

New England Forests: The Path to Sustainability

CHAPTER 12 • GROW AS MUCH AS WE USE



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>.

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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

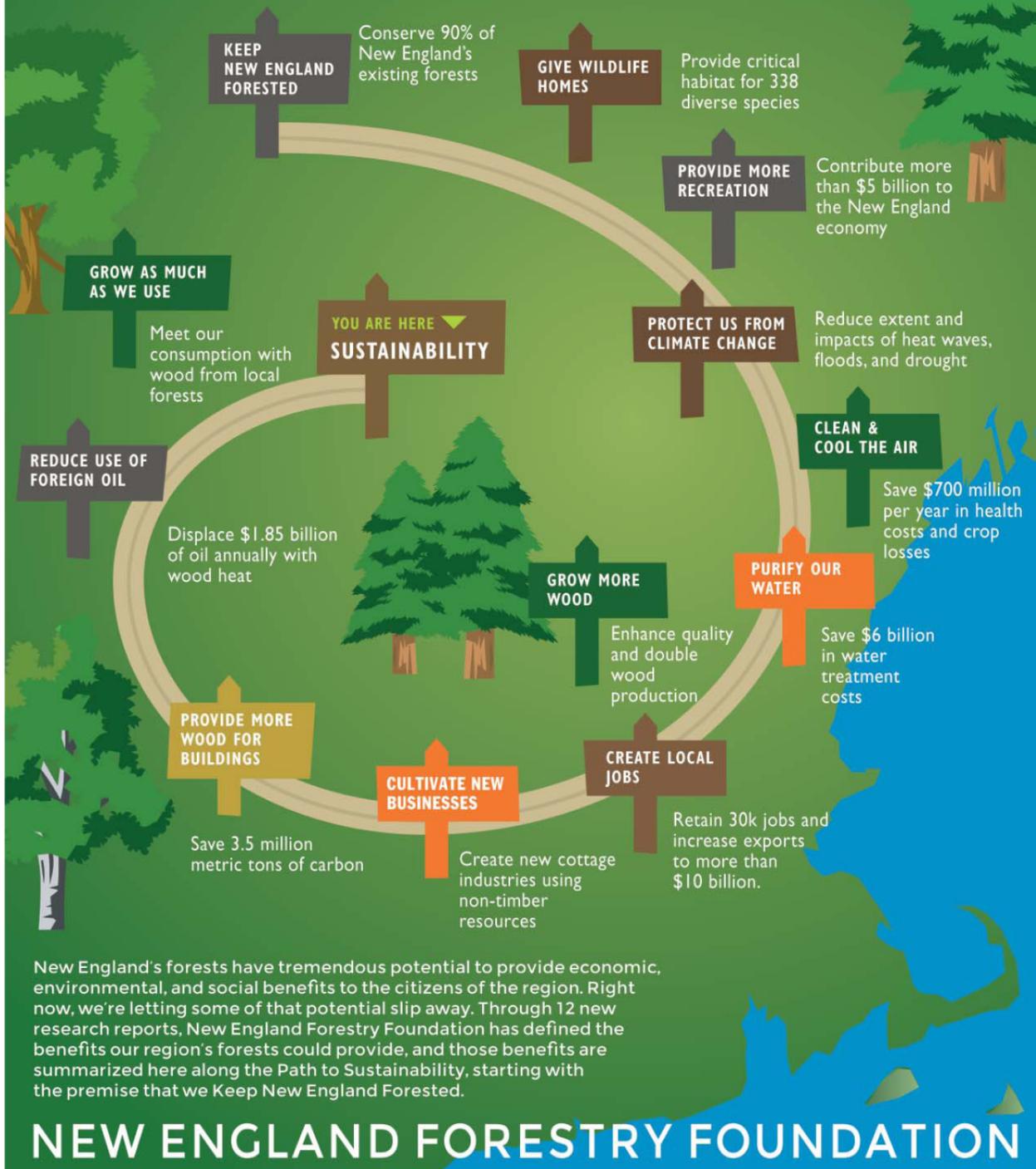


TABLE OF CONTENTS

- A. Overview7**
- B. National Statistics on Per Capita Wood Consumption.....11**
- C. New England Production and Consumption Statistics.....14**
- D. Conclusions.....20**
- E. References.....21**

GROW AS MUCH AS WE USE: Production versus Consumption of Wood Products in New England

Prepared by Craig Ten Broeck

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

A. Overview



Wood products made from forests -- nearby, as well as distant -- are everywhere and help to create the life style we enjoy in New England. I'm sitting in a room with exposed hemlock beams writing this report for you on a computer that sits atop a large wooden desk with a mirror-matched veneer and solid hardwood legs. The floor underneath it is tongue and groove pine. The room has solid Shaker style wooden doors with four panels. The trim around the doors and windows is pine. Paper reports lay open on my desk and are neatly piled on the bed behind me. The bookcase to my right was made by a local cabinet maker of pine. The old dresser to my left that I refinished 40 years ago is mahogany. Take a minute to look around the room you are in to consider the role of forests and wood in creating your surroundings.

