REPORT ON THE WOODLANDS AND WILDLANDS CONSERVATION FINANCE ROUNDTABLE

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The *Report on the Woodlands and Wildlands Conservation Finance Roundtable* was produced based on a roundtable discussion held in Cambridge, Massachusetts, USA in April 2006. The roundtable discussion was aimed at developing innovative finance mechanisms to support a large-scale forest conservation vision in Massachusetts.

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The report and supporting material may be found at: www.wildlandsandwoodlands.org.

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REPORT ON THE WOODLANDS AND WILDLANDS CONSERVATION FINANCE ROUNDTABLE

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EXECUTIVE SUMMARY

In April 2006, some 40 invited participants and auditors gathered at the Harvard University Center for the Environment to consider options for financing a bold proposal to protect an incremental 1.5 million acres of Massachusetts forests. The assembled group, working from the conservation objectives outlined by David Foster and co-authors in the 2005 Harvard Forest report, *Wildlands and Woodlands: A Vision for Forests of Massachusetts,* discussed conservation financing options that might be applied to both working forests and preserved wildlands held by public, non-profit, and private organizations and individuals.

This workshop report details the results of their dialogue, known as the Woodlands and Wildlands Conservation Finance Roundtable (WWCFR). It provides a comprehensive overview of the ideas presented by the roundtable participants and highlights financing mechanisms that have particularly strong potential for Massachusetts. The roundtable findings have been further summarized in a short briefing paper and press release that are available at: www.wildlandsandwoodlands.org.

The report offers two important sets of ideas. First, a rough approximation of the costs of Wildlands and Woodlands implementation indicates that required levels of funding are potentially achievable, if current levels of aggregate conservation capital funding (presently about $100 million per year, including federal, state, local and philanthropic sources) can be increased by between $30 million and $150 million, and then sustained in real terms over the next 20 to 30 years. Second, the report offers an overview of the wide array of intriguing opportunities considered by the WWCFR group for acquiring and sustaining such incremental capital. These concepts are distributed among seven *categories,* as follows:

1. Public budgets, bonds and ballot initiatives
2. Tax incentives
3. Philanthropic initiative
4. Emerging ecosystem service markets
5. Enhanced forest-based economies
6. Limited development opportunities
7. Settlement funds from legal proceedings.

Within each *category*, the report highlights several promising *concepts* for raising conservation capital. Included are:

- Category 1 (public budgets, bonds and ballot measures) concepts:
    - Increase in state bonding authority for conservation, with dedicated revenues
    - Adoption of the Community Preservation Act by additional cities and towns
    - Aggregation of small parcels for Forest Legacy and other funding sources

- Category 2 (tax incentives) concepts:
    - Enhancement of state tax incentives for land conservation
    - Enhancement of federal tax incentives for land conservation

- Category 3 (philanthropic initiative) concepts:
    - Sponsorship of Woodland Councils and Regional Landscape Partnerships
    - Sponsorship and operation of regional conservation finance organizations

- Category 4 (emerging ecosystem markets) concepts:
    - Establishment of carbon emission and sequestration markets
    - Stimulation of mitigation market growth for wetlands and forest habitat

- Category 5 (enhanced forest-based economies) concepts:
    - Leasing of timber rights in exchange for conservation easements
    - Development of marketing cooperatives for certified forest products

- Category 6 (limited development) concept:
    - Investment in limited development facilitated by new permitting regulations

- Category 7 (settlement funds from legal proceedings) concepts:
    - Case-by-case allocation of settlement funds
    - Systematic allocation of settlement funds.

There are several important follow-up actions that could be taken to better understand the potential and advance the implementation of the forest conservation concepts discussed here. They include the following:

- Convene briefings for interested parties
- Involve a diverse coalition in the development of a campaign strategy
- Promote the authorization of a bi-partisan legislative study commission
- Advance relevant pilot projects in the field
- Advance relevant research and development efforts in fields of conservation finance, public policy and ecology.

The report authors look forward to working with participants in the WWCFR to apply these ideas to the needs of the Commonwealth of Massachusetts as part of the larger effort to increase the rate of forestland protection as called for in *Wildlands and Woodlands.*

GENESIS OF THE WOODLANDS AND WILDLANDS CONSERVATION FINANCE ROUNDTABLE (WWCFR)

In 2005, David Foster, David Kittredge and Brian Donahue, along with a group of Harvard Forest colleagues, completed several years of work in formulating a long-term conservation vision for the forested landscape of Massachusetts. They issued a report, *Wildlands and Woodlands: A Vision for the Forests of Massachusetts*,[1] that articulates a bold idea – namely, that we should "add approximately 1.5 million acres to the state's existing protected land base of one million acres, to reach a target of 2.5 million acres," an area equal to half of the land within the borders of the state of Massachusetts.

Such protection would ensure that we pass on the extraordinary environmental, social and economic values of the forest for generations to come. We would, in effect, ensure the continuing provision of clean air and clean water from natural systems at a much more reasonable cost than we would incur if we had to, alternatively, serve human needs for clean air and water with man-made systems. The protected landscapes would be held by a mosaic of owners in the public, non-profit and private sectors; 250,000 of the total protected acres would be wildland reserves embedded within 2,250,000 acres of woodlands managed for a variety of purposes, including sustainable forestry activities (for a copy of the report, see http://www.wildlandsandwoodlands.org).

The *Wildlands and Woodlands* concept is simple, and its message has resonated across the Commonwealth and the nation. Both the *Boston Globe* and the *Providence Journal* have run favorable editorials regarding the idea.[2] The report's authors have received hundreds of

speaking invitations nationwide. And dozens of representatives from conservation organizations throughout Massachusetts have been meeting over the past year to sow the seeds for a long-term implementation campaign.

As enthusiasm for the idea gained momentum, a key question had yet to be squarely addressed: "How can this vision be financed?" With leadership provided by Charles H.W. ("Hank") Foster and Perry Hagenstein at the New England Natural Resources Center (NENRC), a grant was obtained from an anonymous source in the first quarter of 2006 for the Harvard Forest to further pursue that question through a colloquium, known as the Woodlands and Wildlands Conservation Finance Roundtable (WWCFR). The WWCFR was designed to bring together about twenty leading conservation finance experts from across the U.S., with a similarly sized group of auditors also attending the meeting, to tackle the complex problem of how to finance this and similar ambitious land protection agendas.[3]

The purpose of this report is to summarize the results of that meeting for conference participants and auditors, and for a wider audience of landowners, conservationists and policy makers interested in the future of Massachusetts' forests.

WWCFR ORGANIZATION

The WWCFR was organized and facilitated by James N. ("Jim") Levitt, director of the Program on Conservation Innovation at the Harvard Forest and the editor of a recently published book, *From Walden to Wall Street: Frontiers of Conservation Finance*.[4] He has been assisted in organizing the event and reporting on its results by Kathleen ("Kathy") Fallon Lambert, President of a Vermont-based environmental consulting firm, Ecologic, and by Deidre Peroff, an intern working with Jim Levitt at the Harvard Forest. The team has also been guided in its work by a steering committee that includes David Foster, Hank Foster,[5] Perry Hagenstein and Keith Ross.

A diverse set of conservation finance experts from the non-profit, private, public and academic sectors attended the meetings held on April 17 and 18 at the Harvard University Center for the Environment (HUCE) from as far away as Oregon and as nearby as their offices on the Harvard campus (for a list of participants and auditors, see Figure 1).

In preparation for the WWCFR, invited participants were asked to complete a short homework assignment to provide introductory information to their colleagues; and to get them thinking in some depth about the issues that they would be discussing at the roundtable. Specifically, participants were asked both to provide a brief biographical sketch, and to write a short essay describing an important existing or emerging tool in conservation finance relevant to the *Wildlands and Woodlands* challenge. Session auditors were asked only to provide biographical sketches. The responses to this request have been compiled and attached as Appendix 1 to this report. The women and men who contributed to this document brought a remarkably wide range of experience and thoughtful ideas to the table, ranging from emerging frameworks for providing carbon sequestration–related ecosystem service payments to forestland owners in California, to stimulating local markets for locally grown forest products in New England.

Figure 1: Participants and Auditors
Woodlands and Wildlands Conservation Finance Roundtable (WWCFR), Harvard University Center for the Environment, April 17 & 18, 2006

Participants	Auditors
Michael Catania, Conservation Resources Inc.	**Kathy Abbott,** TPL Cons & Rec Campaign
Charles H. Collins, The Forestland Group	**Forrest Berkley,** Consultant
Ernest Cook, Trust for Public Land	**Katherine Birnie,** Wilderness Soc/Tuck School
Fred Danforth, Sustainable Land Fund	**Armando J. Carbonell,** Lincoln Institute
Kim Elliman, Open Space Institute	**Brian Donahue,** Brandeis University
Arthur Eve, Massachusetts Woodlands Cooperative	**Carolyn Fine-Friedman**, Fine Family Fdn
Kristin Foord, State of Massachusetts	**Perry Hagenstein**, NNERC
Charles H.W. Foster, Harvard KSG	**Timothy A. Ingraham,** NEFF
David Foster, Harvard Forest	**Wayne Klockner,** The Nature Conservancy
William J. Ginn, The Nature Conservancy	**Kathy Lambert**, Ecologic
Tony Green, The Pinehills	**Frank Lowenstein,** The Nature Conservancy
Peter Howell, Open Space Institute	**Merloyd Ludington**, NEFF
Ann Ingerson, The Wilderness Society	**Marcy Lyman,** QLF Community Forests
James Levitt, Harvard Forest	**Deidre Peroff**, Harvard Forest
Keith Ross, LandVest	**Bob Perschel,** The Forest Guild
Tom Tuchmann, US Forest Capital	**Wes Ward,** The Trustees of Reservations
Laurie Wayburn, Pacific Forest Trust	**Bob Wilber,** Mass Audubon Society
Steve Weems, Coastal Enterprises Inc.	**Leigh Youngblood,** Mt. Grace Land Trust
Rick Weyerhaeuser, Lyme Timber	

HISTORIC AND POLICY BACKGROUND

It is particularly appropriate that the WWCFR occurred in Massachusetts in the first decade of the twenty-first century. Massachusetts is fitting as a place for the meeting both because of the present interest in conserving forest resources in the state, and because, for a variety of social and economic reasons, the Commonwealth has a remarkably long and distinguished history as the site for important conservation innovations.

For example, Massachusetts can count among its conservation innovations the 1634 creation of the Boston Common, the first open space in English-speaking North America created by and for self-governing people. The freemen of Boston, in the midst of their famous experiment in local democracy, almost 400 years ago voted to tax themselves, in part based on the value of their houses, to raise the funds to acquire the Common from another Englishman, the Reverend William Blackstone. Once the acquisition had been made, Boston's earliest citizens proceeded to regulate and steward the Common's use for agricultural, military, recreational and civic purposes, setting precedents that guide our own use of this remarkable resource in the twenty-first century.[6]

Similarly, Massachusetts is the birthplace of the world's first regional land trust. Chartered in 1891 by an act of the state legislature, The Trustees of Reservations (TTOR), as it is known today, continues to be inspired by the vision of Charles Eliot. Eliot, son of the President of

Harvard and a protégé of Frederic Law Olmsted, advocated for the creation of a new kind of charitable organization to hold "the finest bits of natural scenery" so that they might "delight many future generations." He explained that "as Boston's lovers of art united to found the Art Museum, so her lovers of nature should now rally to preserve for themselves and all the people as many as possible of these scenes of natural beauty which, by great good fortune, still exist near their doors."[7] The land trust movement that Eliot was instrumental in founding is today central to non-governmental conservation efforts in the US and abroad.

In the same era that TTOR was founded, the Massachusetts Audubon Society, now the oldest Audubon Society in the world, was created in a parlor room on the corner of Clarendon and Marlborough Streets in Boston's Back Bay. Harriet Hemenway and Minna Hall, calling on the collective charitable resources and political influence of progressive friends in Boston society, in 1896 launched an education, advocacy and conservation initiative that has shaped Western attitudes towards birds and wildlife for generations.

Massachusetts continued as a center for conservation leadership in the mid-1970s when the state created one of the nation's first Agricultural Preservation Restriction (APR) programs to protect private farmland from encroaching development. And in the year 2000, the Great and General Court of Massachusetts came full circle, devolving to cities and towns through the Community Preservation Act (CPA) the right to tax local real estate to raise money, matched to some extent by the state, for land conservation, historic preservation and affordable housing. In passing this legislation, the legislature, apparently unwittingly,[8] followed the pathway blazed by their predecessors in the 1634. Enthusiasm for the CPA is reflected by the growing number of Massachusetts cities and towns that have locally adopted the measure – as of the summer of 2006, that number has grown to 111 of the 351 cities and towns in the state. The importance of the legislation, as discussed below, is reflected by the fact that CPA-associated revenue to cities and towns now represents nearly one-half of all capital funding for conservation projects in the state.

As detailed in the following sections of this report, a variety of public, non-profit, and private mechanisms are being considered by WWCFR participants to finance the ongoing protection of the Commonwealth's forestland. It is likely that a variety of financial tools, including interesting hybrids that borrow from public, private and non-profit sector experience, will prove to be useful in the effort. If our history and present-day enthusiasm for conservation is any guide, Massachusetts may well be an auspicious location to launch ambitious initiatives in forest conservation finance that might be replicated far and wide.

CONVENING TO UNDERSTAND THE SCOPE AND SCALE OF THE CHALLENGE

The WWCFR group formally gathered for the first time at 3 pm on the afternoon of April 17 at the Harvard University Center for the Environment to begin their work. Following a brief welcome from HUCE Executive Director Rick Menard, Jim Levitt recounted some of the background to the meeting discussed above in this report. He was followed by David Foster, who detailed the *Wildlands and Woodlands* concept itself and answered some preliminary questions regarding the scale and scope of the idea. Levitt and Foster were followed by Kathy Lambert, who had done some preparatory interviews and calculations to offer a "first-

order approximation" of the cost and feasibility of achieving the Wildlands and Woodlands (W&W) vision in Massachusetts.

