that is gaining support is a proposal by Philanthropist Roxanne Quimby. She used the money she made from the sale of her company, Burt’s Bees, to purchase 100,000 acres of forest land east of Baxter State Park. The land includes spectacular views of Katahdin, about 25 miles of the East Branch of the Penobscot River, including four spectacular rapids and falls, the lower reaches of Wassataquoik Stream, which flows out of Baxter State Park, the lower reaches of the Sebois River, and several beautiful ponds. It is home to moose, bear, lynx, and many bird species. She has given that land to a non-profit called Elliotsville Plantation, Inc. (EPI). EPI wants to donate the land to the US Government to create a new national park and national recreation area. If other lands become available, Quimby has said that she would consider purchasing up to about 150,000 acres, but no more. In addition, Quimby has offered to donate \$20 million for an endowment to pay for maintaining the land and park, and has agreed to raise an additional \$20 million for a total \$40 million endowment (www.nrcm.org/projects-hot-issues/woods-wildlife-and-wilderness/a-new-national-park-recreation-area-in-northern-maine/). This proposal also has both supporters and opponents.

In all of the above mentioned regions there are of course extensive forest lands in private ownership. It will be vitally important to work with these landowners to maintain or gain additional public access. Obviously, not every acre should have public access and even for those forest areas that may be attractive for public use not every landowner will agree to it.

One example of public access to private forest lands at a landscape scale is provided by North Maine Woods, Inc. They allow recreational access for a modest fee that covers recreational maintenance costs on 3.5 million acres in northern Maine. This area is 14% of the 24.8 million acres of private forest land we would like to see available in 2060 for continued private and public benefit. The North Maine Woods, Inc. website says about the region they manage “**It is a spirit.** Past and present; people and nature meet here. Men and women who make their living

from the woods and those who relax here love this area. And through North Maine Woods, they work together to see that while they take forest products, fish, wildlife, and pleasure from this great region, they take nothing that will make it any less in the future than it is today.” This is a hopeful statement that in 2060 the public will still have access to this highly important forest region for recreation—but not a guarantee.

Public support for forest management and harvesting is an important element in assuring that private landowners can continue to realize a return from forest management and thereby keep their forests as forests. For these private lands there are at least three approaches to securing long term public access: work with landowners to allow public access within the context of the owner’s management objectives; purchase private lands in fee from willing sellers or purchase conservation easements.

A major source of funding to support land acquisition for public recreation and conservation purposes has been the Land and Water Conservation Fund. The LWCF was created in the Land and Water Conservation Fund Act (P.L. 88–578), passed in 1964. “The LWCF initially had three sources of revenue: proceeds from sales of federal properties, motorboat fuel taxes, and fees for recreation use of federal lands. However, it quickly became clear that the \$100 million per year raised through these sources was insufficient for meeting the goals of the program. In 1968, the LWCF’s funding level was raised to \$200 million per year for five years, and revenues from leasing of Outer Continental Shelf (OCS) oil and gas resources were tapped as an additional funding source. The LWCF was increased again in 1971 to \$300 million annually (P.L. 91-485). The new law passed in that year emphasized the need for more and better urban parks and more close-to-home recreation. Finally, in 1977, the funding level was increased again (P.L. 95-42), this time to \$900 million annually, where it has stayed to this date. It is important to understand that although \$900 million is accumulated annually into the fund, this money is not necessarily spent on federal land acquisition and stateside programs.

The LWCF is not a true “trust fund” in the sense that money collected must be allocated to specific targeted uses. In fact, in most years, LWCF programs have received far less than the \$900 million accumulated into the fund. The “unappropriated balance,” or the difference between the cumulative amount deposited into the fund and what actually has been appropriated for the LWCF state and federal programs, is over \$16 billion. Congressional appropriators may, and do, tap the LWCF for a variety of purposes” (Walls, 2009). Since 2000, the use of the LWCF for these peripheral programs has increased and in 2007 accounted for 58 percent of total LWCF spending. Other uses have included, among other things, the maintenance needs of the four land management agencies, Forest Service highway work, the Historic Preservation Fund, the Forest Service State and Private Forestry Programs, and Fish and Wildlife Service Endangered Species grants (Walls, 2009). While the LWCF is a potential source of funding for forest land conservation the trend of diverting money from the fund for other purposes makes it an uncertain source.

Another federal funding source, the Forest Legacy program is a program of the USDA Forest Service providing grants to states for the purchase of conservation easements and fee acquisition of environmentally-sensitive or threatened forest lands from willing landowners. The Forest Legacy Program provides an alternative for forest landowners to selling timberland for development. Nationwide 2,236,271 acres have been protected as of January 2012. This program provides a win-win for both landowners and the public. Conservation easements can allow a

landowner to receive remuneration for forest benefits valued by the public and still continue to manage their lands for timber production so they can realize an on-going financial return.

In the last decade, the emergence of land trusts that can work effectively at the state and local level to preserve important landscapes, including forests, offers hope that significant land conservation can be achieved even in the face of uncertain federal funding. There is a national organization that supports land trusts across the US called the Land Trust Alliance. By their definition “A land trust is a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements.” Here is an inspirational message from their website: “Saving land has given America the chance to know itself again. When we look into the mirror of our national identity, we can now see farms, urban gardens, historic sites, mountains and rivers—not just strip malls, bulldozers and traffic jams. Through land conservation, we give people the opportunity to taste something of what it is like to be authentically human: children rolling in the grass of an urban park; a grandfather teaching his granddaughter the quiet art of fishing; a fifth-generation farmer growing vegetables on his family’s homestead—nourishing his community with both fresh food and a farm stand where neighbors gather. We set out to save land, but, in the end, we build community, preserve beauty and instill hope” (see, www.landtrustalliance.org).