The importance of forests and wood products extends well beyond our homes. Your street is lined with telephone poles that could be made from trees including Southern Pine, Douglas Fir, Western Red Cedar, Lodgepole Pine and Red Pine. The commercial or industrial buildings you frequent if not framed with wood likely have interior wood finishes and furnishings. If you ride a train the tracks are supported by wooden ties. Attractive rail fences define the boundaries of country yards. On a sunny day you might enjoy eating your lunch on a wooden park bench or at a picnic table.

The Idaho Forest Products Commission (2014) has created a new graphic to get across the many forms wood takes to enhance our lives. They have graciously given their permission to share this graphic, which expresses their enthusiasm for wood with New England readers of this report. Thanks to the Idaho Forest Products Commission!

WOOD you believe; We get so much from trees!

Trees are amazing! They provide beauty, shade, oxygen, clean air and water, fruit, nuts and wood products such as paper, furniture and housing. These benefits are well known. But did you know that literally thousands of products are made from trees? Many are surprising! From the medicine L-Dopa for treating Parkinson's Disease, to film in your camera, forest products are all around us.

When trees are used to make lumber and plywood, there are leftover chips, bark sawdust. The chips and sawdust are made into wood pulp for paper and other products. Not too long ago, those leftovers would have been burned as waste. Bark is used for landscaping, and to generate electricity for paper and lumber mills. Modern forest products operations are very efficient at using every part of a tree. Nothing is wasted.

Wood is made of tiny fibers (**cellulose**) and the natural glue that holds them together (**lignin**). When wood is turned into pulp for paper, heat and chemicals dissolve the lignin and release the cellulose fibers. Byproducts of this process are used in asphalt, paint, chewing gum, detergents and turpentine.

Cellulose is used for paper and much, much more. It is a principle part of melamine dinnerware, toilet seats, tool handles and cellophane. It is also used to produce helmets, toothbrushes and electrical outlets. Other refined cellulose products include rayon fabric, and nitrocellulose which is used to make nail polish, solid rocket fuel and industrial explosives.

Wood pulping by-products are used for many different things, ranging from cleaning compounds, deodorants and hair spray, to artificial vanilla flavoring, medicines and cosmetics. Torula yeast, produced from wood sugars separated in the pulping process, is a high-protein product used in baby foods, cereals, imitation bacon, pet foods and baked goods.

Silvichemicals (chemicals from trees) are so much a part of our civilization that we take them for granted. But they wouldn't exist without wood and wood products. Trees are truly a miracle resource!

Below are just a few of the thousands of products we get from trees:

WOOD
you
believe?



dye
oxygen
piano keys
rayon – books
fishing floats – inks
telephone books
varnish – atlases and maps
price tags – ping pong balls
tires – umbrella handles – signs
automobile instrument panels
space craft reentry shields –
newspaper
photographic film – newspapers
– posters
football helmets – toilet seats –
guitars
road building materials –
insulation



shatterproof glass – artificial vanilla flavoring
cork – vacuum cleaner bags – movies – stadium
seats
adhesives – decorations – turpentine – camphor –
waxes
fireworks – crayons – tannin – charcoal – pine oil –
pitch
musical instruments – perches for birds of prey –
toilet paper
milk cartons – flooring – bark for landscaping –
cardboard
grocery bags – furniture – chewing gum – paper
towels
oil spill control agents – Christmas trees – hockey
sticks
wildlife habitat – cosmetics – roofs – baby foods –
cider – vitamins
cooking utensils – photographic film – lacquer –
pallets – rubber gloves



mulch – clean water – golf tees – egg cartons – nail polish – fence posts – toys
toothpaste – eyeglass frames – syrup – antacids – shampoo – rubber gloves
menthol – electrical outlets – medicines – energy for electricity – plates and bowls
sausage casings – torula yeast – rulers – wooden blocks – houses – notebook paper
– oars
plywood – paper plates – computer casings – stain remover – coffee filters –

toothpicks
movie tickets – carpet and upholstery backsides – imitation bacon – diapers –
horse corrals
postcards – tax forms – sponges – shade – particle board – shoe polish – luggage –
bowling alley lanes
postage stamps – colognes – animal bedding – irrigation piping – fruit pie filling –
golf balls – game boards
suspending agent for drinking soda – pencils – dry wall – baby cribs – baseball
bats – lumber – decoys – kites
magazines – ice cream thickener – step ladders – birthday cards – broom sticks –
cider – ceiling tiles
crutches – backyard play sets – axe handle – food labels – 2 x 4's – candy
wrappers
scenery – party invitations – disinfectants – cd inserts – gummed tape – fruit
railroad ties – shelter belts – puzzles – swings – baking cups



buttons – cutting boards
benches – bird houses
stereo speakers
garden stakes
stairways – beds
tables – barrels
window frames
bulletin boards
linoleum – seesaws
fishing boats – billboards
disposable medical clothing
church pews – totem poles – desks
**How many other tree products can you
list?**

We get
so much
from
trees!