Kathy noted that the total land area of Massachusetts is approximately 5.0 million acres, and that the W&W vision calls for the protection of a cumulative total of 2.5 million acres of forestland, or half of the Commonwealth. Roughly 1.0 million acres are currently protected, leaving a gap of 1.5 million acres to achieve this vision. Drawing on advice and input from conservation, investment, and real estate professionals, Kathy estimated that protecting another 1.5 million acres over the next 20 years would cost roughly $130 million to $250 million per year, over the envisioned implementation period, including adjustments for inflation and appreciation. The details of Kathy's analysis are provided in Appendix 2 to this report.

Both the acreage and cost estimates for W&W at first appeared to be highly ambitious to some attendees. However, other participants reminded the group that organizations in other states have set goals that are comparably ambitious. For example, within the past several decades, public and private organizations in several states have announced million-acre or larger conservation initiatives.

- New Jersey, through the state's Green Acres program, has been able to protect more than 1.2 million acres of open space and farmland in recent decades (see Ernest Cook and Matt Zieper's description of New Jersey land conservation policy framework in Chapter 4 of *From Walden to Wall Street*[9]; for a description of the state's ongoing Green Acres initiative, see: www.state.nj.us/dep/greenacres/intro.htm)

- North Carolina, although behind its originally proposed schedule, had as of 2005 protected more than 300,000 acres towards its ten year goal of conserving 1 million new acres by 2009 (see: www.onencnaturally.org/pages/progress/reports.html), and

- In Colorado, a leading land conservation organization has recently announced a new initiative aimed at conserving two million acres in that state in the next decade (see www.coloradoconservationtrust.org).

The feasibility of bringing $130 million to $250 million of capital per year to support forest conservation can be evaluated in part by comparing such costs to current and historic conservation funding levels in Massachusetts. Kathy reported that the peak investment in land conservation in Massachusetts during the period of 1999 to 2005 occurred in 2005 when it reached roughly $98 million, including federal sources, state budget funding, local Community Preservation Act (CPA) funding, state matching CPA funding, and non-profit sources. Kathy noted that the implementation of W&W will require approximately a 30% increase in annual funding over this peak amount in early years, increasing over time with inflation and land appreciation.

The change in the mixture of funding for conservation over the past five years highlights important changes in the way land conservation decision-making is occurring in Massachusetts in the early 21st century. While state bond funding, directed in part by state officials, was by far the largest source of funding in 2001, this source had been reduced by half by 2005 (see Figure 4 in Appendix 2). As the funding supplied by state bonds has

declined it has been surpassed by municipal and matching state funds provided through the Community Preservation Act (see Figures 6 and 7 in Appendix 2). In effect, as Community Preservation Act funds have gained share as a percent of the total conservation funding pie, local decision-makers are playing increasingly important roles in determining where and how conservation funding will be used.

To put the approximate cost of implementing W&W into additional context, Kathy compared the estimate to other infrastructure expenditures in the state, as well as to the estimated value of ecosystem services associated with forestland. For example, Governor Romney proposed an annual transportation spending budget in Massachusetts for fiscal year 2007 of about $236 million. Even that substantial level of funding is dwarfed by the cost of the Big Dig highway project in downtown Boston, which had a cost of about $14.6 billion between 1991 and 2005, or about $1 billion per year.

Just as investments in the built infrastructure contribute to healthy economic activity, an investment in the state's "green infrastructure" would help to maintain the value of the ecosystem benefits we now derive from our forests. The Massachusetts Audubon Society and the Gund Institute estimate in the recent study, *Losing Ground: At What Cost?*, that existing forests in Massachusetts provide $2.9 million in ecosystem services each year. For example, prescient conservation efforts have protected 85% of the forests that buffer the Quabbin Reservoir, which is instrumental in purifying the drinking water provided to more than 40% of the state's population. Because of the ecosystem services provided by this forest buffer, the Quabbin is exempt from US Environmental Protection Agency water filtration requirements, saving the Massachusetts taxpayers the cost of constructing and maintaining a $750 million plant. In contrast, when forests are lost to development, those benefits are diminished; the *Losing Ground* authors estimate that between 1986 and 1999, some $200 million in ecosystem services were lost each year to development in Massachusetts.[10]

EMERGING FINANCE IDEAS FOR WILDLANDS AND WOODLANDS

Following Kathy Lambert's presentation and a short break, the WWCFR group began a roundtable discussion of the conservation finance ideas of interest submitted in writing prior to the conference by each of the roundtable participants (as noted above, Appendix 1 is a revised copy of the document in which those ideas were circulated for pre-conference review).

The roundtable discussion of participant ideas went on until about 6:15 pm on April 17, when we broke for dinner at the Harvard Faculty Club. When we reconvened our meeting at 8:30 am on April 18, the work continued, idea by idea, right up until the mid-morning break at 10:30 am. Despite a desire on the part of several participants to "dig deeper" into some of the most novel and provocative ideas and defer dialogue on other concepts, a steady pace of dialogue that considered each idea served to engage both participants and auditors to the notably wide range of concepts being offered for consideration.

Following the break, Keith Ross and Jim Levitt lead the group through a case examination of forest conservation opportunities in western Franklin County, Massachusetts. The purpose of the exercise was to challenge the group to apply the conservation finance concepts they had brought to the session to this on-the-ground situation. Nearly all of the concepts discussed

appeared to potentially apply, with the exception of institutional investment in limited development projects. It was argued that in the absence of special zoning that allowed for cluster development, or the trading of development rights, large private institutions were unlikely to invest in limited development projects in this rural region of western Massachusetts in the near future. In addition, it was pointed out that land ownership patterns in many regions of eastern and central Massachusetts were largely small and fragmented, posing particular challenges to private timber investment management companies (TIMOs) who were likely to look elsewhere, to more consolidated ownerships, for the best investment opportunities.

After a noon break for lunch, the group was asked to participate in a final exercise that would lead each of six breakout groups to coalesce around a concise set of "candidate" forest conservation finance concepts, and then advocate for their selected concepts to a panel of three mock gubernatorial candidates. At about 2 pm the three mock candidates appeared and were seated as a panel to hear the presentations. The three mock candidates, loosely playing the roles Tom Reilly, Deval Patrick and Kerry Healey, the then-current candidates for Governor of Massachusetts, were: David Luberoff, Director of the Rappaport Institute for Greater Boston at Harvard's Kennedy School of Government; Rick Minard, Executive Director of the Harvard University Center for the Environment; and Susan Arnold, Director of Conservation at the Appalachian Mountain Club and former Director of Policy for New Hampshire Governor Jeanne Shaheen.

The panelist expressed genuine interest in the ideas presented. However, they were unanimous in asking for more detail and integration of the concepts. That is, the mock candidates encouraged the group to refine its wide-ranging set of ideas into a more coherent and concise package that would be appropriate for broader public review.

Accordingly, the authors of this report, taking their lead from the concepts selected for presentation to the mock gubernatorial candidates, and with additional guidance from members of the WWCFR steering committee, have grouped several of the strongest candidate ideas into seven key categories, as shown in Figure 2.

For the purpose of illustrating the potential of selected ideas within each category, we have concisely described several concepts, as discussed at the WWCFR, in the following paragraphs. Additional concepts can be accessed in the short essays submitted by Roundtable participants (see Appendix 1). Exactly which of the concepts will significantly advance the Wildlands and Woodlands vision? That, of course, can only be demonstrated in the field, where conservation policy-makers and practitioners will write the next chapter of Massachusetts conservation history.

Figure 2: Woodlands and Wildlands Conservation Finance Roundtable Categories and Concepts

1 **PUBLIC BUDGETS, BONDS AND BALLOT MEASURES**
- 1.1 *Increase Massachusetts bonding authority for conservation, with dedicated revenues*
- 1.2 *Adoption of CPA by additional cities and towns*
- 1.3 *Aggregation of small private parcels for Forest Legacy and other funding sources*

2 **TAX INCENTIVES**
- 2.1 *Enhancement of Massachusetts tax incentives for land conservation*
- 2.2 *Enhancement of Federal tax incentives for land conservation*

3 **PHILANTHROPIC INITIATIVES**
- 3.1 *Sponsorship of Woodland Councils and regional landscape partnerships*
- 3.2 *Sponsorship and operation of regional conservation finance organizations*

4 **EMERGING ECOSYSTEM SERVICE MARKETS**
- 4.1 *Establishment of carbon emission and sequestration markets*
- 4.2 *Stimulation of mitigation market growth for wetlands and forest habitat*

5 **ENHANCED FOREST-BASED ECONOMIES**
- 5.1 *Leasing of timber rights in exchange for conservation easements*
- 5.2 *Development of marketing cooperatives for certified forest products*

6 **LIMITED DEVELOPMENT**
- 6.1 *Investment in limited development facilitated by new zoning and permitting regulations*

7 **SETTLEMENT FUNDS FROM LEGAL PROCEEDINGS**
- 7.1 *Case-by-case allocation of settlement funds*
- 7.2 *Systematic allocation of settlement funds*

Key: **CATEGORIES** listed in **BOLD CAPITALS;** *concepts* listed in *lower case italics*

Category 1: PUBLIC BUDGETS, BONDS AND BALLOT MEASURES
Concept 1.1: ***Increase Massachusetts bonding for conservation, with dedicated revenues***

There was strong support and interest at the WWCFR for the establishment of a dedicated public source of funding for land conservation at the state level (see, for example, essays in Appendix 1 by Ernest Cook and Hank Foster). A compelling case was made for increased state investment in land protection (alternatively called "an investment in the green infrastructure") comparable to the per capita investment being made by several other states. Ernest Cook noted that Massachusetts currently spends $7 per capita on conservation and open space protection, compared to $21 in Maryland and $25 in Florida.

In recent years, Massachusetts has relied on legislatively-authorized general obligation bonds to provide funding for state-funded land conservation projects. These bonds are issued at the

discretion of the Governor and limited by the statewide bond cap. Because there is no more specific source of revenue backing up the bonds used to fund conservation, the bonding authority has been used at a relatively slow pace. Alternatively, if there were a particular source of revenues to service the conservation bonds, conservation funding might be more generous and consistent.

Other states have developed dedicated sources of funding for land protection. For example, New Jersey passed legislation in 1998 that dedicated $98 million/year in sales tax revenues for a period of 30 years; Colorado uses funds from a lottery; Michigan applies funds from a severance tax; and Florida has a documentary stamp tax (similar to the real estate transfer tax) that is used to service that state's ambitious conservation agenda. In addition to supplying consistent revenues, it was argued that the use of such bonds in Massachusetts could generate local governmental and philanthropic support for key projects, and provide a source of economic support for rural communities.

To make progress on this concept, the Massachusetts legislature could create a separate conservation financing authority that has the ability to issue tax-exempt bonds. Potential dedicated revenue sources for state conservation bonds might include sources used for the same purpose in other states, such as general income and sales tax revenues, specific sales taxes on particular product groups such as forest products, taxes on real estate transfers, or lottery revenues. Other sources could include fees from users of (or permitted emitters into) air and water resources, including industry, waste water treatment plants, and the users of such devices as wood stoves, oil heaters, septic systems or motor vehicles. Another funding source considered by WWCFR participants was money from the tax rollback approved by voters but not yet implemented by the state legislature. That rollback, from 5.3% of income tax to 5.0%, represents an amount of approximately $610 million per year.[11] If the legislature decided to keep some portion of the potential rollback and devote it to debt service on conservation-related bonds, it could have a significant impact.

A state conservation authority might also provide the capacity to issue a Massachusetts equivalent to the Community Forest bonds presently being considered for use in Deschutes County, home of the town of Bend, Oregon (see the essay by Tom Tuchman in Appendix 1). One potential source of funding for such bonds could be the annual conservation-directed revenues associated with the Community Preservation Act in a single town, or from a regional collaboration of several cities and towns. Such town or regional conservation bonds could focus resources in areas of the state in need of rural economic development efforts. In census tracts with low levels of income, such bond revenues might be combined with New Market Tax Credits (see Steve Weems discussion in Appendix 1) to stimulate the development of forest-based economies. A bonding authority might also be helpful in advancing Community Forestry initiatives such as those now being realized in New Hampshire (see Marcy Lyman's discussion in Appendix 1).

Two ideas were considered by the group to advance the implementation of ideas related to state and local conservation bonding (note that the same implementation ideas may well be relevant to other concepts highlighted in this report and in Appendix 1). The first idea is to call for the creation of a bi-partisan legislative study committee to investigate conservation finance opportunities. Such a study committee might be appointed to gather research and testimony, and then make a recommendation to the full legislature.

The second idea is to develop a broad-based citizens' coalition to support the establishment of innovative conservation financing mechanisms in the state. Such a coalition might include elements not traditionally focused on conservation issues, including groups focused on public health and quality-of-life issues in towns and cities with ethnically diverse populations that have recently become interested in local adoption of the Community Preservation Act.

Category 1: PUBLIC BUDGETS, BONDS AND BALLOT MEASURES
Concept 1.2: ***Community Preservation Act adoption by additional towns and cities***

As noted above, as of June 2006 about 111 of the 351 towns and cities in Massachusetts have adopted the Community Preservation Act. Additional towns and cities will be considering local adoption of the Act in the next several quarters, including the City of Brookline, one of the largest in the state. Local and matching state revenues from the CPA accounted in 2005 for nearly 46% of conservation capital funding in the state in that year.

