

## New England's Forests in Context: An Insider's Outsider Perspective<sup>1</sup>

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In May 2010, Harvard University released a report by Harvard Forest and several partner organizations documenting that, after 200 years of natural reforestation, forest cover is declining in all six New England States. The authors of *Wildlands and Woodlands: A Vision for the New England Landscape* (<http://www.wildlandsandwoodlands.org/>) call for conserving 70 percent of New England as forest land—7 percent as wildland reserves, and 63 percent as working woodlands owned and managed by private landowners.<sup>3</sup> The report offers a compelling vision of not only the challenges faced by the region's forests, but also the opportunities for forest conservation that are still at hand if timely and effective action is taken. As expansive as this vision is, viewing these opportunities in their broader geographic context reveals the national and perhaps global significance of this ecological, economic, and cultural resource.

### The increasing influence of climate and energy on the future of forests

Globally the future of forests and forestry is being determined more in the context of climate policy and energy policy than in what we traditionally think of as forest policy. The forest biome is one of the largest and most important ecological systems on Earth. The forest biome constitutes about one-third of the planet's terrestrial ecosystems by area, but represents more than two-thirds of all the carbon stored in living organisms, with a capacity to store far more. Whatever the outcome of international negotiations such as those of the Intergovernmental Panel on Climate Change in Copenhagen last



year on “Reducing Emissions from Deforestation and Degradation” (REDD), the conservation of the world's forest ecosystems for the carbon they contain and the greenhouse gases they can continue to sequester through net growth is critically important—in temperate and boreal forests as well as in forests in the tropics.

Achieving the ambitious national and state policy targets set for renewable energy production, both for transportation biofuels and renewable electricity, could eventually double the current level of wood harvesting in the US from an average of 16 billion cubic feet per year (bcf/yr) to more than 33 bcf/yr, with more wood going into energy than is currently being utilized by the entire US forest products industry.<sup>4</sup> Under the right conditions this could be highly beneficial for sustainable forest management, for forest owners, and for forest-based rural communities across

the country. Without adequate planning and foresight, however, there could be significant impacts on forests and their future productivity, and a replay of the highly divisive public controversies that have characterized forest management during the past three decades.

For New England's working forests, this could have particular significance given the extent to which the region is dependent upon imported oil for heating and electric power. Communities throughout the region are discovering the benefits of asserting greater control over their energy futures through the use of efficient, appropriately scaled wood energy facilities supplied through the sustainable utilization of local forest resources. New England's relatively long experience with wood bioenergy, such as the 50 MW wood-fired power plant that has operated successfully in Burlington, Vermont

for more than 25 years, demonstrates that the expansion of wood bioenergy does not have to equate to over-harvesting of a region's forests.

### Conservation strategies for adaptation to major environmental change

Global trends in energy and climate have other implications for New England forests as well, which is another reason to look at them within a larger geographic context. In so many areas of environmental conservation, there is a sense that we are in uncharted waters. History is turning out to be much less reliable as a guide or predictor than we expected it would be. Most of the science underpinning our knowledge of environmental management and natural resource conservation was developed during the past two centuries — which turn out to have been a period of extraordinary climatic stability when considered in the long sweep of natural history.

Basic concepts like the “historic range of variability” are out the window in terms of everything from wildfire behavior, to biodiversity, to climate patterns. In many instances, we are already outside historic ranges and veering further all the time. The prevailing strategy for biodiversity conservation is based on habitat protection, but what good are national parks and ecological reserves that are fixed on the landscape when the habitat range for key species is drifting northward? Ecological communities are being pulled apart and reassembled in unprecedented ways as the most mobile species migrate out and others arrive. Changes in temperature and precipitation patterns are creating deserts where once there were forests, shallow bays where once there were fertile deltas supporting millions of people as well as diverse ecosystems. How do we plan for such unpredictable and large-scale changes in the environment?

To deal with potential adverse environmental effects, we have relied heavily on two main strategies. The first main strategy is prevention, which has been applied widely to things like air pollution, species extinctions, and oil spills. At times the prevention strategy fails, sometimes spectacularly, which then triggers the second main strategy — mitigation. When these failures occur we are reminded of the increasing difficulty, expense, and in some cases the near impossibility of mitigation.

What former Yale School of Forestry & Environmental Studies dean Gus Speth described in his book *Red Sky at Morning*<sup>5</sup> as “the mother of all environmental issues” — global climate change — has prompted a fundamental reconsideration of these predominant strategies. Prevention is no longer an option. Whether mitigation will be a relevant strategy depends heavily on our political will, and what science can tell us about whether we are approaching—or perhaps have already passed—the “tipping point” where the runaway feedback loops take over.

By necessity, we are now devoting significant intellectual energy to a third strategy — adaptation. In other words, major environmental change is inevitable, so get used to it. But this is easier said than done. Recently the UN Foundation published a

report on adaptation to climate change, cleverly but aptly subtitled *Avoiding the Unmanageable and Managing the Unavoidable*.<sup>6</sup> It contained far more questions than answers, going beyond the simple changes in physical infrastructure needed to accommodate rising sea levels, and hinting at the complexity of modifying environmental, economic, social, and political systems to deal with the new realities of global climate change.