Clearly, New Englanders require a diverse array of wood products to support our lifestyles. Therefore, it is worth reflecting on how we can sustainably meet that demand. A few questions may help us to do that:

- As consumers of wood and paper products how much do we each use annually?
- How much of that wood comes from New England?
- How much of it is imported from distant forests?
- Could New Englanders on balance support their own wood needs from the region's forests?
- What kind of forest management would be required to meet those needs for New England's population?

The rest of this report will try to answer these questions.

B. National Statistics on Per Capita Wood Consumption

In preparing this report, we were fortunate to have available the US Forest Service's Forest Research and Development Division report on *Forest Sustainability Reporting in the United States*. The report uses a series of indicators to look at forest sustainability. Several of those indicators are directly pertinent to this report. Typically, the indicators are two-page mini reports with statistical information displayed in graph form and accompanying text. The rest of this section of our report draws heavily on the information provided in several of the 'sustainability indicators'.

We begin with a quote from "*Indicator 6.28: Total and Per Capita Consumption of Wood and Wood Products*," "Consumption per capita is an indication of the value people and businesses place on wood products, given their prices, prices of substitutes; their perceived use qualities; and environmental benefits and costs. It is also integrally linked to timber harvest and the many factors that influence it, including investment, management, regulations, and owner objectives. These, in turn, change timber productivity and ecosystem conditions in various regions. Harvest of wood for import to the US and export of US products influences forestry and the forest industry in other countries."

The US Forest Service "*Indicator*" reports discuss production and consumption of wood in roundwood equivalents—the amount of wood needed to make various products. So, for example, paper products are expressed in cubic feet of roundwood equivalents. It is relatively easy to convert from cubic feet to cords using the conversion factor of 85 cubic feet in a standard cord of wood (with no air spaces between the pieces of wood). A standard cord of stacked fire wood provides a good visual reference for most readers and is shown below.

Since a standard cord of wood is 128 cubic feet and the amount of solid wood in a cord (no air) is 85 cubic feet, we know that the volume of solid wood is about two-thirds of the volume of standard cord. If we could take the pile of wood in the picture shown on the right and compress it to two-thirds of its volume, we would have 85 cubic feet to visualize as we think about the US Forest Service statistics on wood production and consumption, which are in cubic feet. The relevance of this number will become obvious in a moment.

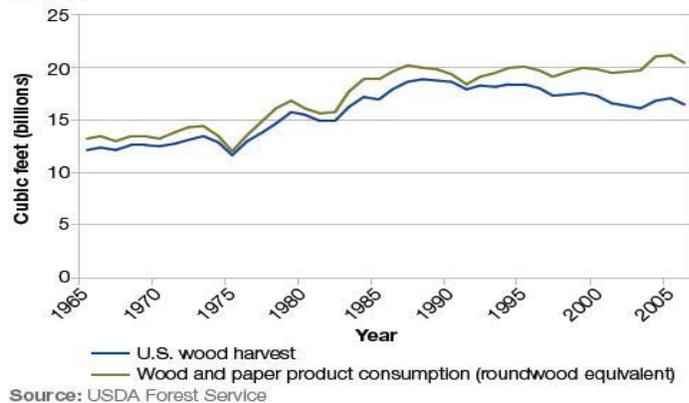


“Per capita consumption of wood and paper products and fuelwood in roundwood equivalents increased between 1965 and 1987 from 68 to 83 cubic feet per year” (US Forest Service 2011). In 1987, the total US per capita roundwood equivalent consumption nearly reached a cord of wood as discussed above. “From 1987 through 2006 per capita consumption has declined by 18 percent to 68 cubic feet per year” (US Forest Service 2011). 68 cubic feet per year is eight-tenths of a cord.

“Fuelwood use per capita increased to 15.3 cubic feet in 1984 and has declined to 5.2 cubic feet in 2006” (US Forest Service 2011). In these national statistics on per capita consumption of round wood equivalents fuelwood was about 8 percent of total per capita consumption in 2006. The following graph borrowed from “Indicator 6.28” shows trends in consumption over a 40-year period.

The top line of the graph shows wood and paper product consumption in roundwood equivalents.

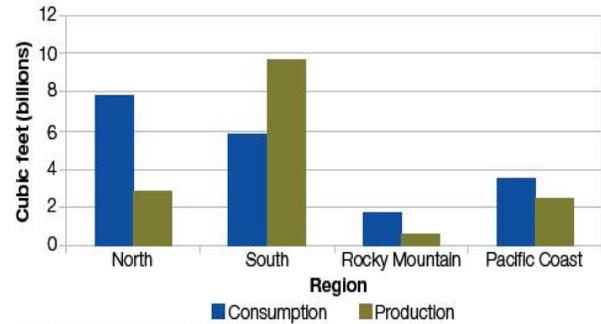
Figure 28-1. U.S. wood production (harvest, including fuelwood) and wood and paper product consumption (including fuelwood), in roundwood equivalents, 1965–2006.