One straightforward way increase financial resources in the state would be to realize the adoption of the CPA in more and more of the state's local jurisdictions (for illustrative numbers, see Appendix 2, Figure 7). Assuming that state CPA matching funds keep up the pace with local revenues (between 2002 and 2005 the state match "represented a 100% match of what communities raised through their local CPA surcharge"[12]), such growth could significantly augment capital resources for conservation. Continued political support for local CPA adoption and parallel growth in state matching funds will of course be essential.

Campaigns to adopt the CPA in rural towns of western and central portions of the state have not been as successful as those in the more urban and suburban areas of the state. This is in part due to the generally higher property tax rates in rural communities and the generally lower annual incomes of the residents. Additional strategies will be needed to convince rural voters of the significant benefits the CPA can have in their communities over the long term.

Category 1: PUBLIC BUDGETS, BONDS AND BALLOT MEASURES
Concept 1.3: ***Aggregation of small parcels for Forest Legacy and other funding sources***

The federal Forest Legacy Program (FLP) administered by the U.S. Forest Service has traditionally funded the purchase of conservation easements on relatively large parcels of forestland. Massachusetts FLP proponents have recently pioneered the concept of aggregating into one FLP application several small parcels, owned by a variety of individuals and organizations within a strategically significant landscape. The recent approval of a $2.7 million application may pave the way for more of these applications. This could advance landscape-scale conservation in highly fragmented ownership areas, a condition that characterizes much of the forested landscape in Massachusetts.

The importance of aggregation for the Forest Legacy Program, and for other public, non-profit and private initiatives, is quite clear. Aggregation allows the combination of modestly-sized parcels that may not individually have significant conservation value into larger assemblages that, due to their collective size and positioning, do have significant conservation value.

Category 2: TAX INCENTIVES
Concept 2.1: ***Enhancement of Massachusetts tax incentives for land conservation***

There are several potential ways to enhance tax incentives for land conservation in Massachusetts. First, in the first half of 2006 a legislative proposal known as the Massachusetts Conservation Incentives Act, has been making its way through the state legislature with the support of several conservation organizations, including The Nature Conservancy and Massachusetts Audubon. The legislation would give Massachusetts residents who donate approved conservation restrictions (CRs) to qualified state and non-profit conservation organizations a credit against Massachusetts taxes of 50% of the appraised fair market value of the land, up to a limit of $50,000. Any credit not used in the first year could be carried forward for as long as ten years.

If signed into law, such state tax credit incentives could accelerate the donation of CRs by private landowners, particular in regions of the state where such incentives are able to be combined with other elements of value - for example, economic incentives associated with New Market Tax Credit-enhanced projects (see Weems essay in Appendix 1). Project proponents estimated that such incentives might cost between several hundred thousand dollars per year to several million dollars. In some states, such as Virginia, such credits are transferable to a third party, but such a feature is not now included in the pending proposal.

In association with the effort to advance state tax credits for land conservation in Massachusetts, a review of the impact of such credits in other states could be quite helpful. Such a review might include preparation of in-depth case studies (see for example, the description of the Kelda deal in Connecticut described in Bill Ginn's short essay in Appendix 1), as well as a compilation of costs and benefits on a state-by-state basis.

An additional tax incentive for owners of working woodlands that could be effectively enhanced is the Massachusetts "Chapter 61" program which effectively reduces property taxes on land parcels that are operated according to state-approved forestry management plans. The Chapter 61 program is currently not graduated according to the productive capacity of the property. Keying such incentives both into the productive capacity of property, the level of protection provided, and forest management plan adopted could accelerate the adoption of Chapter 61, and thereby the implementation of professionally prepared forestry plans, on an increasing proportion of the state's privately-owned woodlands.

Category 2: TAX INCENTIVES
Concept 2.2: ***Enhancement of federal tax incentives for land conservation***

Enhancements to federal tax incentives for land conservation were signed into law on August 17, 2006 by President Bush as part of the Pensions Protection Act. The easement provisions, effective under this law during 2006 and 2007, allow taxpayers to deduct as much as 50% of adjusted gross income (AGI) for most taxpayers (as opposed to a presently allowed maximum deduction of 30%), and as much as 100% of AGI for qualified farmers and ranchers. The deductions may be carried over for a period of 16 years, as opposed to the previously specified 6 year period. Testifying before Congress on April 30, 2002, the President of the Land Trust Alliance, Rand Wentworth, stated his belief that "enhancements

to federal tax incentives for land conservation could produce tangible, visible, permanent results." Bargain sales paragraph to be added.

It is important to note that these provisions enhance the tax benefits associated with easements that are donated in entirety, as well as "bargain sale" transactions (for example, a transaction in which a land trust pays a land owner for a portion of the appraised value of the easement on a particular parcel, and in which the remaining appraised value of the easement on that land is effectively donated to the land trust by the land owner). In order to take maximum advantage of this federal tax program for the two-year window that is currently available, it may be necessary to both build the capacity of existing land trusts and find specific ways to increase the efficiency and reduce the transaction costs of multiple CR projects.

Category 3: PHILANTHROPIC INITIATIVE
Concept 3.1: ***Support for Woodland Councils and Regional Landscape Partnerships***

The workshop participants noted that the W&W vision has the potential to galvanize philanthropic and community interest for large scale land conservation in Massachusetts. The report itself recommends the formation of Woodland Councils, or similar collaborative organizations such as the existing North Quabbin Regional Landscape Partnership (NQRLP), that bring together individuals, foundations, non-profit conservation organizations and government agencies to advance regional conservation objectives.

The effectiveness of such organizations, in part, lies in their ability to aggregate regional supply of conservation properties, enabling both the attraction and efficient distribution of large-scale conservation funding packages. The NQRLP, for example, was an important player in the effort to attract the large amount of state conservation funding made available for the Tully Initiative in the early 2000s and then to reach the landowner base required to use these funds in a strategic manner.

Philanthropic support has been key to the formation of the NQRLP and similar organizations to date. The NQRLP, for example, has from 1997 through 2005 been an informal organization supported largely by in-kind contributions of time and materials by participating members, as well a variety of grants from large and small philanthropic sources. With several recent major grants, it has been able to bring on a paid coordinator in 2006. Other regions in the state have made recent progress towards forming similar groups (for example, the Westfield River and Highlands partnerships promoted by The Nature Conservancy and The Trustees of Reservations, as well as the East Quabbin Regional Landscape Partnership).

Foundations and individual donors now have the opportunity to advance the W&W vision through support of Woodland Councils and similar regional partnerships that can significantly advance community-based regional conservation aspirations.

Category 3: PHILANTHROPIC INITIATIVE
Concept 3.2: ***Sponsorship and operation of regional conservation finance organizations***

Several WWCFR participants discussed the potential utility of having one or several regional organizations focused on conservation finance in Massachusetts (see, for example, the

discussions by Michael Catania, Peter Howell and Keith Ross in Appendix 1). There are several such independent regional organizations, also known as "conservation finance intermediaries," in the United States, including Conservation Resources, Inc. in New Jersey, the Open Space Institute in New York and New England, the Resources Legacy Fund in California and the Colorado Conservation Trust. In addition, there are regional conservation finance operations that operate within larger conservation groups, such as the Maine Coast Heritage Trust and Scenic Hudson.

A Massachusetts conservation finance organization focused, at least in part, on the W&W vision might attract significant philanthropic support from both large and small foundations, including those who do not have a history of giving to conservation (Conservation Resources, Inc. operates a conservation portfolio for family foundations in New Jersey that serves this function).

The concept of coordinating private philanthropy for forest conservation is consistent with the idea suggested by Peter Howell and the Open Space Institute (OSI) in Appendix 1. Howell's idea is to establish a fund that would bring together a mix of grant and loan capital to support community forestry projects. An excerpt from Howell's essay follows below.

> *OSI is interested in exploring with others how to establish a fund that could provide a mix of loans and grants to towns and land trusts seeking to bring working forests under community or nonprofit ownership. Major challenges include identifying and aggregating the capital necessary to buy larger tracts at lower unit cost and determining creative strategies to repay debt that is likely to include a mix of revenue from timber harvesting, compatible development and eventually possibly the sale of ecosystem services.*
>
> *We envision that a fund could be capitalized with a mix of equity and low-cost, longer-term debt and work potentially in conjunction with New Markets Tax Credits and state and even local tax-exempt financing. OSI is investigating how it can bring significant grant and loan capital to this enterprise, including its own assets, but we think there is a need and opportunity for philanthropy to offset lending risk and increase financial flexibility through the provision of loan loss reserve, financial guarantees and interest rate sweetener.*

Further investigation of the idea appears warranted. In-depth interviews with members of the philanthropic community should explore the feasibility and practicality of raising substantial capital to establish a conservation finance organization or fund in Massachusetts. The successes, pitfalls, and lessons learned by similar initiatives in other parts of the country should be considered.

Ongoing discussions regarding this concept might result in the establishment of a fund within an existing organization, or in the establishment of a new operating non-profit. The conservation objectives of such an initiative might include, in addition to the establishment of community or non-profit-owned forests, the conservation of privately-held lands protected as wildlands or woodlands with appropriate conservation restrictions and commitments to maintain sustainable operations.

Category 4: EMERGING ECOSYSTEM SERVICE MARKETS
Concept 4.1: ***Carbon emission and sequestration markets***

As explained by Laurie Wayburn (see her essay in Appendix 1) the California experience with carbon caps and credits provides a useful case study for Massachusetts. California, under a Republican governor, has recently committed to reducing CO_2 emissions to 1990 levels by 2020. To reach this goal, the state is setting up a standardized system with specified caps for carbon emissions for various sectors of the economy. Because properly-managed forests can be net sinks of carbon over time, the system allows owners of certain sustainably managed standing forests to earn credits for the net reductions in CO_2 emissions.

As this cap and trade system is established, it may well supply the owners of sustainably managed, permanently protected forests considerable amounts of capital. For example, if carbon emission reductions are valued in an open market at $10 per ton, and there was a market supporting forest-related trades of tens of millions of credits in California, then the market in that state alone could be valued at hundred of millions of dollars per year. In effect, sustainably managed forests would be able to provide ecosystem services (carbon sequestration) with real economic value over time.Additional key provisions of the emerging California program include the following:

- Forests will be able to earn credits only if they are protected by permanent conservation easements, ensuring that the forestland is not in the future converted to development or adverse land management practices.

- Only native forest types will be able to earn credits.

- Current California legislation requires mandatory reporting and enforced caps on CO_2 emissions by 2009/2010.

- Forests are given prioritized ranking among alternative carbon offset projects.

- Sustainably managed forests might be able to earn additional credits if thinnings are used in biomass-to-energy applications, providing a second potential stream of carbon credit income for forest owners.

To better understand the feasibility of replicating or amending such a system for use in Massachusetts, WWCFR participants posed several questions that require attention. First, how does the accounting system works, particularly with regard to establishing baseline conditions? Second, how are sustainable management practices defined and enforced? Third, how might such cap-and-trade systems work on a state-by-state basis in the absence of clear federal standards? Fourth, participants familiar with climate change regulations asked how the problems of “additionality” and “leakage” would be addressed.

Massachusetts still has a great deal of work to do to establish a policy framework that deals with climate change and carbon dioxide emissions. The opportunity exists to frame policies that both reduce net carbon emissions and benefits the establishment of sustainable, protected forests across the state.

Category 4: EMERGING ECOSYSTEM SERVICE MARKETS
Concept 4.2: ***Mitigation markets (e.g., wetlands, habitat)***

In several states around the nation, government agencies have established local markets for ecosystem services by agreeing to procure "mitigation credits" (that is, credits representing set quantities of restored ecosystem services) to offset the loss of such services incurred as a byproduct of development. For example, in North Carolina, the state Department of Transportation is procuring bulk volumes of restored wetlands and wildlife habitat to offset the loss of comparable wetland or habitat incurred in the process of new state highway construction.[13] Similar programs are in place across the nation, from California to Florida to Montana (see Fred Danforth essay, Appendix 1). In the case of wetlands, such mitigation is performed according to U.S. Army Corps of Engineers regulations, which are becoming increasingly stringent (for more information, see www.MitigationBanking.org, the website of the National Mitigation Banking Association).

Massachusetts has yet to become a major player in mitigation markets. Institution of mitigation banking rules for the loss of wetlands or wildlife could bring a valuable potential revenue stream to the owners of sustainably managed woodlands and wildlands.

Potential investors and sources of capital for carbon, water, nutrient and other emerging ecosystem markets could include institutions such as universities (see concept provided by Ann Ingerson, Appendix 1).

Category 5: ENHANCED FOREST-BASED ECONOMIES
Concept 5.1: ***Leasing of timber rights in exchange for conservation easements***

Kristin Foord offered an idea for increasing the amount of private forested landscape that is sustainably managed and protected (see her essay in Appendix 1). The concept she discussed is similar to techniques for "grassland banking" used effectively in the other regions of the United States. The idea might work something like this: the state could offer private landowners a concession to harvest timber on state lands, in accordance with state timber management plans, as full or partial compensation for the placement of a conservation restriction on that person's privately-owned forest land. The agreement might also include provisions for the private land owner to adopt one of several approved forestry management regimens (for example, maintaining independently certified Forest Stewardship Council or Sustainable Forestry Institute standards) on the subject property.

In addition to protecting and enhancing the sustainable management of additional acres of the state's forested landscape, this structure would potentially reduce state land management costs and make more efficient use of a small and very modestly funded state forestry staff. It would also potentially level out swings in the local supply of timber in a given region of the state, giving small companies that rely on a consistent flow of timber or biomass feedstock a more stable and predictable environment in which to operate.