In 2010, the Land Trust Alliance conducted a national census of land trusts (previous censuses were in 2000 and 2005) and found:

- **Total acres conserved by state, local and national land trusts grew to 47 million** as of year-end 2010—an increase of about 10 million acres since 2005 and 23 million since 2000.
- **The number of active land trusts has leveled** off at 1,723 organizations since the last Census. This includes 1,699 state and local groups and 24 organizations categorized as national land trusts. California has the most land trusts with 197, followed by Massachusetts (159), Connecticut (137), Pennsylvania (103) and New York (97).
- **The number of active land trust volunteers increased by 70%** since 2005, while the number of paid staff and contractors increased by 19%.
- On average, a land trust with a **strategic conservation plan** guiding its land or easement acquisition **conserves twice as many acres** as a land trust without such a plan.
- From 2005 to 2010, state and local land trusts **more than doubled the amount of funding they have dedicated to monitoring, stewardship and legal defense**. They also nearly tripled their operating endowments.

From the Land Trust Alliance website: “The seven Northeast states of New England and New York are the birthplace of land conservation in this country. Home to 35% of the country’s nearly 1,700 land trusts, the Northeast represents great tradition and accomplishment among land trusts of all sizes in the region. By 2005 national, local, and state conservation groups saved 8.47 million acres in the Northeast, 12.13% of the area’s total land mass. Southern New England is dominated by small, single-town land trusts while most of Northern New England and New York

contains regional land trusts working in one or more counties or watersheds, with both Vermont and Maine having large statewide land conservation organizations having a significant impact.”

The Land Trust Alliance has a voluntary land trust accreditation program. They offer an accreditation seal to those land trusts that meet national standards for excellence, uphold the public trust and ensure that conservation efforts are permanent. All New England states have some accredited land trusts: Connecticut (7); Rhode Island (3); Massachusetts (6); Vermont (5); New Hampshire (7) and Maine (11) for a total of 39 in the six-state region. The Land Trust Alliance 210 national census lists a total of 500 land trusts in New England—Connecticut (137); Rhode Island (47); Massachusetts (159); Vermont (35); New Hampshire (34); and Maine (88). The census also lists acres conserved by New England land trusts; however, forested acres conserved are not specifically broken out: Connecticut (99,549 acres); Rhode Island (29,932); Massachusetts (333,334); Vermont (613,971); New Hampshire (348,274); and Maine (1,796,387) for a grand total of 3,221,447 acres.

Voluntary agreements made with forest landowners for public access are commonly used by snowmobile clubs when routing trails through privately-owned forest land, as noted earlier. There is also a tradition of public access on private land for hunting, but seeking permission of the landowner is often encouraged and sometimes required. Obviously, voluntary agreements do not offer permanence and can change based on the landowner’s experience with public use or when forest properties change hands.

Promote High Quality Uses that Protect the Environment – The hallmark of forest recreation in New England has been and should continue to be high quality recreational experiences that are afforded in ways that protect the environment. This has been the management ethic for Baxter State Park, the Allagash Wilderness Waterway, the St. John River, The West Branch of the Penobscot, the 3.5 million acres managed by North Maine Wood’s and the Green and White Mountain National Forests. Those who manage these exceptional recreational resources are well aware of the need to provide high quality recreational facilities that are carefully sited and well-maintained. The same can be said for many state and local parks throughout the region.

With a growing population for the region in the decades to come one of the greatest challenges will be to manage public uses of both public and private forest lands and recreation facilities in ways that do not exceed the resource carrying capacity. Few enjoy camping elbow-to-elbow, hiking up a mountain to see distant views among a milling crowd or canoeing on a lake surrounded by other paddlers. Those who enjoy paddling the remote Allagash River during the summer know that there will be competition for favorite campsites at days end and sometimes crowding on sites occurs.



Inherent in the New England forest recreation experience has been a sense of ‘getting away from it all’ and finding some solitude to reconnect with nature. It is the opportunity to make this connection that we should keep as our goal as we think about expanding recreational opportunities for current and future recreationists. The other challenge will be to ensure that those who recreation among New England’s forests have a use ethic that respects private landowner’s rights and those of other users, as well as the resources themselves. It is an on-going

challenge requiring educating each generation of new recreationists as well as visitors to our region. Certainly, forest recreation managers, rangers, campground owners and others are aware of the need to inform users about proper recreation etiquette.

Promote Forest-Based Recreation in Ways that Attract New Potential Users — As discussed earlier, trends in outdoor recreation are favoring vacations with more amenities and creature comforts than 50 years ago. Outdoor recreationists are looking for multiple activities that can satisfy the diverse interests and needs of family members. While many traditional New England recreational opportunities such as downhill skiing have attracted natives and tourists alike for decades, new forms of recreation are emerging such as hut-to-hut Nordic skiing, snowshoeing and mountain biking. An example is opportunities offered by Maine Huts and Trails (MH&T) (www.mainehuts.org/trip-planning/). From their website “During the winter months Maine Huts & Trails offers one of the most unique Nordic and backcountry skiing experiences in the northeast. MH&T grooms over 45 miles of cross-country ski trails for both classic and skate skiing. Skiers are invited to come into a hut for lunch or plan a multi-day hut-to-hut adventure.” Their summer adventures include mountain biking, which is permitted on most MH&T trails.

Another example of attracting a new cadre of recreationists is the ATV trail system being developed in northern New England. ATV clubs are mapping trails with GPS to create maps that will help those who enjoy ATVing explore new trails and backcountry areas. As recognition of the interest in ATVing, Jericho Mountain State Park in New Hampshire has 80 miles of trails open to ATV's and trail bikes and is going to expand the trail network.

The Northern Forest Canoe Trail, discussed in the next section of this report, is yet another example of interest groups in the ***North Woods*** region banding together to create a ‘destination experience’ to attract new outdoor enthusiasts.