The bottom line shows US wood harvest in roundwood equivalents. As can be seen from the graph the gap is growing over the period. This gap is being closed by increasing imports of wood and wood products. To try to put New England in the context of this trend another graph from “Indicator 6.32: Exports and Imports of Wood Products as a Share of Production and Consumption” is shown here. It should be noted that this graph does not include fuelwood, only wood and paper products consumption and production.



Figure 32-6. Wood and paper products consumption and production by region in roundwood equivalents, 2006 (billions of cubic feet) (Regional consumption is estimated by assuming national per capita consumption of 63.5 cubic feet is uniform across regions).



The “North” region, which includes New England, shows the greatest gap in production versus consumption (assuming per capita consumption matches the national average). As can be seen from the graph the North consumes more than twice as much wood as it produces. “In terms of roundwood equivalent, of the four Resource Planning Act (RPA) Regions, only the US South is a net exporter of wood and paper products (fig. 32-6).”

The gap between production and consumption is made up through imports. “The United States has become progressively more reliant on imports to meet consumption needs.” It is presumed here that the US trend also applies to New England (US Forest Service 2011).

“In terms of roundwood equivalents, imports of wood and paper products as a share of consumption increased from 13 to 30 percent between 1965 and 2005” (US Forest Service 2011).

“The sustained increase of the overall import share to the historically high level of 30 percent is due largely to growth in the softwood lumber import share, which reached a level of 38 percent in 2006. The overall import share is up from 15 percent in 1965. The import share for other products was relatively stable between 1965 and the 1990s, but has since also increased” (US Forest Service 2011).

As stated earlier, the average national consumption of 68 cubic feet per year is eight-tenths of a cord. In our companion report, “*Grow More Wood: The Potential of New England’s Working Forests to Produce Wood*,” we estimate that the average New England harvest per acre based on total forest lands currently available for timber management is 0.29 cords (see Table 4 of “*Grow More Wood...*”). To see the gap between production and consumption on a personal basis, we divide 0.8 cords of annual wood consumption (using the national figure) by 0.29 cords per acre production (using the average New England production figure). This yields the number of acres each of us New Englanders require to meet our wood needs each year under current forest management – 2.75 acres.

C. New England Production and Consumption Statistics



Understocked forest stand

We will next look at the production versus consumption gap for the population of our six-state region using two tables – the first table uses current management with a level of production of 0.29 cords per acre per year on average for the six New England states (see Table 4 of “*Grow More Wood...*”) and Table 2 from that report shows potential production under ‘exemplary’ forest management of 0.6 cords per acre per year (see Table 2 “*Grow More Wood...*”).

In New England, many forest stands are not currently occupied by the species best suited to the site that will grow the fastest on them and not all stands are fully stocked. Many harvests do not include top wood, such as large branches, which contain merchantable wood in hardwoods. Current management is largely “extensive,” rather than “intensive.” Thus, it is not maximizing growth. Let’s look at what current forest management produces per acre in each of the New England states and how that production contributes to meeting state and regional demand for wood products.

Table 1. New England wood production compared to consumption under current forest management

A State/region*	B Total forest lands currently available for timber management	C Current annual harvest in millions of cords**	D Annual consumption by state/region in millions of cords***	E Gap between harvest and consumption in millions of cords (column D minus column C)	F External production as a percentage of consumption (column E divided by column D)
Connecticut	1,323,217	0.107	2.859	2.752	96
Rhode Island	228,247	0.006	0.842	0.836	99
Massachusetts	2,228,277	0.289	5.238	4.949	94
<i>Southern New England</i>	<i>3,779,741</i>	<i>0.402</i>	<i>8.939</i>	<i>8.537</i>	96
Vermont	4,123,058	0.800	0.500	-0.300	0
New Hampshire	3,971,824	1.114	1.053	-0.061	0
Maine	16,318,880	5.838	1.062	-4.775	0
<i>Northern New England</i>	<i>24,413,762</i>	<i>7.752</i>	<i>2.615</i>	<i>-5.136</i>	
Six State Region	28,193,503	8.154	11.554	3.401	29
*State populations based on 2010 US Census Data					
Connecticut	3,574,097		Vermont	625,741	
Rhode Island	1,052,567		New Hampshire	1,316,470	
Massachusetts	6,547,629		Maine	1,328,361	

** Average harvest 2007-2011 based on US Forest Service Forest Inventory and Analysis data adjusted using commercial harvest data from Maine (see companion report “*Grow More Wood: The Potential of New England’s Working Forests to Produce Wood*” for more on this topic.