### Viewing the New England Wildlands and Woodlands vision in its larger context

The New England *Wildlands and Woodlands* vision can be an important component in an adaptation strategy to conserve forests and the host of values they represent. There are few places in the US where an opportunity remains to create a continental-scale corridor along which species can move in response to climate change, and New England is one of them. It may not be as grand an opportunity as Yellowstone-to-Yukon, but there is a significant potential to maintain forest ecosystem continuity and connectivity from the northern Appalachians and Adirondacks all the way through to the Laurentian Plateau, Gaspé Peninsula, and the Maritime Provinces. Presenting this big-picture vision could be important to attracting outside interest and resources in support of this effort.

But since there will never be enough money to do everything, choices will have to be made and some means of conservation prioritization is needed. The *Wildlands and Woodlands* report describes an “array of wildland reserves” and “interconnected areas of woodland,” but there will be certain areas of the landscape that are key potential links in this interconnectedness that are not currently protected. While it may not be desirable to publicly identify the

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actual tracts, it would be useful to have a set of guidelines by which such tracts could be identified, and a description of tools with which protection could be accomplished on high-priority lands. A menu approach will be more effective than a single approach—conservation easements, acquisition by a public conservation agency, and delineations of priority landscapes for values such as biodiversity, water quality, or carbon sequestration, in which individual tracts have a higher potential for earning conservation credits under some type of ecosystem services protocol.

## Conclusions

***Concentration on land conservation is the key to sharpening the focus and coalescing interests.***

Perhaps the single most important statement in the New England *Wildlands and Woodlands* report is the following: “*In the face of all current and future threats to our forests, the single most important action that we can take is to protect our intact landscapes on a scale that allows nature to flourish.*” The overall thrust is that conservation of the remaining intact forests of New England is the first and foremost goal. Sustainable management of these lands is also essential but is secondary—and dependent upon—achievement of the first goal. Within and outside New England, there is broad agreement with this assessment, and with the sense in this report that there is no time to lose.

***Context is crucial to near-term support and long-term implementation.***

The ecological rationale for this vision for the future of New England’s forests is well established, but placing this regional vision in both its global and local geographic contexts will help to both inform and persuade key constituencies that will be essential to the successful imple-

mentation of this strategy. There is a potential national/international constituency around the rare opportunity this represents to create a continental-scale north-south habitat corridor from the northern Appalachians to the Laurentian Plateau to facilitate movement by plant and animal communities in response to climate change. But there is a local constituency that may prove even more important. Several years ago, Harvard Forest published a *Massachusetts Wildlands & Woodlands* report, specific to not only the forests and other biophysical features of Massachusetts, but also the unique characteristics of its economy and culture. The New England *Wildlands & Woodlands* report provides the broader context and framework for the discussion of challenges and opportunities across the region, but stepping this vision down to each state would make this more concrete for many individuals and communities whose understanding and support is essential, and give them a more direct sense of the challenges and opportunities in the ecological and cultural landscape to which they most closely relate.

***Forests will be protected as one component of an integrated cultural landscape that has widespread appeal.***

A large measure of the appeal of the New England cultural landscape is its integration of forests, agriculture, and rural communities. As a New England expatriate who has lived in several other regions of the US and abroad, I can vouch for the uniqueness and aesthetic appeal of the New England cultural landscape of forests, fields, stone walls, and rural communities. I wonder sometimes whether this character and aesthetic value is fully appreciated by individuals who have lived their entire lives in New England and perhaps assume that (a) cultural landscapes such as these are common, and/or (b) the key characteristics of this cultural landscape will

remain unchanged. Ecological and economic arguments will be important, but it may just as well be the simple *aesthetic* appeal of characteristic New England landscapes that evokes the passion for conservation and leads people to say to themselves, “this is beautiful, this is home, and this is worth working to save.” ■

## End Notes

<sup>1</sup> Based on a keynote address presented at a conference on *Conserving Forests for Future Generations*, convened by the New England Forestry Foundation and Harvard University at Concord, New Hampshire, USA, June 4, 2010.

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<sup>3</sup> Foster, D., Donahue, B., Kittredge, D., Lambert, K.F., Hunter, M., Hall, B., Irland, L., Lillieholm, R., Orwig, D., D’Amato, A., Colburn, E., Thompson, J., Levitt, J., Ellison, A., Aber, J., Cogbill, C., Driscoll, C., Keeton, W., and Hart, C. 2010. *Wildlands and Woodlands: A Vision for the New England Landscape*. Cambridge: Harvard University Press, 55 pp.

<sup>4</sup> Sample, V.A. and Kittler, B. 2010. “Sustainability Considerations in the Development of Wood Bioenergy in the United States.” In: Proceedings of the International Energy Agency conference on *Sustainability Across the Supply Chain of Land-based Biomass*, Kamloops, British Columbia, June 2, 2010.

<sup>5</sup> Speth, J. G. 2004. *Red Sky at Morning: America and the Crisis of the Global Environment*. New Haven: Yale University Press, 329 pp.

<sup>6</sup> Scientific Expert Group on Climate Change. 2007. *Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable* [Rosina M. Bierbaum, John P. Holdren, Michael C. MacCracken, Richard H. Moss, and Peter H. Raven (eds.)]. Report prepared for the United Nations Commission on Sustainable Development. Sigma Xi, Research Triangle Park, NC, and the United Nations Foundation, Washington, DC, 144 pp.