The most valuable resource to those planning to recreate in New England's forests is ***information***. Who doesn't like a map, especially one that shows the locations of trails, campsites and trailheads? A map gives trail users a sense that they are in charge of their day. Recreationists using local trails come to know the landscape, the challenges and what's needed for a day's outing. They pass this information on to their children and friends. But for those from away travelling to New England as first time users, nothing is more helpful in trip planning and making the experience enjoyable than good, up-to-date information. As we all know, the Internet is a powerful means of searching information, but even that information is only valuable so long as it is kept up-to-date and in a user-friendly format.

While some families might plan a trip to only paddle the Allagash River, most people seeking to recreate, particularly in northern New England, want a diversity of recreation opportunities that might include shopping, hiking, camping, visiting a park and enjoying local restaurants. Many businesses benefit from those seeking forest-based recreation and their services also support those recreation opportunities. We see more opportunities for travel services that create trip packages—make arrangements for lodging, provide guides, offer information on day hiking suitable for a diversity of abilities and otherwise make the vacation



experience enjoyable by relieving travelers of the uncertainty of where to go and what's needed for a successful adventure.

F. How Can Economic Benefits to Communities, Businesses and Landowners be Realized?

To ensure that forests and forest-based recreation continue to be a vital part of the region's life style and to take advantage of the economic opportunities our forests present we need to implement state and regional strategies centering on five complementary types of investments:

- Support making forest management as profitable as possible to keep forests as forests including buying locally made forest products when possible;
- Work with landowners to ensure continued and where desirable expanded public access;
- Improve regional capacity and infrastructure;
- Provide high quality private sector amenities, including dining, lodging and support businesses; and
- Provide education and training for tourism operators and their employees.

In rural areas, these strategic investments could improve family income and community sustainability with new jobs in a robust forest tourism-based economy. As the US population grows and ages recreation experts expect an increased demand for improved hospitality amenities and low-impact physical activities. The right suite of public and private investments could add tens of millions of dollars a year to the New England economy. We will briefly consider each of the bulleted points above.

Support making forest management as profitable as possible – New Englanders can help keep forests as forests by supporting forest landowner's management of forests for wood production. Not all forest landowners choose to manage and harvest timber, but for many who do it represents the income stream that pays land management costs, taxes and a return on investment. Forest management activities, especially harvests, can create temporary disruption to what was formerly an aesthetically pleasing forest environment. Stumps, brush piles and logging roads with associated truck traffic are a necessary part of producing the wood products that we all depend on to sustain a high quality New England life style. Laws, regulations and tax policies should support profitable forest management. While forest-based recreation can add economic value to the region's economy, the major economic driver in many rural areas of New England is the production of wood products. When forests in our region don't produce wood that they could then we must meet our wood consumption needs from timber harvesting in other regions or countries often with minimal environmental regulations. This topic is covered in more depth in the companion report *Production Versus Consumption of Wood Products in New England*.

Work with Landowners to Ensure Public Access for Recreation – 84% of New England forest land is in private ownership with a small percentage in conservation easements. Many outstanding forest recreation areas are already in public ownership, but much of the private land—as with North Maine Woods discussed earlier—does provide high quality recreation

opportunities including hunting, fishing, hiking camping, Nordic skiing and snowmobiling, among other activities. Local snowmobile clubs have been successful at working with landowners to establish and maintain snowmobile trails. Where private land has been posted it is often done following unfortunate experiences with public access such as damage to fences, gates, roads and dumping of trash. It is important to work with landowners to resolve these problems if public access is to continue or expand. Teaching good environmental ethics to the next generation of outdoor recreationists can go a long way to ensuring that private land can still be accessed by the public for recreation.

In Maine, the Warden Service encourages those who want to recreate on private land to seek landowner permission. “The Maine Landowner Relations Program encourages all land users to voluntarily seek permission prior to hunting, fishing, trapping, snowmobiling, ATVing, or conducting any activity on private property. Please respect landowners and their private property. Remember, without access to their property, where would you go to hunt, fish, trap, snowmobile, or ATV? Private landowners are the most important part of outdoor recreation in Maine. With approximately 94% of the land in Maine being privately owned it is very obvious where the majority of outdoor recreational activities are taking place; on private property. Take time to ASK FIRST! It’s the right thing to do.” The program has a courtesy card that those who wish to access private land for recreation can fill out and share with the landowner (see, www.maine.gov/ifw/aboutus/commissioners_office/OutdoorPartnersPgrm/pdfs/landowner_landuser_courtesycard.pdf).

The same message occurs on New Hampshire’s Fish and Game website “Hunting is a New Hampshire tradition, one that we strive to pass on to present and future generations. With greater than 70% of New Hampshire’s land under private ownership, the key to a quality hunting experience for most of us is the ability to access private lands. If we are to maintain the rich New Hampshire hunting tradition, it is important to remember that access to private land is a privilege provided to us through the generosity of the landowner” (see, www.wildlife.state.nh.us/landshare/hunters_guide.html).

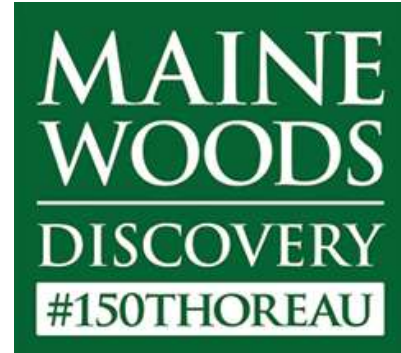
Improve Regional Capacity to Bolster Forest-Based Recreation and Infrastructure – The Northern Forest Center is an example of how to increase the capacity of New England recreational businesses to attract tourism.

The Center describes itself as follows: “Since it was founded, The Center has rallied people around a vision for the region’s future that is built on three essential ingredients: thriving communities, healthy forests and innovative and resilient local economies that can support both.” The Center coordinates regional strategies across multiple interests including conservation, economic development and community development—in the four-state region of New York, Vermont, New



Hampshire and Maine (northernforest.org/the_center_the_region.html).