***Consumption based on US Forest Service figure of 68 cubic feet per capita per year times state 2010 US Census Population divided by 85 cubic feet to convert to cords

The three southern New England states are heavily dependent on production from outside their borders (termed “external production”) to meet their consumption needs, while the three northern New England states each produce more wood than they consume (Table 1, Column F). They may be over-producing in some wood product categories and under-producing in others, but on balance they are net wood exporters. It is also interesting to note that for the region as whole, wood imports are 29 percent of consumption and that the US Forest Service report, “*Forest Sustainability Reporting in the United States*” found that the overall US import share has reached the historically high level of 30 percent. New England’s wood import level necessary to meet consumption is virtually the same as the national level.

Figure 1. State populations and total land available for forest management

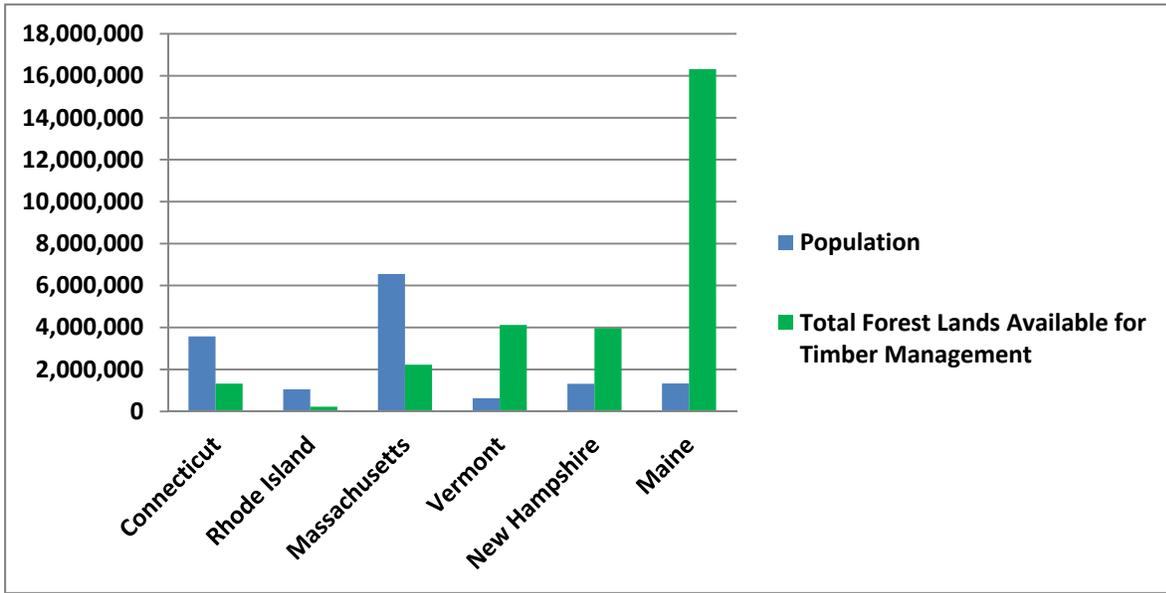


Figure 2. State annual harvest and consumption in cords of wood

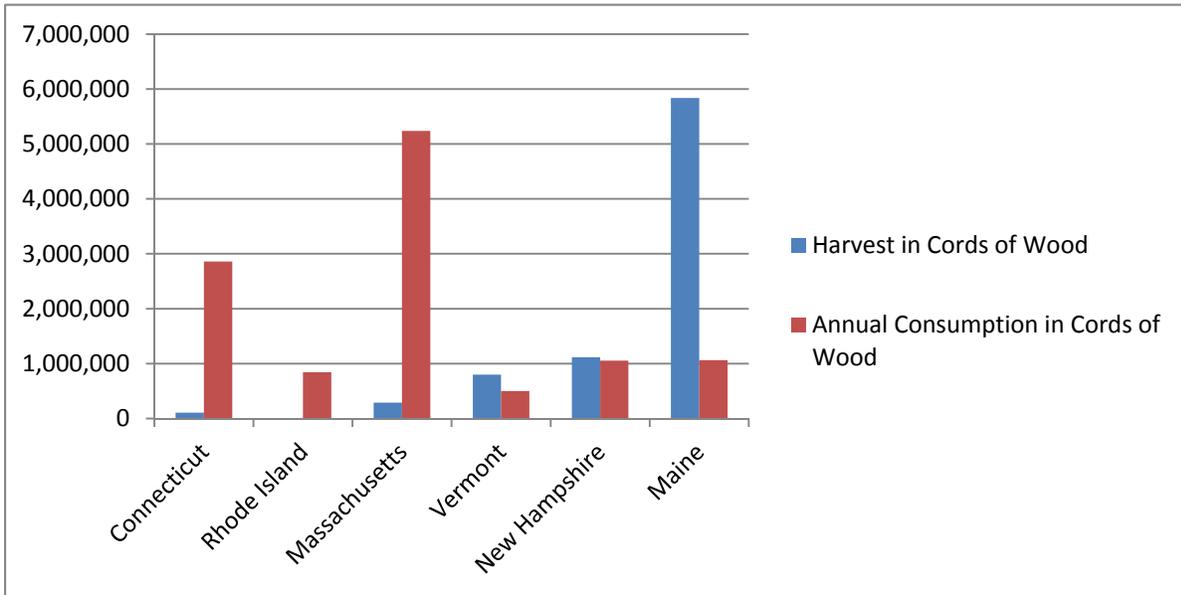
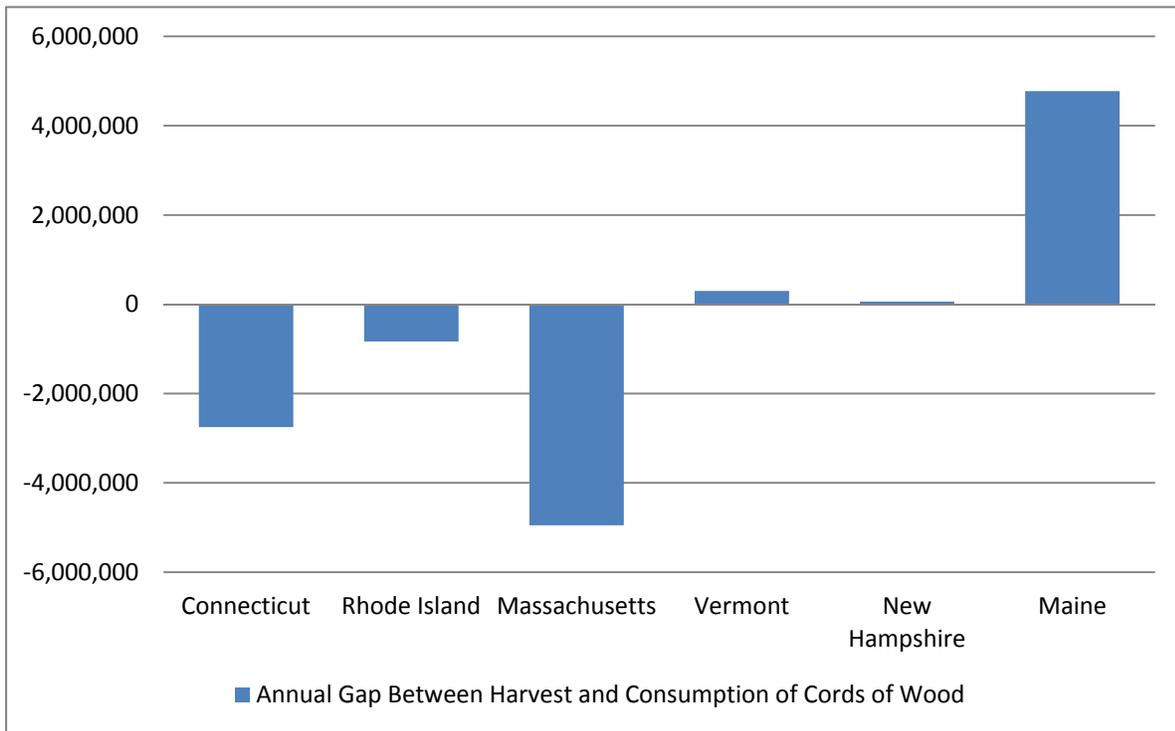


Figure 3. Annual gap between harvest and consumption of cords of wood under current forest management



If New Englanders are to meet more of their consumption with local production, then practicing exemplary forest management will be necessary. What would this type of forestry practice look like on the ground? First, it would be based on a forest management plan respectful of the full range of forest values. Professional foresters are trained to assist landowners in developing such plans and enable the owner to achieve their long term objectives. In general, after considering any special values present and wildlife habitat needs, forest management would ensure that the tree species regenerated and occupying sites would be well suited to them.



Well-stocked forest stand

Regeneration would be free to grow and later saplings and pole-sized trees, those greater than five inches in diameter, but smaller than saw timber, would be thinned to accelerate the growth on the best quality crop trees to ensure rapid growth of merchantable wood. These trees would be pruned to increase the quality of

sawlogs. When the stands are mature and ready for harvest, a harvest system well-suited to regenerate the desired species, provide the desired wildlife habitats, and protect other forest values, would be employed. Den trees and other wildlife trees would be retained. Harvesters would minimize unnecessary disturbance to soils to prevent erosion. Stream crossings with equipment would be accomplished so as not to break down stream banks or disturb stream beds. Adequate amounts of coarse woody debris consisting of logs, tops and limbs would be left on the forest floor to provide cover for certain species of wildlife and left to decay to add nutrients back into the soil. Harvesting would not occur on slopes too steep or areas too soft to operate without excessive damage. The end result would be a more productive forest from a variety of standpoints including ecological values, wildlife, recreation and scenic beauty as well as wood products.