There are several examples of grassland banks involving public, private and non-profit collaborators that have been formed over the past several decades, including the Malpai Borderlands project in southern New Mexico and Arizona, and the Valle Grande Grass Bank

in New Mexico. Bill Ginn noted that there are several analogues involving timberland, including one in Tennessee involving the Conservation Fund in a complex transaction with International Paper and Plum Creek. Additional research would need to be done to better understand how such a concept might work in the context of Massachusetts service procurement and land management laws and regulations.

Category 5: ENHANCED FOREST-BASED ECONOMIES
Concept 5.2: ***Development of marketing cooperatives for certified forest products***

Arthur Eve (see his essay in Appendix 1) described the recent emergence and growth of the Massachusetts Woodlands Cooperative (MWC). The MWC, launched in 2001, currently has about 46 landowner members operating on about 6,000 acres of Massachusetts forestland. MWC has recently become "group certified" under Forest Stewardship Council (FSC) standards, allowing MWC members to market their products with the FSC label, a widely-recognized symbol of sustainable management in the forest products industry.

One of the ways that MWC strives to strengthen local forest-based economies is by stimulating the growth of markets for locally-grown "green"-certified flooring and house trim products. Because MWC wood is locally grown and FSC-certified, it can earn points for a building project, qualifying that building for Leadership in Energy & Environmental Design (LEED) certification. Such LEED certification is increasingly demanded in select residential, commercial, non-profit and government real estate markets (for further information, see http://www.masswoodlands.coop/products_architect.html).

The idea is that, as suppliers of sustainably-produced forest products from Massachusetts grow in both scale and scope, cooperative marketers representing these suppliers will become increasingly well-positioned to negotiate favorable deals with forest product wholesalers and retailers. A healthy cooperative will be better equipped to engage in comprehensive marketing campaigns, attract new forest-based businesses to the region, and catalyze the development of the commercial and industrial infrastructure necessary to support a thriving forest products industry.

Eve argued that land trusts could help to accelerate the growth of the MWC and similar organizations by joining forces to promote sustainable forestry and the marketing of sustainably-produced forest products. This would result both in improved forest management across the Massachusetts landscape and in the strengthening of local forest-based economies.

Category 6: LIMITED DEVELOPMENT
Concept 6.1: ***Investment in limited development facilitated by new zoning and permitting regulations***

WWCFR discussion of limited development was generally led by Tony Green of The Pinehills, Rick Weyerhaeuser of Lyme Timber, and Fred Danforth of the Sustainable Land Fund (see their essays in Appendix 1). Participants listened with great interest to the discussion of private efforts to balance development and conservation objectives through projects such as The Pinehills in Plymouth, Massachusetts. The Pinehills is a new community which will combine nearly 3,000 new homes and 1.3 million square feet of mixed use commercial on only 30% of its land (that is, 900 of its more than 3,000 acres) with

the remainder left as open space including three golf courses, more than 10 miles of trails, and 1,500 acres of natural open space
Limited development projects that preserve open space by intensifying density are a challenge in Massachusetts, given the dispersal of zoning authority to some 351 cities and towns and "as of right" zoning that makes such development require a special permit.

Limited development projects with significant private sector investment in the conservation of open space might include the following elements:

- Statewide regulations that offer special incentives, density bonuses and regulatory allowances for preserving open space through "cluster zoning" – at present, cluster zoning, which allows for development at densities not typical in suburban and exurban jurisdictions, must be gained through special permit processes that add considerable risk for potential developers

- Statewide regulations that allow for more flexible road and utility standards; current subdivision standards, for example, require wider, faster and straighter roads than are required or desired

- Access to state funds at low-cost municipal rates if a certain proportion of the land (say, greater than 50% of the land in the limited development) is preserved in an approved manner in conjunction with a qualified unit of government or land trust

- Financial commitment by the local community to invest in, for example, walking trail construction, operations and maintenance.

In order to make progress in siting limited developments and passing regulatory reform, developers and conservationists could work together more effectively. It was noted that most companies shy away from a high level of environmental risk, because they need more certainty in the number of houses that will be built. The environmental community could play an important role in supporting regulatory reform for limited development/open space protection in the state and help reduce risk to the developer by participating in the resolution of issues that hold back the construction well-conceived projects.

Category 7: SETTLEMENT FUNDS FROM LEGAL PROCEEDINGS
Concept 7.1: ***Allocation of funds on a case-by-case basis***

Several participants, including Michael Catania and Ann Ingerson (see their essays in Appendix 1), offered ideas that involved applying funds from legal settlements and regulatory proceedings to land conservation (more specifically, using for land conservation payments arising from law suits, permit non-compliance fines and natural resource damage assessments). At present, many such funds are allocated on a case-by-case basis throughout the United States.

Perhaps the most famous settlement of this type is associated with the 1989 Exxon Valdez oil spill. The process of assessing damages and distributing settlement funds continues to this day. For example, the Exxon Valdez Oil Spill Trustee Council, based in Anchorage, Alaska, is at present considering the collection of additional settlement funds from Exxon. If

assessed, additional settlement funds are likely to be allocated to ecosystem and habitat restoration in Alaska's Prince William Sound (see: http://www.evostc.state.ak.us/index.htm).

Such case-by-case administration of settlement funds is also practiced in New England, where environmental damages result in long-term single-purpose settlement mechanisms, such as the one associated with the 2003 "Bouchard Number 120" oil spill in Buzzards Bay (see: http://www.buzzardsbay.org/oilspill-4-28-03.htm).

Case-by-case allocation of funds will continue into the future as new environmental damage cases arise. Should the damages be related to the health of forestland and related wildlife habitat in New England, such funds may well be allocated to worthy conservation projects.

Category 7: SETTLEMENT FUNDS FROM LEGAL PROCEEDINGS
Concept 7.2: ***Systematized allocation of settlement funds***

An alternative to case-by-case allocation of settlement funds is the systematic allocation of such funds through a centralized regional organization or clearinghouse. The Massachusetts Environmental Trust, legislatively mandated to focus on water quality issues (see http://www.agmconnect.org/massenvironmentaltrust/history-of-settlements.htm), is an example of a centralized organization that can handle money from legal settlements. Note, however, that the Massachusetts Environmental Trust also receives significant revenues from the sale of specially identified Massachusetts license plates.

Michael Catania's organization in New Jersey, Conservation Resources, Inc., provides centralized services for receiving and distributing settlement funds (see www.conservationresourcesinc.org). Similar organizations are being considered for other states. With appropriate funding, it may make sense to form a similar organization (or department within an existing organization) to focus on Massachusetts forests, perhaps in conjunction with the formation of a conservation finance intermediary organization discussed in Section 3.2, above.

CROSS-CUTTING THEMES

Throughout the course of the WWCFR discussions, several key themes emerged that cut across the specific concept being discussed. For emphasis, they are considered here.

Opportunities for aggregation

There are many landowners and few large parcels of forestland in Massachusetts. To achieve the W&W vision, it will be necessary to find an expedient way to aggregate properties and property rights into bundles that can be efficiently protected. As noted above, there are a number of ways in which that bundled land protection projects that span several towns can be used to develop more competitive applications to existing state programs such as the Commonwealth Capital Fund and the federal Forest Legacy Program, as well as large private foundations.

The need for patient, low-cost capital

Many workshop participants noted that there is a need for very patient, low-cost long-term capital with the repayment of the debt coming from timber harvesting, ecosystem service or other sustainable revenues. They noted several possible sources of patient capital should be cultivated, including loans from conservation finance intermediaries; new market tax credits syndicators; and revolving loan funds provided by non-profit funders.

The need to evaluate market impacts of conservation efforts on an ongoing basis

Several workshop participants felt that greatly increased conservation fee and easement purchases may drive up land prices in the Commonwealth over time. They suggested that there may be opportunities, through the use of bidding mechanisms such as reverse auctions, to focus at least some of the conservation finance resources on the protection of relatively inexpensive parcels of interest. There will be an ongoing need to monitor the market over time to assess the impact of such tools.

POSSIBLE NEXT STEPS

The WWCFR group offered several constructive ideas regarding follow-up to this report, and to the group's work together. With guidance from reviewers and the WWCFR steering committee, some or all of these options may be pursued to advance the realization of the Wildlands and Woodlands vision.

Convene briefings for interested parties

All of the activities identified in this report will require capacity and operating support from a variety of sources, including private foundations. Plans are already underway to convene potential funders, collaborators and stakeholders to bring them up to date on W&W work, including this report. Consideration should also be given to a potential work plan spanning the next two to five years. Additional briefings might be appropriate for selected funders, policy-makers and other interested parties.

Involve a diverse coalition in the development of a campaign strategy

Once initial briefings are underway, a leadership group may want to convene a diverse, bi-partisan group to consider devising a strategy for expanding public, non-profit and private support for forest conservation in Massachusetts. Such a strategy could bring together interests focused on rural economic development, the establishment of a "green infrastructure," affordable housing, public health, and related issues. A campaign to implement the strategy could be laid out perhaps 5 years. Critical components of such a campaign would likely include: sound research on why forest conservation will benefit present and future citizens of Massachusetts; and key messages and communications strategies based on in-depth conversations and constituent research.

Promote the authorization of a bi-partisan legislative study commission

At present there is a high level of interest regarding the Wildlands and Woodlands vision among conservationists and a number of policy-makers. It may be timely in the context of the upcoming changes in administration on Beacon Hill to consider the establishment of a bi-partisan study commission, funded by the legislature, to consider W&W-related proposals. Such a commission would likely be very effective in providing a context in which state legislators, agency administrators and conservationists could work constructively to bring forward the most attractive and feasible concepts for implementation.

Advance relevant pilot projects in the field

In several regions of the state, pilot efforts are already underway to explore some of the concepts discussed in this report. For example, the North Quabbin Regional Landscape Partnership is continuing its work to earn community support and funding for conservation efforts in that area. A sister organization in the East Quabbin area is forming, as is an emerging collaboration around the Westfield River. It is vitally important that such field-based efforts continue to set real-world examples of what can be done, setting the context for expanded forest conservation efforts across the state.

Advance relevant research and development efforts

Several of the financing ideas presented in this report would benefit by research and development efforts in three areas: finance, public policy, and ecology. Some of the research and development might be pursued in the context of the legislative study committee discussed above. Other efforts might be performed in academic or research group settings. Potential research products include the following:

Conservation Finance

- White papers and case studies exploring individual conservation finance concepts and their potential implementation in Massachusetts (for example, a case study reviewing the bundling of small parcels for federal Forest Legacy, state and private funding in the state)

- Economic analyses estimating funding sources and uses for various concepts (for example, an analysis exploring the potential availability of New Market Tax Credits for use in addressing economic development and conservation objectives in the state)

- A report summarizing findings of the proposed legislative forest conservation study commission

Public Policy

- An analysis of the public costs and benefit of large-scale land protection in the state, perhaps undertaken in tandem with the ecological assessment described below

- A status review of pending legislation on Massachusetts conservation tax credits

- An evaluation of Massachusetts wetlands and habitat mitigation programs, and of conservation programs funded by settlements from legal and regulatory proceedings

- An analysis of potential revisions of zoning, permitting and other land use regulatory controls to facilitate limited development and promote conservation values of forests

Ecology

- An assessment of the ecosystem benefits associated with the protection of large areas of forestland in Massachusetts, including the impact of conserving standing forests on levels of carbon emissions and sequestration in Massachusetts

- A projection of scenarios for Massachusetts forest cover change, based on development trends, climate change and other factors in coming decades.

Additional ideas for potential next steps are likely to be offered as this reported is circulated and through other forums relevant to the Wildlands and Woodlands initiative. As noted above, the authors of this report, and the many others who are engaged in advancing this vision for the forests of Massachusetts, welcome these ideas, innovations and initiatives.

ACKNOWLEGEMENTS

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Next, to all of the WWCFR participants and auditors, listed in Figure 1 of this report, our gratitude goes to all of you for your high level of energy and insight. Similarly, to Hank Foster, Perry Hagenstein, David Foster and Keith Ross, we very much appreciate your guidance and the careful reviews provided before and during the preparation of this report. Thanks also to our three mock-candidates for governor, David Luberoff, Rick Menard and Susan Arnold, a trio that offered our group very useful feedback and sage advice at the conclusion of the workshop.

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APPENDIX 1

Woodlands and Wildlands Conservation Finance Roundtable

Harvard University Center for the Environment, Cambridge, Massachusetts, April 17 and 18, 2006

WWCFR Biographies and Financing Concepts

Michael Catania

Biography. Michael Catania, Esq. is the President of Conservation Resources Inc., a non-profit organization which provides financial and technical assistance to the Garden State conservation community. Michael served as Deputy Commissioner of the NJ Department of Environmental Protection under three Commissioners and two Governors from 1986 until 1991. Earlier in his career, he drafted many of New Jersey's landmark environmental laws, including the Pinelands Protection Act, the Natural Areas System Act, several Green Acres Bond Acts, and the Conservation and Historic Preservation Restriction Act, as well as numerous other energy, agriculture and environmental laws while serving as staff supervisor for the New Jersey Legislature from 1974 to 1981. Michael also served as in-house Counsel for NJDEP, where he oversaw the adoption of NJDEP regulations and the enforcement of New Jersey's environmental laws from 1981 to 1986. From 1991 to 2003, he served as the Executive Director of The Nature Conservancy of New Jersey, where he was responsible for the completion of more than 350 land acquisition transactions which protected more than 43,000 acres, as well as the $60 million *Campaign to Save the Last Great Places of New Jersey.*

In 1998, he was the Co-Chair of the Coalition to Preserve Natural Resources, directing the successful statewide campaign for voter approval of Public Question # 1, which dedicated some $98 million per year for open space and farmland preservation for each of the next thirty years. More recently, in 2003, he became the founder and Chairman of the Coalition for Conservation, which conducted the successful campaign for a ballot question to increase the bonding cap for the Garden State Preservation Trust by an additional $150 million to $1.150 billion.