The Northern Forest Center is a founding member of the [Northern Forest Tourism Network](#) (NFTN) – an emerging network of businesses, non-profits, universities, and individuals with a shared interest in improving tourism outcomes in the rural Northern Forest. An example of the Networks efforts is *Maine Woods Discovery*. From their website: “The Maine Woods Discovery team includes a talented cross-section of regional outdoor recreation leaders. Working together, these dedicated professionals create exciting, memorable experiences for visitors from all walks of life who share a love for spending time in the woods. From their distinct (and sometimes encyclopedic) local knowledge about our trails, mountains, rivers and ponds or their attentiveness to constantly enhancing and improving the visitor experience, to using local resources or the shared respect for cultural tradition and authenticity, every member of the Maine Woods Discovery Team is committed to making sure you will never forget the Maine Woods.” Participants include some of Maine’s most respected outdoor adventure providers including Appalachian Mountain Club, Maine Huts and Trails, Mahoosuc Guide Service, Northern Outdoors and the Northern Forest Canoe Trail (discussed below) (www.mainewoodsdisccovery.com/about-us/).



An example of regional coordination offering tourists a new ‘destination’ experience is the Northern Forest Canoe Trail (NFCT) (www.northernforestcanoetrail.org/). “The Northern Forest Canoe Trail is a 740 mile inland paddling trail tracing historic travel routes across New York, Vermont, Quebec, New Hampshire, and Maine. NFCT connects people to the Trail’s natural environment, human heritage, and contemporary communities by stewarding, promoting, and providing access to canoe and kayak experiences along this route” (see, www.northernforestcanoetrail.org/AboutNFCT-2/Mission-&-Strategic-Programs-34). NFCT provides trail access, meaningful trail experiences, trail mapping, trail construction and stewardship and is also directly involved within the communities in rural tourism development and activities such as a youth paddling program.

Provide High Quality Private Sector Amenities – We have stated that demand for recreational services can grow not only as more people participate, but also as the region more effectively meets their demand for high quality tourist products and services. We also predicted that as Baby Boomers leave the work force, they will spend more time in the New England forest settings where they have vacationed in the past (Consilience Group, 2007). While the Boomers are likely to continue to participate in outdoor activities in the forest regions it is also likely that their preference will shift to softer pursuits. Rather than a rustic campsite with a truck tire rim for a fire ring they will want a trailer site with electricity and water. They are more likely to enjoy a catered lodge after a day of Nordic skiing than a stay in a tent. In sum, the more affluent members of this age group are seeking higher quality services from commercial providers of both recreation activities and the ancillary support services—restaurants, lodging, arts and culture, etc.

High quality amenities will also attract tourists from outside the region who have the means and interest to explore New England’s forest-based recreational opportunities. The Maine Huts and Trails organization, mentioned earlier, is a model of new efforts in catering to these recreationists.

Provide Education and Training for Tourism Operators and their Employees – Tourism business employees are often on the frontline—usually the first people tourists meet when reaching a tourism destination. They can have a huge impact on tourist’s enjoyment of recreation opportunities. These employees include guides, outfitters, concierges, wait staff and others. In *Tourism Strategy for the Maine Woods* David Vail states “Transforming Maine’s northern forest region into a world-class destination is not a sure thing. To “deliver on the promise,” we must raise tourism service to the high standards expected by affluent, discriminating “experiential tourists.” True, our best practice guides, outfitters, restaurants, and lodgings do offer such quality, but there is a big gap between best practice and “average practice.” A challenge intimately connected to raising product quality is upgrading job quality. Rural prosperity requires hundreds more highly skilled, well-compensated tourism careers.” (Vail, 2007).

The Maine Woods Consortium (MWC) is an open association of non-profit organizations, businesses and government agencies dedicated to advancing a “triple bottom line” approach (economy, environment, community) to development and conservation in the Maine Woods region (www.mainewoodsdiscovery.com/about-us/). One of their programs, the Maine Woods Tourism Training Initiative (MWTTI) is delivering a comprehensive, multi-modal training program to meet educational needs expressed by tourism businesses and their employees in the Maine Woods. “MWTTI began by organizing county networks of public and private training providers in Franklin, Piscataquis, and Washington counties and expanded in 2010 to include Aroostook, Oxford and Penobscot. Somerset County joined MWTTI in 2013 fulfilling the goal of having all seven Maine Woods counties participating in the program. Now in its fourth year, MWTTI continues to support local training networks while working at the state level to forge a plan for long-term sustainability” (www.mainewoodsconsortium.org/tourism-programs#MWTTI).

Collectively, these networks have:

- Organized 98 workshops for local tourism businesses;
- Provided training for more than 1,100 frontline workers, business managers and owners; and
- Served more than 375 tourism businesses across the Maine Woods region.

Maine Woods Tourism Training Initiative offerings have ranged from customer service training, to social media marketing, packaging, local interpretation and basic management practices like hiring and bookkeeping.

G. Potential Economic Benefits to the New England Region

Before estimating the potential for local economies to benefit from forest recreation, it is important to discuss the economic data available on forest recreation and the methods for estimating economic value. For a variety of reasons, quantifying the economic impact of forest-based recreation in New England is very challenging. The most common metric for quantifying economic activity is “Gross Domestic Product”. The US Bureau of Economic Analysis (BEA) defines GDP as the total value of goods produced and services provided in an area during a period. The BIA tracks GDP by industry at the national, regional, state, and metropolitan statistical area levels by surveying businesses and using statistical tools to scale those results to the desired levels. This methodology categorizes industries by North American Industrial Classification System (NAICS) code. NAICS does not have a distinct code for forest recreation, which hinders analysis. The economic value of forest recreation is largely nested within NAICS categories 71 (arts, entertainment, and recreation), 72 (accommodation and food services), 48 (transportation), and 44-45 (retail trade). However, the data do not provide sufficient granularity or transparency to determine the share of this economic activity attributable to forest recreation. Some nations, Sweden for example, have set up special accounting practices to analyze hard to characterize sectors like tourism. However, the BEA has not developed comparable “satellite” accounts.