Table 2 looks at the same issues as Table 1, but assumes a higher level of wood production per acre as a result of exemplary forest management on all forest land acres in the New England states. In “*Grow More Wood: The Potential of New England’s Working Forests to Produce Wood*” report, we estimated that exemplary forest management could result in harvest of 0.60 cords per acre. This figure is used in Column C of Table 2 to estimate harvest in millions of cords based on total forest lands currently available for timber management for each of the New England states.

Table 2. New England wood production compared to consumption assuming exemplary forest management (annually yielding 0.6 cords of wood per acre)

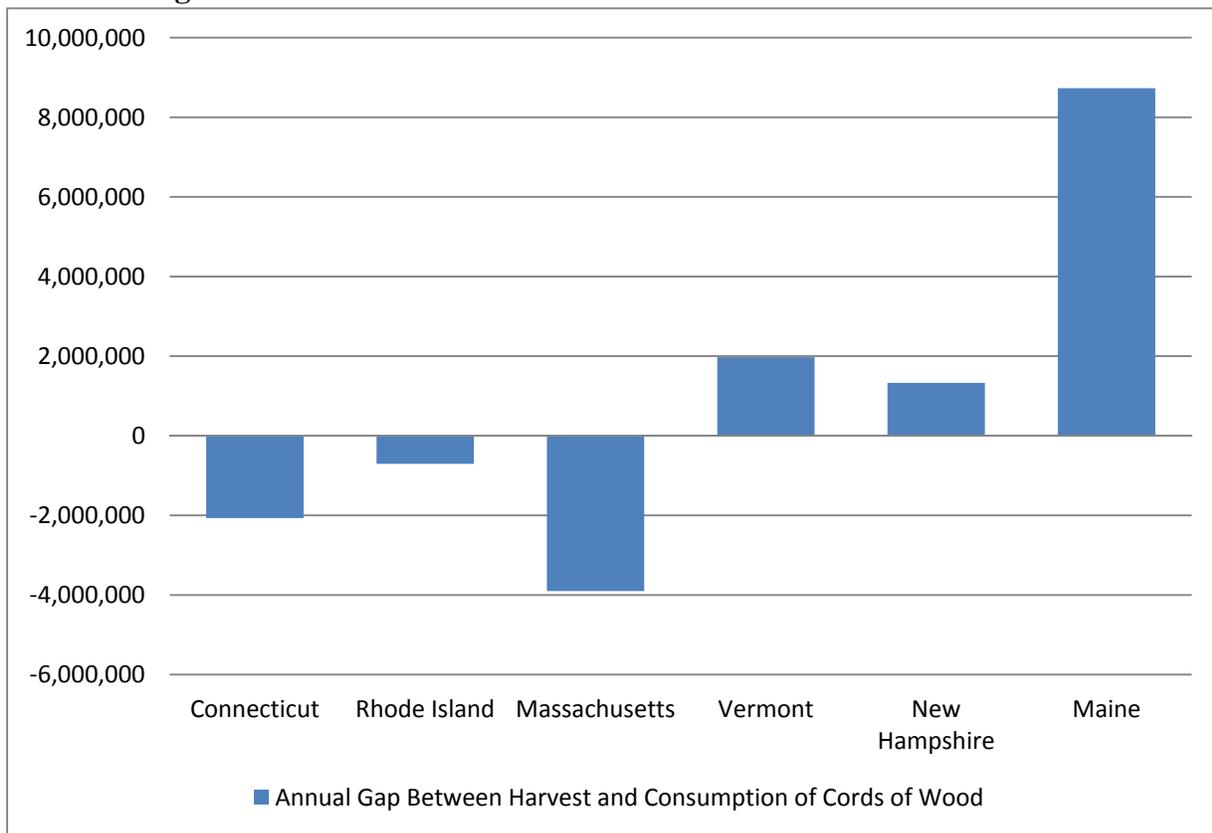
A State/region*	B Total forest lands currently available for timber management	C Annual potential harvest in millions of cords of wood employing exemplary forest management** (column B times 0.6 cords of wood per acre)	D Annual consumption by state/region in millions of cords***	E Gap between harvest and consumption in millions of cords (column D minus column C)	F External production as a percentage of consumption (column E divided by column D)
Connecticut	1,323,217	0.793	2.859	2.066	72
Rhode Island	228,247	0.137	0.842	0.705	84
Massachusetts	2,228,277	1.337	5.238	3.901	74
<i>Southern New England</i>	<i>3,779,741</i>	<i>2.268</i>	<i>8.939</i>	<i>6.671</i>	<i>75</i>
Vermont	4,123,058	2.473	0.500	-1.973	0
New Hampshire	3,971,824	2.383	1.053	-1.330	0
Maine	16,318,880	9.791	1.062	-8.729	0
<i>Northern New England</i>	<i>24,413,762</i>	<i>14.648</i>	<i>2.615</i>	<i>-12.033</i>	<i>0</i>
Six State Region	28,193,503	16.916	11.554	-5.362	0
*State populations based on 2010 US Census Data					
Connecticut	3,574,097		Vermont	625,741	
Rhode Island	1,052,567		New Hampshire	1,316,470	