He currently serves as Chair of the New Jersey Natural Lands Trust and as President of the Schiff Natural Lands Trust, Inc. Michael holds a BA and MA in Political Science and a JD from Rutgers University.

Financing Concept. *Conservation Resources' Geographic Funds: A Unique New Mechanism to Provide Resources for Conservation Projects*

Conservation Resources Inc. (CRI) has created a unique, efficient mechanism to provide resources for conservation projects from a variety of both philanthropic and regulatory sources. Regulatory contributions include penalty settlements, supplemental environmental projects, permit conditions, mitigation projects and natural resources damage claims. This mechanism consists of a web-based catalogue of seven Geographic Funds which covers the entire state of New Jersey. Each of these seven Geographic Funds features a number of exemplary land acquisition, stewardship, and restoration projects being undertaken in that region. These projects are pre-screened by CRI to insure that they meet strict criteria, including the geographic or technical criteria for specific regulatory contributions. Once a project is featured in CRI's Geographic Funds, CRI acts as a conservation intermediary to match these conservation projects up with both philanthropic and regulatory contributors. CRI can also help identify projects to meet a specific geographic need or size. Upon regulatory agency approval of a specific featured project, and the execution of a settlement agreement, CRI: (1) serves as fiduciary for the project; (2) executes both a regulatory contribution agreement with the responsible party and a grant agreement with the recipient organization; (3) assumes responsibility for project oversight; and (4) receives, manages and disburses settlement funds in accordance with a project and payment schedule developed for this purpose. CRI can also provide technical assistance to the non-profit recipient of these funds to help insure timely completion of the project. Should the selected project for any reason not be implemented, CRI – rather than the responsible party - would identify and screen a substitute project, obtain regulatory agency approval of that replacement project, and then oversee completion of the replacement project. CRI also provides interim and final reports on the project to the responsible parties and the regulatory agency, as well as audits of all settlement funds received and disbursed by CRI. In return for these services, CRI assesses a modest management fee which is paid by the responsible party. In the last year, three projects featured in CRI's Geographic Funds have already been funded by regulatory contributions, and we are currently working to help identify and screen projects for a number of pending settlements.

To find out more about CRI's Geographic Funds, visit our website at:
www.conservationresourcesinc.org

Charles H. Collins

Biography. Charles H. "Chip" Collins is co-founder and Managing Director of The Forestland Group, LLC, a timberland investment management organization that acquires naturally regenerating forestland that it manages sustainably for institutional investors, individuals and families, currently totaling 750,000 acres in nine states. He is a former Vice President of Winslow Management Company, a Boston-based investment management firm specializing in environmentally responsible investments.

Collins also served as the Director of the Northeast Fisheries and Sustainable Communities Project where he authored *Beyond Denial*, a precedent setting report on the collapse of the northeastern marine fisheries. Collins also served as: the first Executive Director of the National Fish and Wildlife Foundation, which, during his tenure, helped launch the North American Waterfowl Management Plan; Vice President of the Chesapeake Bay Foundation; and Colorado State Director of the Nature Conservancy.

He currently is a Director of the Institute for Ecosystem Studies, the World Forestry Center, and the Great Mountain Forest Corporation. He formerly served as a Director of the Student Conservation Association, the Land Trust Alliance, the National Commission on Science for Sustainable Forestry, and the North American Wetland Conservation Council. He holds a M.E.S. from the Yale School of Forestry and Environmental Studies and a B.A. from Colorado College.

Financing Concept. Forestland ownership across the country is in the midst of massive, unprecedented change. In the last year alone, around 8 million acres has changed hands nationally. Most of these lands are being sold by the integrated forest products companies and purchased by TIMOs, REITs and private equity firms. Some of those entities have willingly collaborated on large, sophisticated conservation transactions. Others have launched aggressive new development programs. Massachusetts' private forestlands are highly fragmented and expensive, with high quality but fairly slow growing timber. Most private timberlands in the state likely trade at development values, not timber production values. Moreover, Massachusetts has become a niche forest products marketplace. Landowners still have relatively healthy markets for stumpage for higher value saw timber, much of which probably leaves the state or even flows to Canada, but face poor and declining markets for lower value species, particularly pulp. These conditions are likely to only deteriorate further. As a result the state is unlikely to attract the attention of the larger TIMOs and REITs. Timberland buyers are largely individuals and real estate investors and small operators. Strategies need to be employed which address its unique characteristics and the development value conundrum on its private timberlands.

The *Wildlands and Woodlands* report from the Harvard Forest consortium represents a bold, innovative and thoughtful plan for conserving Massachusetts' forestland resources. The report provides a thorough assessment of the history of the state's forestry resources, ownership, ecological health and current development trends and threats. It also identifies the existing conservation framework (land trusts, watershed associations, etc) required to launch and implement its ambitious goals. *Wildlands and Woodlands* will require the successful "overlay" of the full array of fee and less than fee land acquisition techniques, such as limited development, donation and purchase of conservation easements, tax incentives, such as current use property tax incentives and "new market" tax credits, and regulatory programs which the land conservation community has used successfully over the last decade to conserve millions of acres of forestland. A few potential ideas for applicable models and funding follow.

Mitigation/ Restoration Funding- The Federal Transportation bill, and its provisions for mitigation, restoration and wildlife enhancement provides a potentially significant source of federal matching revenues for state programs. Overlaying an "Ecosystem Services" analysis on the existing watershed framework in *Wildlands and Woodlands*, could allow the state more flexibility for tapping those federal funds. Massachusetts also should consider North Carolina's successful watershed-based mitigation program as a potential model for accessing those funds. Another obvious potential model is New York City's and State's watershed-based conservation easement and fee acquisition program around the City's reservoirs in the Catskills.

LWCF/ State Matching Grants - Securing "full" funding for LWCF- based state matching grants has been a priority of the national land conservation community in recent years. The community has come close on several occasions over the last few years but remains stymied. Nonetheless, efforts continue in Washington, and the latest initiative which holds some promise is a proposal in the energy bill to tax proceeds from natural gas development in Area 181 off the coast of Florida. Senators Salazar and Alexander introduced an amendment in the last session to provide a guaranteed $450 million in federal funds from taxes on that field in the event it is developed to the LWCF for state matching grants for land conservation. The amendment was pulled prior to the end of the last session of Congress, but the sponsors apparently have received encouragement from the Committee Chair

and Ranking Member. If the "181" Bill is approved, the Wildlands and Woodlands initiative could provide a framework for a prototype state matching program for securing funds from that program.

Markets- Conserving and "sustainably" managing 2.25 million acres of working woodlands over time will require access to healthy markets for both lower value and higher value wood products from those lands. Access to the lower value markets is particularly critical to support the practice of sustainable forestry and reduce over time the pandemic problem of high grading. Therefore federal, state and local economic development tax incentives such as "new market" tax credits, and other tools to maintain and improve sawmills and secondary manufacturing facilities, need to be included as fundamental component of any strategy to implement the Woodlands component of this initiative.

Energy- Federal energy legislation represents another interesting opportunity, particularly the potential development of new biomass and ethanol/synthetic fuel facilities to provide markets for lower value wood products. Massachusetts could provide subsidies to match emerging federal incentives to support the development of these products, and seek federal funds from the emerging energy bills to match state funds both for production facilities and to secure the land base needed to support such facilities. These lands, in turn, could become part of the Woodlands mosaic. Although these efforts would likely face significant NIMBY opposition in certain areas, targeting incentives in these areas holds real promise, particularly if linked directly to third party certification of the timberland s that are being harvested.

Wildlands- Setting aside up to 250,000 acres of "Wildlands" in the state is desirable and certainly Massachusetts would benefit from maintaining a larger acreage of relatively natural timberlands. However, while I agree that those lands do not need to be managed for timber production, leaving those lands completely "unmanaged" seems potentially problematic, particularly in light of the likely significant increase in invasives over the next few decades. Invasives pose a potentially significant threat to certain forest types, and failure to control invasives on "Wildlands" could pose a significant threat to surrounding lands. In my view, this threat does not represent "natural" change to the landscape, and accommodations should be made in the Wildlands components to allow active management to control invasives through active management where warranted, perhaps by a dedicated panel of experts.

D. Ernest Cook

***Biography*.** Ernest Cook is Senior Vice President and Director of Conservation Finance for the Trust for Public Lands (TPL). In 25 years with the Trust for Public Land, Ernest has significantly expanded the organization's geographic and program scope. He laid the groundwork for TPL's land conservation programs in New England and the Midwest and served as the first regional director for both regions. In 1996, Ernest assumed responsibility for building TPL's conservation finance program, which fosters the creation of new sources of land conservation funding for state and local governments. Since then, this program has aided in the passage of legislation and ballot measures providing over $25 billion in public funds for parks and open space protection. Ernest oversees a growing network of government affairs staff and political, research and polling consultants that are promoting over 50 legislative and ballot measures in states, counties and cities around the country. The program also has originated basic research into ballot measure election data, trends in government spending on conservation, and financing options for government conservation programs. Ernest is also president of The Conservation Campaign, a national nonprofit group that sponsors legislative lobbying and ballot measure campaigns focused on winning political approval for government conservation funds. Ernest holds an undergraduate degree from Harvard and a master's in public administration from New York University, where his coursework focused on urban planning

and public finance. He is co-author of *The Conservation Finance Handbook* and several articles on related topics.

Financing Concept. States with the most ambitious and effective land conservation programs typically rely on a dedicated funding source for the purchase of land and easements. Dedicated revenues allow for states to create and carry out long-term conservation strategies much better than if their agencies have to rely on the uncertainties of annual action by their legislatures and governor. New Jersey, for example, adopted a constitutional amendment in 1998 that dedicated $98 million per year from the sales tax for a period of 30 years. Colorado has a lottery, Michigan a severance tax, Florida a documentary stamp tax (similar to real estate transfer tax), and so forth. Massachusetts has relied on legislative bonds that create the authority for funding land conservation, but there's no revenue behind them, and they are subject to administrative discretion and the statewide bond cap, so the bond authority is never fully used. As a consequence, the progress of land conservation is much slower than if the state had a dedicated fund backed a meaningful revenue source.

Fred C. Danforth

Biography and Financing Approach. Fred, a native of Maine and graduate of Yale, began his career in banking with Citibank in New York City. In 1986, he was co-founder of Capital Resource Partners (CRP), a private equity investment firm located in Boston. He served as managing partner and oversaw the raising and investment of four institutional funds totaling nearly $1 billion in capital under management. Institutional limited partners in CRP's funds included leading public and private pension funds, major college endowments and foundations.

Mr. Danforth retired from CRP in 2002 and immediately shifted his time and energies to several business partnerships and related activities in Montana. While remaining a resident of Massachusetts, he has seen many of his passions evolve into active pursuits in the worlds of fly-fishing and conservation land management. In particular, he is the lead partner for Nevada Spring Creek Partners in Montana's renowned Blackfoot Valley, where he is overseeing comprehensive habitat, wetland, and stream restoration projects on the Nevada Spring Creek Ranch.

His experience in finance, and currently in the evolving arena of conservation finance, has led him to form Oxbow Land Management. Oxbow's mission is to work with private landowners on large, ecologically significant tracts of land to restore and protect critical natural resources and other disappearing open space while using market-based programs to generate economic returns.

Most recently, Mr. Danforth has joined with the Environmental Bank and Exchange (EBX), a national leader in ecosystem development on private lands, to develop a new private equity investment strategy. The investment activity will focus on critical land acquisition followed by the development of eco-asset values through habitat preservation and restoration. They are currently working to raise capital for the Sustainable Land Fund, a new sector private equity fund targeting the institutional alternative asset market.

Christopher J. “Kim” Elliman

Biography. Kim Elliman serves as CEO of the Open Space Institute, a land conservation organization based in New York, and as a consultant to Barrett Associates, Inc. Previously, Kim worked in both financial and environmental positions. He was President of Gray Seifert & Co., an investment management company; Managing Director of Barret Associates, Inc.; and General Partner of Elmrock Group. Kim also served as Director and Chairman of Piggly Wiggly Southern, Director of Fresh Field Markets, and CEO of the Overhills Group, an investment holding company in the southeast. He

previously worked as President of the Open Space Institute for seven years, during which OSI protected close to 70,000 acres in New York, including Sterling Forest. He is the vice-chairman of the Geraldine R. Dodge Foundation and serves or has served on the boards of various other nonprofit organizations and foundations, including the Overhills Foundation, Storm King Arts Center, the Wilderness Society, Environmental Defense, and the Dalton School. He has been chairman of the Wilderness Society, the Adirondack Council, the Council of the Environment in New York City and STRIVE, which focuses on job training and workforce development. Mr. Elliman has a bachelor's degree in history from Yale University.

Financing Concept: please see concept articulated by Peter Howell, also of the Open Space Institute, below.

Arthur W. Eve

Biography. Arthur Eve is a landowner with a 360 acre tree farm in Conway/Deerfield. He is also the President of the Massachusetts Woodlands Cooperative, LLC and the Massachusetts Woodlands Institute (a 501 (c) (3) non-profit organization). The focus of the Cooperative and the Institute is on the working woodlands and local forest economy in Massachusetts. Arthur served as a faculty member and administrator at the University of Massachusetts from 1968 to 1998. He was a Professor at the UMass/Amherst School of Education (where he taught graduate courses in administration) and the Executive Director of the Donahue Institute, the outreach unit of the UMass President's Office. His leadership in the UMass Donahue Institute resulted in over $75 million dollars in grant and contract support for University public service programs. For the past three decades, Arthur has also served as a consultant to leadership personnel in the public, private and non-profit sectors on issues of management improvement, partnership development and resource diversification. He earned his M.A. and Ph.D. from the University of Chicago.

