



**The Goodwin-Niering Center for Conservation Biology and  
Environmental Studies, Connecticut College**

**Summary of paper presented at the conference:  
Saving Biological Diversity:  
Weighing the Protection of Endangered Species vs. Entire Ecosystems  
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**Implications of Local Conservation and Land Protection**

**Presented by David Foster**

By Katherine Sacca '09

David Foster, Director of the Harvard Forest and Principal Investigator for the Harvard Forest Long Term Ecological Research program at Harvard University, is also an ecologist and a faculty member in the Department of Organismic and Evolutionary Biology. Foster's primary research has been on temperate forest dynamics in New England and eastern North America, understanding the changes in forest ecosystems that result from human and natural disturbance processes, and applying these results to the conservation and management of natural resources.<sup>1</sup>

In his presentation, David Foster focused on New England forests, specifically those in Massachusetts, and their impact on the global society. Foster first explained the history and dynamics of the New England landscape throughout the past three centuries; from fully forested before the colonization of New England by the Pilgrims, to widely deforested to create fields for agriculture peaking in the middle of the 19<sup>th</sup> century, back to widely forested in an extraordinary amount of time. The recovery of the landscape and its constituents from nearly complete conversion to agriculture to the reforestation of thousands of acres is an environmentally significant phenomena considering the huge population growth and ensuing development, a dramatic shift in forest cover, the change in economic, environmental, and wildlife dynamics,

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<sup>1</sup> <http://ecoethics.net/hsev/9911-bio.htm>

and major shifts in wildlife species. The most dramatic wildlife changes to date are the lack of wolves, once a feature of the New England landscape but extirpated because of threats to livestock and villages; the extermination and recent reintroduction of the beaver, the overabundance of deer, the appearance of the coyote, and the increase and gradual reduction of bobolink and meadowlark populations. The bobolink and meadowlark are birds that thrive in meadows and agricultural land, so they were prevalent during the agricultural period, but have gradually been disappearing from the New England landscape as the area has become reforested. Foster highlighted the success of the Quabbin Reservoir as a water source for Massachusetts and as the largest conservation effort of a body of water in the state. Quabbin Reservoir, which the Commonwealth of Massachusetts owns 60% of (about 100,000 acres) supplies 40% of the Massachusetts population with unfiltered clean water, saving the state at least \$750 million dollars, not including maintenance costs, which would have been needed to build a filtration plant if a different water source was used. The history of New England forests is an incredible example of the recovery ability of various landscapes that gives hope for future restoration of human-damaged and dramatically altered landscapes across the globe.

Foster focused for the majority of his presentation on how New England forests exert a positive global impact on climate change. The biomass of New England forests is growing, which helps contribute to the global above ground carbon sinks which also include the Amazon and rainforests in central Africa and New Zealand. The forests in New England are storing increasing amounts of carbon as they mature, which indicates that they are adding more biomass than foresters are harvesting. Mid-latitude forests such as New England's make up 10-20% of the mechanism for offsetting carbon dioxide throughout the world. While tropical deforestation and the burning of fossil fuels are carbon sources, mid-latitude forests, oceans, and the atmosphere

are carbon sinks.

Currently in Southern New England, individual forests are growing larger while the area of the forests is decreasing due to developments and deforestation for housing, commercial building, and public buildings. Foster refers to these developments, now expanding into a substantial amount of unprotected forest, as “hard deforestation,” meaning that the land can never naturally revert back to forest once it is developed, as opposed to “soft deforestation,” like past conversion to agriculture, which does not radically change the ability of the land to recover to forest. The development of unprotected forest through “hard deforestation” is incompatible with the support of biological processes in this area, a conclusion Foster makes in his paper, “Wildlands and Woodlands.” Foster’s proposal to change the disturbing rate of development is to increase the amount of protected forest in New England to 50%. He explained that this amount of forest protected, though high, would be achievable even with the rate of development increasing and even if smart, environmentally friendly development was not employed. The new model for preservation that Foster proposed employs local action to bring about conservation, as described in “Wildlands and Woodlands.” The implementation, as it is already evolving, has certain characteristics. It is collaborative, bottom up, voluntary, local, and self-organizing; It is an organic mode of conservation that unites land trusts, watershed associations, and conservation organizations; Required information and guidance is provided to landowners to encourage land protection and effective management. Foster explained that in his experience in Massachusetts, a sense of place, community, and belonging motivates people to conserve their land, not the value of biodiversity and ecosystems, and that land is seen as a good investment because of future benefits that it may provide to the landowner. The planning for this model is already done, Foster explained, but communities simply need to define their future in conservation by uniting

landowners and the people who can help protect their land and resources from development.

Along with the model for conservation in New England, Foster introduced a more controversial, but certainly creative solution for sustainable forests in New England; the global environmental argument for harvesting New England's forests. Foster explained the proposal as an opportunity for New England residents to increase their use of local products and reduce the ecological footprint of the area. Foster focused the proposal on the potential harvesting of Massachusetts forests specifically. Massachusetts contains 3 million forested acres of land, which is roughly one third of the state, yet it needs the equivalent of 15 million acres of forest needed to supply residents' forest products consumption. If the state of Massachusetts harvested just 3,000 acres per year, it would cut the ecological footprint of Massachusetts residents to a slightly more sustainable level. The benefit of harvesting Massachusetts forested land is that the state has very stringent environmental regulations, which ensures that the forests are managed and harvested sustainably and responsibly. Most of the states and countries that supply Massachusetts with timber do not operate within such strict regulations. Foster hypothesizes that if Massachusetts residents were aware of how their resources were harvested, (often by clear-cutting and fire, which are unsustainable methods) they would be more likely to alter their consumption habits. Foster also explained that if residents get their resources locally, it cuts down on transportation costs and forces residents to be more careful about consumption, since it utilizes local resources that people can see and care about.

Foster specifically referenced the two million acres of private land in Massachusetts as an opportunity for increased harvest, not including unmanaged state-owned land. The Massachusetts Forest-Cutting Practices Act is flexible but regulated, and demands that: every

tree must be individually marked; rare and endangered species can not be harvested; wetlands, streams, and vernal pools are protected in the interest of biodiversity; and forests are cut sustainably to allow for forest regeneration. Studies have shown that forest harvests are spatially random in Massachusetts and do not cover wide areas; this is visible in a map that Foster displayed with tiny dots showing areas harvested for timber spread across the entire state and never covering much area in one place. The chance for Massachusetts to increase resources and live more sustainably, Foster proposed, could set a global example for conservation.