**Presumption under Exemplary Forest Management is 0.6 cords of wood per acre per year

*** Consumption based on US Forest Service figure of 68 cubic feet per capita per year times state 2010 US Census Population divided by 85 cubic feet per solid cord to convert to cords

Even pursuing exemplary forest management the three southern New England states would be heavily dependent on wood beyond their borders to meet their consumption needs (Table 2, Column F). For each state, though, their dependency on wood imports is significantly reduced compared to current levels shown in Table 1. Under exemplary forest management the southern New England region moves from 96 percent dependent on imports to 75 percent. In Table 2, the three northern New England states continue to be self-sufficient, relatively speaking, in meeting their wood consumption needs; and, because of increased wood production under exemplary forest management, they expand wood exports – and as a whole, New England produces more wood than it consumes.

Figure 4. Annual gap between harvest and consumption of cords of wood under exemplary forest management



D. Conclusions

Why should New Englanders practice exemplary forest management? There are two imperatives: 1) to take responsibility to meet our wood consumption needs to the greatest extent possible from our own forests, which can improve wildlife habitat and other forest values while creating forest industry employment with economic benefits to the region's communities; and 2) to avoid the externalities associated with wood production in distant forests. In Table 2 at the bottom of Column E is the number -5.362 million cords of wood. This means that potentially 5.362 millions of cords of wood could be exported from the 6-state region after meeting all of the region's wood consumption demands. It is an optimistic number because for a variety of reasons exemplary forest management is not going to be practiced on every acre of New England's working forest land. It does provide a high bar goal to reach for even if not attainable. But the benefits to the region of moving from the current under-utilized potential in the direction of this 'high bar' goal will mean job creation, increased community economic and social resilience, and improved environmental conditions from multiple use management of New England Forests.

Further, New England depends critically on imports of resources from elsewhere in the world. The only way to pay for those imports is to sell something in return to others. Our region's forests offer one of the few opportunities for doing so.

In a 2002 thought-provoking article published by Harvard University, "*The Illusion of Preservation: A Global Environmental Argument for the Local Production of Natural Resources*," the authors make the case that "heavy consumption rates by citizens in affluent countries necessitates resource extraction elsewhere and sometimes under weak environmental oversight" (Berlik, Kittredge and Foster 2002). In their article they cite a 1999 study that found "approximately one hectare of primary forest (that is forest that has never been harvested before) in Asia, South America, Africa and Russia is logged for every 20 hectares of forest protected from harvest in North America and Europe" (Sohngen, Mendelsohn and Sedjo 1999).

The authors' arguments apply to situations wherever resource consumption exceeds local production. *They ask us to consider using less, recycling more and producing more locally* to narrow the gap between consumption and production. Otherwise, we accept environmental impacts in far-off lands as an acceptable cost for our own lifestyles. The authors argue that conducted well, forest management has the potential to address environmental and social needs and provide benefits such as: 1) offsetting forest losses through reforestation; 2) increasing carbon sequestration; 3) creating, restoring or maintaining diverse woodland habitats; and 4) connecting people to their environment and source of natural resources. The last point emphasizes the importance of recognizing the connection between our consumption, where resources come from, and the need to manage them sustainably. In the conclusion to their article they remind the reader that "Removing forestland from the productive timber supply can have unintended consequences beyond the woodlot. The best management strategies today are those based on informed decisions—but based also on regional, national and global environmental and social consequences." Lack of management or ineffective management of forest acres can have the same consequences as removing acres from the productive land base by limiting production of wood products that in turn forces local consumption needs to be met from distant forests.

The transition to exemplary forest management will require recognition by consumers that they have a responsibility for their consumption and acceptance by forest owners and managers that

they can effect better forest management to close the wood production and consumption gap to the benefit of the region's forests and its citizens.

Aldo Leopold said --

“There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace.” (Sand County, p. 6 in Oxford UP 1966 ed. –opening of “February” essay).

E. References

Berlik, M.M., D.B. Kittredge, and D.R. Foster. 2002. The illusion of preservation: A global environmental argument for the local production of natural resources. Harvard University Forest Paper No 26. 23 pp.

Idaho Forest Products Commission. 2014. Wood you believe; We get so much from trees! 2 pp.

Sohngen B., R. Mendelsohn, and R. Sedjo. 1999. Forest management, conservation, and global timber markets. *American Journal of Agricultural Economics*, 81:1-13.

US Forest Service. 2011. National report on sustainable forests—2010. FS-979. 214 pp.