Financing Concept*. Using Value-added Forest Products to Finance Conservation*

*Financial Opportunity***:** The re-growth of the Massachusetts forest represents a significant new financial opportunity for land trusts. The forest cover in Massachusetts has risen from a low of near 30% of the land area in 1870 to greater than 60% today. Much of this forest has regenerated without active management and the value of these forest trees can be significantly improved in the future through sustainable management practices. Despite a 5% reduction in forest cover over the last three decades, the volume of hardwood sawtimber trees has increased by over 180%. This represents a significant potential source of revenue for land trusts. At the same time, Massachusetts supplies less than 6% of its own wood consumption needs. Land trusts that manage their forestland sustainably using appropriate silviculture will be able to generate additional income to assist them in carrying out their conservation mission.

*The Need for More Conservation Tools***:** Land trust's laudable efforts have been effective in helping to protect critical properties in western Massachusetts. The traditional approach (purchasing land and/or development rights) should continue. However, using only this approach is very expensive and limits the amount of land conservation that can take place. It is important for land trusts to develop lower cost methods of preserving the landscapes of western Massachusetts. Land trusts can augment their conservation efforts and increase their income by expanding their definition of land protection to include the conservation of working landscapes through the practice of sustainable forestry. Healthy working forests can provide an economic engine for land trusts and simultaneously support the growth of a vibrant, locally-based forest products economy that will help to conserve the forests of western Massachusetts as working landscapes and stave-off forest conversion and suburbanization. Working landscapes also help create a culture of place through an intimate, working relationship between people and their forested landscapes. In doing so, those landowners who have developed a

deep stewardship ethic will be more inclined to engage in land conservation. A conservation strategy in western Massachusetts that combines fee simple and conservation restrictions with sustainable forestry and is driven by a local, value-added economic engine is well justified.

*Massachusetts Woodlands Cooperative***:** The Massachusetts Woodlands Cooperative (MWC) is a management, processing, and marketing cooperative whose goal is to use the long-term management of forest resources to create a sustained flow of forest benefits including timber, wildlife, clean water, aesthetics, and recreation. MWC received Forest Stewardship Council (FSC) Group Certification in April, 2003 and FSC Group Chain-of-Custody Certification in the fall of 2005. As a result, the Cooperative can certify that the forests owned by its members are managed to the internationally recognized, third party reviewed standards established by FSC. Becoming members of the cooperative will help land trusts: (1) implement FSC certified sustainable forest management (2) generate income from land trust lands through appropriate silviculture, value-added processing and marketing of sustainably grown local wood; (3) provide guarantees to others regarding their use of sustainable forestry practices through a third party audit of forest practices; and (4) gain access to an extensive network of talented forestry resource personnel to assist with conservation issues. Land Trust personnel are not likely to achieve these goals independently since it would be prohibitively expensive, require knowledge they typically do not have and require a major investment of time away from their other responsibilities. In addition, involvement with the MWC will increase land trust networks to their most important target audience, private forest landowners, thereby increasing their effectiveness. Participation in MWC will also provide an opportunity to achieve greater ecological impact through landscape level planning and management in the predominantly non-industrial, private forest owner landscapes of western Massachusetts.

Kristin Foord

Biography. Kristin Foord is the Director of Capital Planning and Land Protection at the Massachusetts Department of Fish and Game (DFG), where she manages a $7 million annual land acquisition budget. She holds a Master's degree in Environmental Remote Sensing and GIS from Boston University and a Bachelor's degree, *summa cum laude*, in Earth and Environmental Sciences from Dartmouth College.

Prior to working for DFG, Foord served as the Land Policy Coordinator at the Massachusetts Executive Office of Environmental Affairs (EOEA). While at EOEA, she managed the Tully Valley Private Forest Lands Initiative, a large and fast-paced land protection project cited as an innovative model for public-private partnerships and landscape-scale conservation. Foord began her career in land conservation as a Land Protection Assistant for the Maine Chapter of The Nature Conservancy. In her spare time, she enjoys spending as much time outdoors as possible.

Financing Concept. What if one option in our conservation financing "toolbox" was to use a non-cash, swap-based system to compensate forest land owners for protecting their land? The timber on state-owned conservation land would serve as the currency in the deal. This idea parallels the concept of grassland banking. In grassland banking, farmers agree to "protect" (sometimes by not grazing; sometimes through true permanent protection) their land in exchange for being able to graze their cattle on land owned by the grassland bank.

State-owned conservation land is often described as "under-managed" because of the large land acreage and small forestry staff. In order to compensate private forest land owners for permanently protecting their land, we could offer them a multi-year license to cut timber on a specific parcel of state forest land, with the estimated timber value being commensurate to the value of the property rights they are giving up. Of course, the landowner would have to be willing to follow the forest management plans drawn up by the state agency that owns the land. This strategy could alternately

be used to “sweeten the pot” and reduce the cash needed for a “cash payment for protection” transaction.

This idea is admittedly very rough and has many problems associated with it. I believe that The Nature Conservancy has tentatively explored this idea and concluded that it would be very difficult to implement in Massachusetts. However, perhaps parts of this concept could be adapted for use, or perhaps it could be implemented on lands controlled by land trusts that not subject to the same rules and regulations that apply to state-owned properties.

Charles H.W. Foster

Biography. For nearly fifteen years, Charles H.W. (Henry or Hank) Foster served in such posts as Massachusetts’ state forester, commissioner of natural resources, water resources commission chairman, and secretary of the executive office of environmental affairs. Subsequently dean of the Yale School of Forestry and Environmental Studies, for the last twenty years he has been a lecturer and adjunct research fellow in Harvard University’s John F. Kennedy School of Government.

Dr. Foster was graduated from Harvard College. He holds professional degrees in forestry and wildlife management from the University of Michigan, and a Ph.D. in geography and environmental engineering from Johns Hopkins University. He has been a visiting scholar and consulting professor at Stanford University, a research associate at the University of California (Santa Cruz), a scholar-in-residence at the University of Virginia, an adjunct professor of political science and environmental studies at Tufts University, a visiting research professor at Clark University, and a visiting professor of environmental studies at Brown University. He currently served as adjunct research fellow and lecturer at the Center for Science and International Affairs, John F. Kennedy School of Government and as an Associate of the Harvard Forest, a research unit of Harvard University.

From 1976-81, Dr. Foster was dean of the Yale University School of Forestry and Environmental Studies, the oldest graduate institution of its kind in the western hemisphere. Prior to that post, he was professor of environmental policy at the University of Massachusetts (Amherst) and a senior staff member of the management consulting firm of Arthur D, Little, Inc. He has also served as the first professional president of the Nature Conservancy and senior staff member of the Conservation Foundation in Washington, and as the president of the W. Alton Jones Foundation of Charlottesville, Virginia.

Dr. Foster has devoted more than fifteen years of his career to government, serving seven Massachusetts governors in such posts as water resources specialist, commissioner of natural resources and, in 1971, as the Commonwealth's first cabinet-level secretary of environmental affairs. His intergovernmental interests have led to service on seven interstate compact agencies concerned with natural resources. His federal posts have included advisor to the Congressionally-established Public Land Law Review Commission, U.S. fisheries commissioner for the Northwest Atlantic fisheries, chairman of the Appalachian National Scenic Trail Advisory Council, and chairman of the Cape Cod National Seashore Advisory Commission.

Dr. Foster is a past member of the Harvard Board of Overseers; a former trustee of the Woods Hole Oceanographic Institution, the New England Aquarium, and the Conservation Foundation; and a Fellow of the American Association for the Advancement of Science. Among Dr. Foster's many articles and publications are four books in a series, Experiments in Bioregionalism, which reflect his special interests in the management of natural resources and environment across jurisdictional boundaries.

Financing Concept. A strong supporter of the Harvard Forest's proposed Woodlands and Wildlands program, Foster believes that its implementation will require three actions on the part of the Commonwealth.

First, the sums required for purchase of conservation easements (restrictions) on one million acres, estimated at $1 billion over twenty years, will necessitate issues of tax-exempt bonds secured by the full faith and credit of the Commonwealth. At least three precedents offer some encouragement for this level of support: 1) the initiative petition submitted to the legislature in 1935, signed by 23,000 registered voters, calling for the purchase of 500,000 acres of state forest lands over the next ten years: 2) the legislative authorization in 1958 of a twenty year expansion of state parks, state forest recreation areas, and state reservations; and 3) the authorization of $753 million in bond-supported environmental expenditures secured by Environmental Affairs Secretary Robert Durand in 2002.

Second, to avoid W&W being held hostage by annual legislative and administrative capital funds negotiators, the legislature should create a separate environmental financing authority analogous to the Higher Education Financing Authority (HEFA) and give it the authority to issue tax-exempt bonds directly. To underscore the public benefits to be derived from these investments, the placement of these bonds should not only allow for, but encourage purchase by individuals as well as institutional investors.

And third, in order to make the above feasible, a dedicated source of revenue should be authorized to cover the costs of operations and to meet interest and principal obligations. One such possibility would be the portion of sales tax revenues now derived from wood, paper, and forest products. Rather than attempting to segregate those revenues, the legislature should simply make a finding that a given percentage of general sales tax revenues are attributable to those sources and direct that these proceeds be placed annually in an authority trust fund.

One precedent for such an approach was the determination by the legislature in 1966 that a certain percentage of all state gasoline tax revenues was attributable to motorboat usage and, rather than highway projects, should more properly be used to support water-based public access, recreational boating, and marine fisheries programs. Another was the assessment of one half of one mill imposed on all electric consumers in 1997, the proceeds to be placed in a Renewable Energy Trust Fund and used to support the development and promotion of renewable energy projects.

David Foster

Biography. David Foster is an ecologist and author of *Thoreau's Country – Journey through a Transformed Landscape* (1999), *New England Forests Through Time* (2000; both Harvard University Press) and *Forests in Time – The Environmental Consequences of 1000 years of Change in New England* (2004; Yale University Press). He is Director of the Harvard Forest, Harvard University where he has been a faculty member in the Department of Organismic and Evolutionary Biology since 1983. The Harvard Forest is a 3000-acre ecological laboratory and classroom in central Massachusetts that provides a research and educational base for faculty, undergraduates and graduate students in forest ecology, biology, environmental sciences, landscape architecture, history of science, and natural resource policy.

The Harvard Forest is one of twenty-five sites in the U.S. Long Term Ecological Research (LTER) program sponsored by the National Science Foundation and serves as the field center for the Harvard National Center for Global Environmental Change (NIGEC), which is sponsored by the U.S. Department of Energy. David is the Principal Investigator for the Harvard Forest LTER program, which involves more than 50 researchers, 25 graduate students, and 30 undergraduates from across

the Northeast investigating the dynamics of New England landscape as a consequence of climate change, human activity, and natural disturbance.

David has a Ph.D. in ecology from the University of Minnesota. He has conducted studies in the forests of Labrador, Sweden, Norway, Puerto Rico, the Yucatan, and Patagonia in addition to his primary research on landscape dynamics in New England. His interests focus on understanding the historical changes in forest ecosystems that result from human and natural disturbance and applying these results to the conservation and management of natural and cultural landscapes. David and his colleague Glenn Motzkin received the W.S. Cooper award from the Ecological Society of America in 2003 for a paper on long-term dynamics of the New England landscape.

At Harvard University David teaches courses on forest ecology and environmental change and directs the graduate program in forest biology. He lives in Shutesbury, Massachusetts with his wife Marianne Jorgensen and their children Christian and Ava.

Financing Concept. See *Wildlands and Woodlands: A Vision for the Forests of Massachusetts.*

William J. Ginn

Biography. Bill is Director of the Forest Conservation Program of the Eastern Region of the US for The Nature Conservancy He is also the founder of several successful companies including Resource Conservation Service Inc. (two time INC 500 listed company) and Maine Employers Mutual Insurance Company, the largest Workers Comp Insurance company in Northern New England. An alumnus of College of the Atlantic, Bill has taught courses in economics and the environmental impact of development at his alma mater. He holds an Honorary Doctorate degree from Unity College.

In 1978, Bill spearheaded the passage of the Returnable Container Referendum in Maine. He is a recipient of two Awards for Distinguished Achievement from Governors McKernan and Brennen for his work as Chair of the Pesticides Control Board, and for Business Excellence. He also received the EPA Award for Excellence for the development of Hawk Ridge Compost Facility. Bill serves on the boards of the Island Institute and Coastal Enterprises Inc.

Financing Concept.

Excerpt from Investing in Nature, by William J. Ginn, Island Press 2005.

In 1999, Bridgewater Hydraulics, a small Connecticut company supplying water to the Bridgewater area, announced that it was being acquired by Kelda, a British-based services company. This would not have been conservation news except that soon after the acquisition, Kelda let it quietly be known that 15,300 acres of forestland surrounding the company reservoirs in western Connecticut might be sold. Only a few years earlier, the company put 780 acres on the block near the Devil's Den preserve of the Nature Conservancy, horrifying local residents who had come to think of this land as permanently protected. Only a last minute deal costing the state $12.7 million dollars saved the day. The sale of the Bridgewater lands would require regulatory scrutiny, but as David Sutherland, TNC's Government Affairs Director explains, "My biggest fear was that we might find ourselves pitting the interests of urban residents looking for rate relief against suburban dwellers looking to protect open space. Everyone might lose in that debate." The price tag for a pre-emptive protection effort—$193 million according to appraisals--seemed out of reach, even in this affluent section of Connecticut.