Therefore, state and private entities across New England use their own methods and data to estimate the economic value of forest recreation. These entities include state departments of tourism and economic development, non-profit conservation and advocacy groups, private companies, and academic economists. Methods differ from entity to entity. The North East State Foresters Association (2001) (NEFA) estimated that the total value of forest recreation in Upstate New York, Vermont, New Hampshire, and Maine totaled \$2.9B (\$3.9B in 2014 dollars). They analyzed forest recreation on an activity-specific basis. The activities included Nordic skiing, alpine skiing, camping, snowmobiling, hunting, wildlife viewing, and fall foliage viewing. They used BEA and recreation surveys conducted by state agencies to extrapolate spending figures for these recreation types. Because the forest is arguably not necessary for most of these activities to persist, they reduced the final value by 25%. Alpine skiing, for example, thrives in other areas of the world without large forests.

It is important to note that this NEFA figure includes Upstate New York but not southern New England (Connecticut, Massachusetts and Rhode Island). While the regions of Southern New England and Upstate New York are very different, they do experience a comparable amount of outdoor recreation centered on forests and lakes. Therefore, for our purposes here, it may be reasonable to assume that the \$1.3 billion in forest recreation GDP of upstate New York, which includes such notable forest recreation attractions as the Adirondacks, is roughly comparable to that of southern New England, which on one hand is far more populated but lacks forests resources comparable to the Adirondacks. This suggests an economic contribution of \$4 billion annually in 2014 dollars. Coming at valuation from another perspective, David Vail, emeritus professor of economics at Bowdoin College, has studied forest recreation in New England for decades and estimates that the total economic value to be between \$5 and \$7 billion (David Vail,

personal communication, 2014). These values reflect the findings of tourism surveys, various studies, and analyses conducted throughout the region over the past twenty years.

Gathering primary data on forest recreation's economic impact in New England is beyond the scope of our efforts here, rather we relied on the existing information in the literature. Future studies would benefit tremendously from a comprehensive analysis driven by surveys of forest recreation business, consumers, policy makers, and academics. We recommend that such a data collection effort and analysis be carried out.

In the absence of such a comprehensive analysis, this study assumes that the total contribution of forest recreation to the New England economy stands somewhere between \$4 and \$7 billion annually. There are numerous factors that will influence this figure over the next fifteen years. Some of those factors are outlined below.

- 1) **Retiring Baby Boomers:** The Baby Boomer Generation has remained active and plans to remain active long after their retirement. Some of the most reliable consumers of New England's forest recreation opportunities belong to this generation. Numerous demographic studies suggest that they will spend more time participating in the outdoor activities they enjoy after retirement (Pew Research, 2010; Consilience Group, 2007, Outdoor Industry Association, 2013).
- 2) **Vacation Trends:** The US gives its workers less paid time off than any other OECD nation (Forbes, 2013). Furthermore, the amount of vacation time taken by the American workforce has steadily declined over the past few decades. More troubling for the forest recreation industry, the frequency of extended vacations (one week or longer) has declined more precipitously. Americans tend to take their vacation as long weekends. It is extremely difficult to reach and enjoy many of New England's forested recreation opportunities over a three or four day period (Wall Street Journal, 2013). The success of the New England forest recreation industry will depend partially on the ability to benefit from this trend by offering shorter trips.
- 3) **Branding and Marketing:** A fundamental challenge for all businesses is making customers who might buy their products or services aware that they exist. New England's forests lack a recognized recreation brand that could help attract tourism dollars to the region. The success of the forest recreation industry will largely depend on its ability to reach potential customers and present itself as a high quality, family friendly, mixed use, adventurous yet comfortable vacation option (Vail and Daniel, 2012). There is tremendous room for improvement. In this regard, a recent study by the ConnectME Authority (2013), a state agency that supports funds high-speed telecommunications infrastructure construction in Maine, found that 59% of Maine businesses lack a website. Assuming that this statistic holds across at least northern New England, there is enormous room for improving marketing and awareness about the opportunities available in our forest region.
- 4) **Strategic Investments in New Services:** There has been a lack of investment in New England forest recreation businesses for years. The region largely lacks the lodges, trails, informational resources, hotels, restaurants, and equipment vendors that set world-class outdoor recreational opportunities apart (Vail, 2007). The success of the industry will

largely depend on its ability to identify new opportunities that can be financially viable and to access the capital that can develop them

- 5) **Climate Change:** Climate change presents a challenge to all resource managers. It is extremely difficult to reliably forecast how climate change will alter the New England landscape over both the next 15 years and long term. That being said, the success of our forest recreation industry will largely depend on its ability to adapt and, in specific instances, capitalize on new opportunities. Warming trends suggest that decreased snow pack will challenge much of the region's winter recreation economy. Vermont, for example, derives more of its per-capita GDP from the alpine skiing industry than any other state (Vermont Tourism Data Center, 2011). The warm season will become longer, and climate models suggest that New England will also see more rain. As much of the US experiences more severe drought and extreme weather events, New England summer vacations may become more appealing (IPCCC, 2007; GAO, 2003).
- 6) **Effectiveness of Strategies Pursued by Competing Destinations:** The New England forest recreation industry competes with recreation industries in other regions of the eastern US and Canada for customers. Independent of any action New England's forest recreation industry takes, its success is also influenced by the effectiveness of the competition. In this case the competition consist of other regions that recreationists might visit, including the Canadian Maritimes, Adirondacks, Appalachian forests, and (perhaps most significantly) Coastal New England.