The Kelda lands are the largest uninterrupted stretch of forests and streams in western Connecticut, and a hastily formed coalition began searching for options. As a group spokesperson observed, "For generations, Connecticut residents have counted on lands owned by water companies and electric utilities as a constant feature of the landscape. Now this century-old compact is threatened." The Kelda lands were only part of the lands protected by these informal utility agreements. In Connecticut, 130,000 acres are held by utilities, and the precedent of selling these lands threatened to unravel a long tradition of protecting the land.

The Kelda situation is part of a larger debate within the drinking-water industry. In 1999, the City of Milwaukee announced that the bacteria *cyclosporine* had contaminated its water and caused dozens of deaths and thousands of suspected illnesses; the news sent shock waves through water utilities. For years the industry had been dueling with the EPA over safe drinking-water standards mandating expensive clean-water treatment plants to replace a hodge-podge of reservoirs and wells supplying the nation's major urban areas. The events in Milwaukee were a tragic confirmation of EPA fears.

The creation of the Adirondack Forest Preserve in New York marked the beginning of a 150-year-old tradition of government efforts to buy forestland for water-supply protection. Gradually, water districts had become major owners of forestland throughout New England and New York. But in the face of urbanization and increased demands for safe water, it seemed inevitable that additional treatment was the way of the future, potentially rendering watershed forest-protection efforts redundant. However, not all water districts see an either-or proposition—protect watersheds or build treatment plants. New York City has endorsed a combination strategy: increase protection around the Catskills—New York's most important water resource--and build smaller, less intensive treatment plants. But for many smaller water districts and local companies, the choices were few: consolidate with other, stronger companies or face escalating costs for treating water.

This larger debate was played out in the Kelda acquisition. After steadily buying up smaller water companies in the US, Kelda now owns water companies serving 53 communities in Connecticut, Massachusetts, and New Hampshire. Selling 15,300 acres of forestland would give Kelda the capital to pay for its acquisitions and much needed modernization efforts. Initially the coalition appealed for Kelda to donate easements, and when that request met a deaf ear, called for the creation of a regional water authority to take over Kelda's service area. Eventually, the company recognized the seriousness of its situation and quietly signaled its interest in developing a solution with the state and conservation groups. Setting the stage for one of the largest conservation deals in US history, this negotiation is an extraordinary example of how tax incentives and credits can motivate companies to choose land protection over development.

At a cost of nearly $200 million the land deal was much more than the state's Open Space Matching Grants Program could afford. In the previous year only $12 million in grants had been available for the entire state. A bigger solution was imperative. Fortunately, Connecticut had recently enacted a law offering corporations a state tax credit of 50% of the value of the conservation land being donated. With this ingredient in hand, the state and TNC's Connecticut chapter crafted an offer: The state would offer $90 million in order to purchase the lands in a "bargain sale," and Kelda would gift the balance to the state for the new tax credit. The value of this package came close to what Kelda would have gained after tax from an outright sale of the lands but without the politically charged fight any proposed development would have spawned. The state tax credit of 50% on a gift of $103 million would yield a whopping $51.5 million in tax benefits even though the company indicated that it would be able to only use about $12 million of the state credits and an additional $10 million in savings on its federal income tax. Still, the prospect of $22 million in credits was sufficient to bring the company to agreement. To raise the $90 million, the Nature Conservancy agreed to fundraise for $10 million in private donations, to be matched by a state appropriation. In the end, the package of tax incentives and cash more than made up for Kelda's potential profits from an uncertain and potentially

litigious development deal that might have taken a decade or more to materialize. The land was purchased by the state in late 2001.

In reflecting on the deal, David Sutherland confirmed that the tax credits were the key ingredient in getting both the company and the Connecticut legislature to the table. "Raising the state's $80 million share was tough going and any more than that would have been impossible in the fiscal climate. The fact that millions more in credits were on the table did not seem to bother anyone because they did not require an appropriation by the legislature." The Kelda transaction demonstrates that credits can make a difference in paying for transactions and in encouraging companies to come to an agreement on price. Like in most great conservation transactions, a combination of factors--credits, money raised through more conventional means, and a political climate supportive of reaching agreement, were all essential ingredients in achieving the desired results.

Tony Green

Biography. Tony Green is the Managing Partner of The Pinehills, a mixed-used community in Plymouth, MA. He has been active in real estate business since he began sweeping out houses for his father's real estate firm when he was 8 years old. Tony graduated from Harvard College in 1978 and earned a Masters in City and Regional Planning from the Harvard's Kennedy School of Government in 1983.

Financing Concept. The Wildlands and Woodlands report does not contemplate any possibility of working with, as opposed to against, the major competing user of land: the development community.

The greatest unrealized potential for preserving land comes from those most likely to use land for homes and businesses. While underlying large lot zoning in Massachusetts currently promotes sprawl, some communities have begun to envision and permit new development that uses only 30-50% of the land for building and preserves the rest. There are finally examples of more value being created by smaller, rather than larger lots; and examples of value being created by preserving substantial acreage in natural open space.

Builders can see that homes in communities that emphasize fitting into, rather than bulldozing, the natural environment makes them more money. They now have economic incentive from the people who count the most to them (buyers). Buyers see value in the open space for itself, passive recreation and viewshed. But our state and nearly every town in it make it harder to build this way. Anything other than grid subdivision requires a special permit and is subject to appeal by any resident of a town or city that issues a special permit.

The public likes neither sprawl, nor density. And any private sector incentive to preserve open space, other than philanthropy, must come from added density. While I do not think that the world has changed to the point that given the same house that a smaller lot would be worth more than a larger lot, I do think that more and more people are interested in access to or proximity of open space.

Wildland and woodland conservation will require a broader consensus than just the traditional environmental advocate.

Peter Howell

Biography. Peter serves as the Director of Conservation Finance Program at the Open Space Institute (OSI), a New York based land conservation organization. Previously, he worked for almost a decade in environmental philanthropy. He was the program director for the environment at the Doris Duke

Charitable Foundation, where he oversaw the distribution of almost $100 million for land conservation in the United States. He also worked as a program officer at the Lila and Dewitt Wallace Funds, directing an $18 million national initiative focused on creating and improving urban parks in 12 cities. A former newspaper reporter, he worked for three years for a non-profit economic development corporation in the South Bronx, and was the Assistance Business Manager at Time Magazine. He serves on the boards of the Westside Montessori School in Manhattan and the LaSalle Adams Fund, which focuses its grantmaking on violence prevention in Washington, D.C. and land conservation in the Greater Yellowstone ecosystem. Peter has a BA in political science and comparative literature from Wesleyan University and an MBA from the University of Pennsylvania.

Financing Concept: In the past six years, almost six million acres have exchanged hands in the Northern Forest, with almost 3 million acres conserved. The Open Space Institute, through its Northern Forest Protection Fund, has made grants and loans totaling about $17 million to protect about 1.4 million acres, the vast majority of which are working forests owned largely by new timber investors subject to varying levels of silvicultural restrictions. While this burst of creative conservation has helped to protected many large, unfragmented landscapes (and been a model of conservation entrepreneurship), a major challenge is protect the remaining land that buffers and connects these larger assemblages as well as to determine how best to respond to the coming land sales by TIMOs that could further fragment the land base.

It's very possible that the "second wave" of conservation in northern New England may involve varying forms of community, or town forest ownership. Building on successful efforts in Errol and Randolph, NH and in Maine's Downeast Lakes region, there is a need and opportunity to summon new and more flexible forms of capital to finance the purchase and even the operations of community owned forests there and elsewhere in New England, including potentially western Massachusetts.

OSI is interested in exploring with others how to establish a fund that could provide a mix of loans and grants to towns and land trusts seeking to bring working forests under community or nonprofit ownership. Major challenges include identifying and aggregating the capital necessary to buy larger tracts at lower unit cost and determining creative strategies to repay debt that is likely to include a mix of revenue from timber harvesting, compatible development and eventually possibly the sale of ecosystem services.

We envision that a fund could be capitalized with a mix of equity and low-cost, longer-term debt and work potentially in conjunction with New Markets Tax Credits and state and even local tax-exempt financing. OSI is investigating how it can bring significant grant and loan capital to this enterprise, including its own assets, but we think there is a need and opportunity for philanthropy to offset lending risk and increase financial flexibility through the provision of loan loss reserve, financial guarantees and interest rate sweetener.

Such a fund would build upon and help implement the vision of various groups working across New England, including the Trust for Public Land, the Quebec Labrador Foundation and the Northern Forest Center, as well as draw on the successes and lessons from the work, among others, of the Pacific Forest Trust and the Nature Conservancy's work on forest banking.

Ann Ingerson

Biography. Ann Ingerson joined The Wilderness Society as a Research Associate in the Ecology and Economics Research Department in 1999, after teaching Environmental Economics for eighteen years at Sterling College in northern Vermont. As a member of TWS' Eastern Forests team, she works on a variety of forest and community economics projects. In 2004, Ann compiled guides to public and

private funding for land conservation, and the proposed Forest Ecosystem Services College Investment Fund emerged from that research. Ann has a BA in Economics and Philosophy from Williams College and a Master of Science in Agricultural Economics from Oxford University. She spends parts of each winter and summer in the Canadian north.

Financing Concept. *Forest Ecosystem Services College Investment Fund: An Initiative of the Wilderness Society Eastern Forests Program.* The Wilderness Society is exploring the potential for New England colleges to invest in a "green TIMO" that will develop non-traditional revenue streams from forestland. This effort builds on two emerging opportunities (ecosystem services markets and college sustainability movements) while addressing a looming threat to our region (forest fragmentation due to exurban sprawl and industry divestiture).

In the Northeast, ownership of most large forested parcels has shifted from integrated forest products firms to investor owners who typically hold land for shorter periods and emphasize "highest and best use" sales. During this transition, conservationists have scrambled to forestall fragmentation by purchasing easements at an unprecedented scale. But public and philanthropic funding for these deals is stretched thin, and we need to think creatively about pursuing both financial and conservation goals on privately-owned lands.

When forest earnings are based solely on timber and real estate sales, landowners have little incentive to protect other forest values, from carbon to groundwater and bat roosts to remote hiking trails. Ecosystem services payments are gaining credibility as an efficient means of protecting such scarce public values. Yet the tasks of defining property rights, developing private markets or public payments, and monitoring to ensure delivery over the long term are daunting. Despite a wealth of theoretical literature, working models are few.

Colleges can target both investments and research capacity to help develop such a model. In return, participating colleges can offset campus carbon emissions through well-documented forest-based offsets, and provide a learning laboratory where researchers throughout the region collaborate to solve key problems in ecosystem services markets.

James Levitt

Biography: Jim Levitt is director of the Program on Conservation Innovation at the Harvard Forest, Harvard University. He also serves as a Research Associate at the Ash Institute for Democratic Governance and Innovation at Harvard's Kennedy School of Government, and coordinates the annual Conservation Leadership Dialogue at the Lincoln Institute of Land Policy.

Jim's current work focuses on present-day and historic innovation in the field land and biodiversity conservation that is characterized by novelty, strategic significance, measurable effectiveness, transferability and an ability to endure. He is editor of two recent books: *Conservation in the Internet Age* (Island Press, 2002), and *From Walden to Wall Street: Frontiers in Conservation Finance* (Island Press/Lincoln Institute 2005).

Levitt serves on the board of several non-profit organizations, including the Massachusetts Audubon Society, the Quebec-Labrador Foundation/Atlantic Center for the Environment, and Horizons for Homeless Children. Prior to coming to Harvard, Levitt worked for nearly two decades in the private sector as a management consultant and renewable energy project developer. He has a B.A., *cum laude*, with distinction in Anthropology from Yale College and a Master's in Public and Private Management from the Yale School of Management. Jim Levitt, his wife Jane, and their three children live in Belmont, Massachusetts.

Financing Concept. (see *From Walden to Wall Street*, distributed to participants).

Keith Ross

Biography. Keith Ross is a Senior Advisor with the Real Estate Consulting Group of LandVest, a broad-based real estate company involved in all aspects of land planning, real estate brokerage, consulting, development, and conservation planning. As Senior Advisor, he is responsible for conservation advisory services to private landowners, non-profit conservation organizations, public agencies, and charitable foundations specializing in conservation transactions.

Keith has worked with private landowners for over thirty years as both a forester and as a conservation consultant: protecting over 1 million acres of forestland in New England. In the 70's he founded a forestry consulting firm managing forestland for private individuals, municipal watersheds and public lands. In the 80's, he founded a successful regional land conservation trust, and in the 90's he became Vice President and the Director of Land Protection for the New England Forestry Foundation and conceived and successfully completed the largest forest land conservation easement in North America, the Pingree Forest Partnership on 762,192 acres in Maine.

Keith Ross holds a Bachelor degree in Forestry from University of Massachusetts (1977) and a Masters Degree in Environmental law from Vermont Law School (1985). He is an SAF Certified Forester, holds professional forester's license # 211 in Massachusetts, is a licensed Massachusetts real estate Broker, and is a member of the Massachusetts State Forestry Licensing Committee, is married with two children and lives in Warwick, Massachusetts where he is a member and past Chair of the Assessors and member of the Town Forest Committee.

Financing Concept. With the advent of the Commonwealth Capital Program in Massachusetts as the method of determining the awarding of state funds for the purchase of conservation restrictions and fee acquisitions of conservation lands, most conservation has been stopped in the state. CCP utilizes a point system that requires affordable housing and transportation infrastructure improvements to accompany any application for conservation investments. This results in most small western Mass communities, who have an abundance of affordable housing, but not permanently subsidized as required by the state, and practically no public transportation due to the rural nature of the area, never amassing sufficient points to achieve an award.