1. Scenario Analysis

The complex interplay of the factors listed above could create any number of potential future outcomes. The following scenarios offer three different visions for what that future might look like in economic terms. The first is pessimistic and assumes that the forest recreation industry in the region fails to capitalize on the resource and suffers a decline. The second is a status quo scenario that assumes the industry does just enough to maintain its market share and to counteract countervailing forces (such as climate change and decreasing vacation times). The third is an optimistic scenario that assumes the industry can capitalize on its current resources, successfully navigate industry headwinds, and make effective investments in amenities and marketing. Note that all values are in real, 2014 dollars and do not take into account time value of money (i.e. they are not discounted).

2. Losing Ground (Pessimistic Scenario)

In this scenario, forest recreation declines for any one or a number of factors; for example, climate change could have an adverse impact on recreation. New England summers could become warmer and significantly wetter. In the winter, snowfall and snow pack could be reduced hampering winter tourism. Declining participation in forest recreation by members of Generations X and the Millennial Generation could offset the increase in Baby Boomers activities. Environmental conditions could deteriorate; for example, milfoil infestations could be widespread in the region's lakes and damage their appeal.

Decreasing vacation time could also cause a decline in forest recreation. To highlight one area of potential impact where we have good data and a clear idea of how it could be affected, winter

sports currently account for approximately 25% of all forest recreation economic activity (Vermont Ski Areas Association, 2011; Maine Office of Tourism, 2010-2012; Plymouth State University, 2007-2011). The decline of snowfall and snow pack from climate change has the potential to reduce alpine skiing, Nordic skiing, snowmobiling, and all other winter sports industries by half, representing a decrease of 12.5% over fifteen years. Given this and all of the other activities and resources that could be adversely affected by climate change (e.g., cold water fisheries, wildlife populations such as moose, etc.), and in the absence of effective action to build out and promote the region's recreational resources, the combined effect of these trends could be to diminish the forest recreation industry by 30% over fifteen years.

It is important to note that a 30% decline in one of the region's major industries would have dramatic ripple effects. Employment would decline. Out migration and depopulation would accelerate. Property values would fall harming the local tax base and all municipal services that depend on it.

Table 2. Estimated starting and projected values, losing ground scenario

Scenario		\$ value in billions		
		2014	2022	2030
Losing ground	Low	\$4.0	\$3.5	\$2.9
	Best	\$5.5	\$4.7	\$4.0
	High	\$7.0	\$6.0	\$5.1
Cumulative effect				-30%

3. Business as Usual (Status Quo)

In this scenario New England's forest recreation businesses cope with the changing climate. Their visitation suffers due to the loss of snow but increases in summer despite potentially greater rain. However, they are able to replace lost customers with new visitors who would have vacationed in the drier parts of the country. New England's traditional forest recreation customers maintain their activities. The retiring and active Baby Boomer population's increased participation in forest recreation makes up for declining forest recreation interest from the younger generation. The industry makes enough investments in amenities and marketing to retain its position.

Table 3. Estimating starting and projected values, business as usual scenario

Scenario		\$ value in billions		
		2014	2022	2030
Business as usual	Low	\$4.0	\$4.0	\$4.0
	Best	\$5.5	\$5.5	\$5.5
	High	\$7.0	\$7.0	\$7.0
Cumulative effect				0%

4. Gaining Ground (Optimistic Scenario)

In this scenario, the forest recreation industry does everything right and benefits from a small measure of good fortune. The Baby Boomer cohort boosts their participation in forest recreation. People 65 and older currently make up 9% of outdoor recreation participants (OIA 2013). We expect participation by this group to double over the next fifteen years as the percentage of the population age 65 and older increases by 50% (Pew Research 2010; Outdoor Industry Association 2013; US Census Bureau 2013). Retired persons spend a greater portion of their time in forest recreation activities after they turn 65. The younger generation reverses the trend of shorter, less frequent vacations and spends more time in the woods (Wall Street Journal 2013). We conservatively estimate that such a trend could boost the industry by 10%.

The industry successfully makes strategic and effective investments in marketing, branding, improved informational resources, and new high quality amenities. It is very difficult to estimate what the impact of such investments could be over such a long period. However, the regions of the country that successfully capitalize on their recreational resources tend to have population and personal income growth rates much higher than those in rural New England. These include counties close to well-known national forests, parks, and monuments. On average, these counties report 17% more per-capita economic activity than rural New England counties (BEA 2013). This study attributes this difference to improved branding and amenities, and feels that a similar level of improvement is possible in Maine. This scenario also assumes that the New England forest region is significantly more effective in its efforts at self-promotion and strategic investments than competing regions in the US.

Approximately 60% of the land area of the US, mostly in the Great Plains and Intermountain West, experienced extreme drought in 10 of the 100 years between 1902 and 2002 (GAO 2003). Predictions are that global climate change will cause this figure to increase. Some models show rainfall decreasing by as much as 10 inches in large areas of the US south and southeast, leading to more frequent and more severe droughts in those regions. As these areas suffer from water scarcity, their productivity will suffer. New England, by contrast, is expected to see increased precipitation in the long term (IPCCC 2007). This scenario assumes that the New England forest recreation industry is able to minimize losses from decreased snow pack and to capitalize on its warmer climate by attracting visitors who might have traveled to other parts of the country. New England may become a more desirable place to visit if the southwest or southern US become unseasonably warm or dry for much of the year. This could add 15% to the total forest recreation spending over fifteen years. The table below details the cumulative impacts of the six factors outlined above.

Table 4. Cumulative impacts of influencing factors

Factor	Fifteen year effect
Retiring baby boomers spending more time in forests	10%
Vacation trends	10%
Branding and marketing	6%
Strategic investments in new services	6%
Climate change	15%
Effectiveness of strategies pursued by competing destinations	5%
Net effect	50%

Table 5. Estimating starting and projected values, gaining ground scenario

Scenario		\$ value in billions		
		2014	2022	2030
Gaining ground	Low	\$4.0	\$5.0	\$6.0
	Best	\$5.5	\$6.9	\$8.3
	High	\$7.0	\$8.8	\$10.5
Cumulative Effect				50%

The New England forest recreation industry has the opportunity to capitalize on an underutilized resource. If appropriate and judicious investments are made in marketing, branding, new amenities, and new informational resources, then the region stands to increase the total economic value of the industry by as much as 50% by 2030. This represents growth from between \$4 and \$7 billion to between \$6.5 and \$10.5 billion annually. It is possible that specific business and municipalities will dramatically outpace this growth. The New England forest includes many highly desirable recreational settings and under-appreciated hamlets. There are more opportunities to grow business, create jobs, and diversify the regional economy while conserving the region's forest resources.

The 50 percent growth estimate presented here may be a low figure. Currently 99% of recreational visitors to the New England Forest come from the east coast of the US north of Washington DC, the Canadian Maritime provinces, and Quebec. There is a very sizeable untapped market in other parts of the country and the world seeking a variety of recreational activities including guided hikes, white water rafting, multi-day canoe trips and month-long back packing treks. There is precedent for rapidly shifting trends in consumer preferences that could boost New England forest's recreational appeal. The recent increase in national fitness consciousness has ushered in a wave of enthusiasm about running. This is already starting to translate into more hikers (OIA 2013). New England's entrepreneurs, policy makers, business owners, and investors can capitalize on these trends through a few key investments – even a few restaurants and modest shops can make a difference in a rural town fringing a large forest region. Other types of improvements could include new sources of information such as mobile device apps (software applications); e.g. that aggregate the locations of boat launches and boat rentals in the northern forest in an intuitive application. There is likely room for more adventure companies who offer trekking tours in the summer and snowmobile tours in the winter. This growth would also support all of the jobs required to service recreation businesses.

The recreation industry has clear potential for growth and relatively low capital requirements to achieve it. New England's heritage is as a place where the economy consists largely of small businesses and that is likely how the forest recreation industry will remain. New England's rural economies will be stronger and more diverse with expanded activities in recreation and tourism to complement what we hope will be a growing forest products sector as well.

H. Conclusions

Forest recreation enthusiasts are fortunate to have 80% of the region's landscape still in forests. If New Englanders in 2060 are to have the same opportunities for the diversity forest-based recreation that we enjoy today we will need to retain at least 30 million acres of forest land. Trends in changing forest land ownership and conversion of forest land to other uses are concerning. Pressure is greatest for conversion to non-forest in southern New England and southern coastal New Hampshire and Maine. Diverse approaches, rather than any one single approach, will be needed to retain New England's forests as forests. In addition to supporting public and nonprofit efforts to work with landowners to achieve win-win outcomes (e.g., easements that allow the landowner to continue forest management while being paid for development rights), we need to work to keep forest management profitable for private landowners by supporting their ability to realize a financial return from forest management and timber harvesting. We also need a more wide spread recognition that we as consumers of forest products should be meeting as much of our needs for wood from our region's forests instead of relying on harvesting in distant forests in other regions or countries. We can, among other approaches, encourage suppliers of wood products to favor those from our own region and buy directly from local mills, thereby supporting local businesses.

Over 500 land trusts in New England are successfully working with forest landowners to conserve forest land by acquiring conservation easements that allow for resource protection, often allow for public access and provide an opportunity for the forest landowner to receive compensation for public benefits their lands provide. The land trust movement will continue to achieve major public conservation benefits throughout New England in the decades to come. However, it will be necessary to coordinate their efforts to achieve protection of contiguous parcels of important forest lands and other important natural areas such as river corridors.

While New England's forest-based recreation opportunities don't rise to the world class level of the Rocky Mountains, they are unique in the US in that they offer an exceptional diversity of recreational opportunities close to urban area – hunting (including moose), fishing (including most of the country's wild brook trout), skiing, mountain biking, hiking, camping, canoeing (including multi-day backcountry trips) and white water rafting, among others. In northern New England tourism has an unrealized potential to provide more jobs and to help struggling rural economies. To realize this potential will take collaborative approaches to pull together many diverse recreational opportunities into a 'destination package' that provides high quality experiences that attracts new users and keeps them coming back. The goal is to maximize repeat visitors that can provide a stable base for tourism businesses. The Northern Forest Center, Maine Woods Consortium, the Northern Forest Canoe Trail and Maine Huts and Trails are innovating new ways to capitalize on northern New England's forests and entrepreneurial spirit. While these organizations focus on the *North Woods*, no less important are the small 'vest pocket' parks and river front and rail trails in urban areas that bring people into everyday contact with trees and forests. Getting young people outdoors to experience nature firsthand leads to an appreciation for the natural world and the benefits of forest-based recreation that will encourage them to conserve forest land wherever they live.

We project that if the right investments are made in tourism destinations, marketing and workforce training that position New England to compete successfully against other destinations then the annual economic benefit to the New England region could range between \$6 billion and

\$10.5 billion annually. This would be a strong compliment to New England's \$9.8 billion forest products industry, which we also hope will strengthen and diversify over time.

I. References

1. Academic Literature

- Acheson, J. M. 2006. Public access to privately owned land in Maine. *Maine Policy Review*, 15.1:18-30. digitalcommons.library.umaine.edu/mpr/vol15/iss1/5
- Archer, B. H. 1982. The value of multipliers and their policy implications. *Tourism Management*. December.
- Boyle, K.J., J. Schuetz, and S. Kahl. 1997. Great ponds play an integral role in Maine's economy. *Water Research Institute*, University of Maine REP 473.
- Foster, D.R., B.M. Donahue, D.B. Kittredge, K.F. Lambert, M.L. Hunter, B.R. Hall, L.C. Irland, R.J. Lilieholm, D.A. Orwig, A.W. D'Amato, E.A. Colburn, J.R. Thompson, J.N. Levitt, A.M. Ellison, W.S. Keeton, J.D. Aber, C.V. Cogbill, C.T. Driscoll, T.J. Fahey, and C.M. Hart. 2010. *Wildlands and Woodlands: A vision for the New England landscape*. Cambridge, MA: Harvard Forest, Harvard University Press. 36 pp.
- Mills, A. 2004. Legal overview of Maine's great ponds and landowner liability laws. Augusta, ME: Governor John Baldacci's Task Force on Traditional Uses and Public Access to Land.
- Reiling, S. 1998. An economic valuation of snowmobiling in Maine: An update for 1997-1998. Orono, ME: University of Maine.
- Vail, D. 2007. Tourism strategy for the Maine woods: A big push to world class. *Maine Policy Review*, Winter.
- Vail, D., and H. Daniel. 2012. Consumer support for a Maine woods tourism quality label. *Maine Policy Review*, 21(2).
- Whittington, A., and J. Bissell. 2008. Baxter State Park: Economic impact study. Presque Isle, ME: University of Maine.

2. Institutional Publications

- Appalachian Mountain Club. 2012. Policy agenda for conserving New England's forests.
- Appalachian Mountain Club. 2013. Policy agenda for conserving New England's forests.
- Brookings Institution. 2006. Charting Maine's future: An action plan for promoting sustainable prosperity and quality places. Washington DC:
- ConnectME Authority. 2013. Broadband the road to Maine's future. Augusta, ME: Governor's Broadband Capacity Building Task Force Report.
- Consilience Group. 2007. The impact of aging populations on outdoor recreation. Memphis TN.
- Government Accountability Office. 2003. Freshwater supply: States views of how federal agencies could help them meet the challenges of expected shortages. GAO-03-514. Washington DC: US General Accounting Office.

Intergovernmental Panel on Climate Change. 2007. Climate change 2007: Synthesis report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the IPCC [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. Geneva, Switzerland. 104 pp.

Maine Development Foundation. 2004. Maine's natural resource-based industries: Indicators of health. Augusta, ME: Governor's Steering Committee on Natural Resource-Based Industries.

Maine Land Use Regulation Commission. 2002. Resource protection plan and recreation management plan for the Lower West Branch of the Penobscot. Augusta, ME.

North East Foresters Association. 2001. The economic importance of Maine's forests.

North East Foresters Association. 2001. The economic importance of New Hampshire's forests.

North East Foresters Association. 2001. The economic importance of the northeast's Forests.

North East Foresters Association. 2001. The economic importance of Vermont's forests.

Power, T.M. 2001. The economic impact of the proposed Maine Woods National Park and Preserve. September.

Pew Research Center. 2010. Baby Boomers approach 65 – glumly: Survey findings about America's largest generation. Washington DC.

Vermont Department of Tourism and Marketing. 2012. Benchmark study of the economic impact of visitor spending on the Vermont economy. Montpelier, VT: Chemura Economics and Analytics.

3. News Outlets

CNBC. 2013. America's top states for quality of life. www.cnbc.com/id/100824779 (accessed July 10, 2013).

Forbes. 2008. America's healthiest and unhealthiest states. www.forbes.com/2008/12/04/healthy-unhealthy-obesity-forbeslife-cx_ds_1205health.html

Forbes. 2013. US the only advanced economy that does not require employers to provide paid vacation time. www.forbes.com/sites/tanyamohn/2013/08/13/paid-time-off-forget-about-it-a-report-looks-at-how-the-u-s-compares-to-other-countries/

Wall Street Journal. 2013. Bringing back the no stigma extended vacation. June 28. <http://online.wsj.com/news/articles/SB10001424127887323683504578565482315023780>

4. Primary Data Sources

Bureau of Economic Analysis. 2013. Regional accounts, compensation of employees by industry. Accessed July 7, 2013.

Maine Office of Tourism. 2010-2012. Visitor tracking survey. Augusta, ME: Davidson Peterson Associates: Augusta ME.

Outdoor Industry Association. 2013. Outdoor participation report. Boulder, CO: Outdoor Foundation.

Plymouth State University. 2007-2011. New Hampshire visitor surveys.

US Census Bureau. 2013. Population division: Population forecasts, Table 14. Washington, DC: US Department of Commerce.

US Fish and Wildlife Service. 2011. 2011 national survey of fishing, hunting, and wildlife-associated recreation – Connecticut. Washington DC: US Department of Commerce.

US Fish and Wildlife Service. 2011. 2011 national survey of fishing, hunting, and wildlife-associated recreation – Massachusetts. Washington DC: US Department of Commerce.

US Fish and Wildlife Service. 2011. 2011 national survey of fishing, hunting, and wildlife-associated recreation – Maine. Washington DC: US Department of Commerce.

US Fish and Wildlife Service. 2011. 2011 national survey of fishing, hunting, and wildlife-associated recreation – New Hampshire. Washington DC: US Department of Commerce.

US Fish and Wildlife Service. 2011. 2011 national survey of fishing, hunting, and wildlife-associated recreation – Rhode Island. Washington DC: US Department of Commerce.

US Fish and Wildlife Service. 2011. 2011 national survey of fishing, hunting, and wildlife-associated recreation – Vermont. Washington DC: US Department of Commerce.

US Forest Service. 2010. National survey on recreation and the environment. Washington DC: US Department of Agriculture.

Vermont Ski Areas Association. 2011. Skier & rider visits.

Vermont Tourism Data Center. 2011. The Vermont travel and tourism industry: Fact sheet.