If we were to group towns that were somewhat urban with rural communities in an effort to have sufficient points for affordable housing and transportation infrastructure to compete for funding for the purchase of CRs over forest lands in each of the towns, we would score sufficient points to receive an award.

Using the Western Franklin County project as an example, towns along the Roue2 corridor, Shelburne, Buckland and Charlemont have both public transportation and affordable housing projects, while the surrounding towns to the north, Leyden, Colrain, Heath and Rowe are rural with lots of forest land ready for conservation. The rural towns to the north provide the watersheds for the drinking water for the Route 2 towns including Greenfield, provide the natural resource based tourist, recreation, and forest jobs industry, and contribute to the perpetual production of clean air. The application would be for a multi year commitment that all towns would benefit from.

Tom Tuchmann

Biography. Tom Tuchmann, President of US Forest Capital, leads its financial, organizational and public policy services. In his previous role as Western Director and Special Assistant to the Secretary of Agriculture he successfully directed negotiations and implementation of the $480 million

Headwaters Forest Agreement and arranged a Presidential Forum resulting in a $50 million plan for Lake Tahoe.

Prior to joining the Department of Agriculture, Tom served as the Director of the U.S. Office of Forestry and Economic Development where he was charged with the development and implementation of Presidential policy for 24 million acres of Federal land and an associated $1.2 billion economic assistance program.

Tom has also served as lead staff for the Senate Agriculture Committee where numerous statutes - including the Forest Legacy, Forest Stewardship, Northern Forest and Lake Champlain programs -- that he conceived and drafted on behalf of the Chairman were signed into law. He has also served as Director of Resource Policy for the Society of American Foresters. Tuchmann is a forestry graduate of Northern Arizona University and earned a Masters degree in natural resource policy from Pennsylvania State University.

Tom Tuchmann has written and spoken widely on natural resource issues. He has served on the Society of American Foresters' Committee on Forest Policy and as an adjunct professor at the Northwestern School of Law at Lewis and Clark College.

Financing Concept.

Community Forestry Bonds™: Financing the Conservation of America's Working Forests

The Setting. Throughout the United States, people want to conserve working forests and continue to demand that forest and agricultural lands be managed in ways that increase public benefit. To date, tools available to the public have been limited to governmental regulation, which establishes difficult and often controversial tradeoffs between environmental protection and private property rights, and outright acquisition, which respects property rights but often requires financial resources that a public-benefit entity is unable to acquire.

A New Conservation Tool. Community Forestry Bonds is a new financial tool that conserves working forests while respecting landowner property rights and communities' economic well-being. In short, taxable or tax-exempt revenue bonds are issued to allow for the acquisition of forest or agricultural land by a qualified buyer. The low-cost bonds would be revenue bonds, backed by the revenue stream generated by the low-impact management of the land. The land would be owned in fee by the qualified buyer.

The Concept A group of conservation, business and other interested parties with a desire to conserve specific land would become a qualified buyer and reach an agreement on what land would be acquired and at what price range.

- Discussions with the existing owner would ensue typical of private buy/sell transactions. Subsequent to reaching agreement with the seller, the management plan for the new acquisition is finalized.
- Pursuant to the agreement, the qualified buyer would issue taxable or tax-exempt revenue bonds to fund the acquisition of the land. The issuance of bonds on behalf of the qualified buyer would be undertaken by an appropriate governmental issuing authority.
- Title to the land would be held by the qualified buyer and the land would be managed to service the taxable or tax-exempt debt in a manner that would comply with the management plan. For providing increased public benefit, the qualified buyer would be able to borrow

money at a lower cost. Competition with private sector buyers is eliminated by the increased acquisition cost and limitations on commercial returns.
- When the bonds are paid off, the qualified buyer would retain ownership and would continue to operate as they best see fit -- conservation, provide revenues for schools, roads or community projects etc.

Benefits of Community Forestry Bonds

Work for Landowners - All land sales will be voluntary and non-regulatory. Moreover, all transactions will be negotiated with the landowner at fair market value.

Work for the Environment - Working forests and open space would be protected and qualified buyer organizations will have greater financial flexibility to apply lighter resource management practices on the land.

Work for Natural Resource Businesses - While qualified buyers will own and manage lands, forest products will still be available to businesses for short and long-term manufacturing and employment purposes.

Work for Governments - Local governments will continue to receive tax dollars that result from the continued land management. If they a municipality participates financially they could benefit from revenue flow. Finally, public environmental benefits can be achieved across a broader landscape at a much lower financial and political cost.

Work for Communities - Qualified buyers will become a place where communities can unite and share responsibility for managing their natural resources. As bonds are paid off, communities will benefit from being locally owned and managed.

Making Community Forestry Bonds A Reality. Three things are needed to make Community Forestry Bond a reality. First, legislation may be needed in certain states to allow municipalities to create issuing authorities for issuing taxable and tax-exempt debt. Second, Federal legislation is required to allow *private nonprofits* to issue tax-exempt debt. Federal legislation passed the House (H.R. 1308) and Senate (S. 85) in March 2003 as part of each chamber's "Charitable Giving" legislation. Bills will be reintroduced in 2005. Third, like most municipal finance deals, each transaction will require an equity source from individuals, philanthropies and/or public organizations.

Bettina von Hagen *[Bettina was not able to attend due to a family illness].*

Biography. Bettina von Hagen is Vice President at Ecotrust for Forestry programs and for the Natural Capital Fund, a $20 million fund that invests in key businesses and initiatives in the conservation economy. She also serves as the Interim CEO of Ecotrust Forests LLC, a newly launched forest investment management organization that will own and manage forestland in the Pacific Northwest for the benefit of investors seeking triple bottom-line returns. Other forest programs include the 2100 Project, which explores and values different approaches to forestry in the region, and the Market Connection initiative, which helps supply FSC-certified wood to green building projects. Her recent publications include RebuiltGreen, which describes the green redevelopment of the Natural Capital Center, and The Rain Forests of Home, which describes the ecological, economic, and social conditions of the coastal temperate rain forest. Bettina joined Ecotrust in 1993 to help launch Shorebank Pacific Corporation, a regional bank holding company committed to community, conservation, and economic development. Prior to joining Ecotrust, Bettina was a Vice President at First Interstate Bank of Oregon and managed the banking relationships of large and midsized

companies in the region. Bettina holds an MBA from the University of Chicago and a BA from the University of the Pacific. Bettina currently serves on the boards of the Climate Trust, Forest Trends, the Opal Creek Ancient Forest Center, and the FSC Global Fund.

Financing Concept: see Ecotrust white paper by Clark Binkley, Spencer Beebe, David New and Bettina von Hagen, *An Ecosystem-Based Forestry Investment Strategy for the Coastal Temperate Rainforests of North America*, available at: http://www.ecotrust.org/forestry/investment_strategy.pdf .

Laurie A. Wayburn

Biography. Laurie A. Wayburn is president of the Pacific Forest Trust, an organization she co-founded in 1993 to protect private forests for their many public values. With more than 25 years of national and international experience in conservation and sustainable development Ms. Wayburn currently serves on the boards of the Land Trust Alliance and Sustainable Forestry Board. In her quest to ensure working forests remain productive for both the benefit of landowners and the public at-large, Wayburn has been actively involved with the Seventh American Forest Congress, University of California Center for Forestry, Oregon Board of Forestry Incentives Group, University of Washington Pack Forest Center and Society of American Forests. In 2001, Wayburn co-wrote *America's Private Forests,* the groundbreaking book that explores the crisis of private forest loss nationally and offers strategic solutions to sustain our nation's forests for ecological and economic advantage. Other recent publications include Forest Carbon in the United States: Opportunities and Options for Private Lands, and a variety of article on conserving private, working forests.

Financing Concept. The idea that I think has the greatest emerging market potential to conserve and steward working forests is grounded in leveraging forests' role in mitigating climate change. It is based on a program we have led in California through legislation and a currently voluntary program embodied in the states' Climate Action Registry (the CCAR). The CCAR has a landmark standardized, forest sector program to reduce CO2 in the US, and the only such effort to require clear additionally, permanence and co-benefits to other environmental values. Built on 4 years of scientific and stakeholder review of a state of the art accounting system, the program uses third-party verification, and includes the use of conservation easements to secure projects and reduce risk. Conserving working forests now forms a significant portion of the state's plan to reduce CO2 emissions to 1990 levels by the year 2020, announced this week. Evidence of market interest in this approach is already clear: one of the state's largest utilities just announced a program (initial $20M investment) to use such forest projects to enable utility ratepayers to offset their household CO2 emissions.

In addition, just the expanded use of working forest conservation easements which guide forest management over time have enormous potential for expansion in use and greatly leverage public investments in forest protection and sustainability.

Steven L. Weems

Biography. Steve Weems is Managing Director of CEI Capital Management LLC (CCML), a for-profit investment management subsidiary of Coastal Enterprises, Inc. (CEI). CCML operates the New Markets Tax Credit (NMTC) program for its parent CEI. In this capacity Weems has closed over $110 million of NMTC transactions over the last two years, with major "triple bottom-line benefits," encompassing economic progress, social equity, and environmental protection. Coastal Enterprises, Inc. is a national community development corporation with a mission to help create economically and environmentally healthy communities in which all people, especially those with

low incomes, can reach their full potential. Its primary focus is rural America with a core service area in New England and upstate New York.

Weems also is a Senior Vice President of CEI, based in Wiscasset, Maine. Weems has pursued a 37-year cross-pollinated career in the private, public, and non-profit sectors including senior positions in: *small business ownership/management* (at organic materials recycling and commercial modular space companies); *consulting* (at three business and economic development consulting entities); *commercial banking* (at a subsidiary of the Bank of Boston); *corporate acquisitions and large-scale project development* (at Browning-Ferris Industries); *venture capital* (as a founder of Maine's first institutional source of venture capital); *economic development and development finance* (in his current position as Managing Director of CEI Capital Management, as a founder of the Maine Development Foundation, a legislatively-created statewide development corporation, and with Maine state government); and *environmental protection* (at the Connecticut Department of Environmental Protection). Weems has a BSME degree from Bucknell University, an MBA from Harvard Business School, and served as a Captain in the U.S. Army. He is a past elected official (at the municipal level), and an amateur juggler. He has lived in Maine since 1975.

Financing Concept. *Woodlands Revolving Loan Fund*

The New Markets Tax Credit (NMTC) financing program could be used to create a permanent Woodlands Revolving Loan Fund (WRLF) with multiple objectives, including the creation of community forests and conservation of timberlands. Using the grant-like character of NMTC equity (basically obtained by the sale of federal tax credits), one or more permanent revolving loan funds could be created to provide immediate liquidity for community forestry initiatives at a subsidized interest rate.

The initial capital for each WRLF would come from socially or environmentally-motivated investors in the form of loans, to be repaid in full, and the NMTC equity. Each WRLF would be operated over two phases. For the duration of the seven-year tax credit compliance period (Phase I), the WRLF would be operated consistent with NMTC program, requiring projects to have significant economic development features and be located in low income areas, as well as having conservation features. During a subsequent Phase II these restrictions would disappear, allowing a redefinition of the use of the guidelines for use of the WRLF capital.

To maximize the impact of each WRLF, the idea would be to make subsidized loans to fund all or a portion of projects until permanent capital could be secured, from some combination of public and private sources (capital campaigns), which could take several years, plus internally-generated capital from the continued sustainable use of the forest resource (for timber supply and/or other purposes that generates net income).

The NMTC program already has been used for similar purposes, in both large and small projects. As the link between sustainable community development and forest conservation becomes more obvious and widely accepted in forested regions, the application of the NMTC program to reach conservation objectives could become more widespread.

Frederick J. Weyerhaeuser

Biography. Rick Weyerhaeuser is a Senior Project Manager at the Lyme Timber Company in Hanover, NH. He is leading two of Lyme's major conservation advisory relationships in Minnesota and Idaho and exploring prospective conservation related timberland investments throughout the U.S. Prior to joining Lyme in 2000, he was an independent consultant specializing in conservation and forestry issues. He worked to develop a program in Sustainable Forestry for the National Fish &

Wildlife Foundation, is a former State Director of the Massachusetts Chapter of The Nature Conservancy (TNC), and for ten years was Director of the World Wildlife Fund's Africa Program. While at TNC, Mr. Weyerhaeuser served on the Governor's Blue Ribbon Committee on Open Space. He has been a member of the Board of Directors of the Forest History Society, the Weyerhaeuser Family Foundation, the Seventh American Forest Congress, the Student Conservation Association and the Minnesota Chapter of TNC. He is currently on the Board of the New England Forestry Foundation. He also serves on the Leadership Council for the Yale School of Forestry and Environmental Studies. Mr. Weyerhaeuser has conducted an internal environmental audit for Potlatch Corporation, written and edited parts of a major study by the Pinchot Institute, "Evolving toward Sustainable Forestry", and has investigated current trends in ownership of industrial forestlands for Forest Trends. He is a member of the Society of American Foresters and has a BS and a MFS from Yale.

Financing Concept. The financing approach that Rick brings to the WWCFR is based on his experience at the Lyme Timber Company, a New Hampshire Limited Partnership organized in 1976 to invest in timberland and rural real estate for its own account and in partnership with other investors. Lyme specializes in the acquisition, sustainable management, and sale of large forestland tracts. An important part of Lyme's forestland investment strategy is to seek out properties with high conservation values, often in partnership with non-profit conservation organizations or government agencies. The firm is a forestland investor as opposed to a pure timber investor. By working to identify and monetize land values in addition to timber—usually by selling restrictions on use that protect the land's ecological and social values—the Company enhances its risk-adjusted returns. Lyme's experience in the conservation niche led to the creation in 1992 of an affiliated consulting business, LTC Conservation Advisory Services.

Over the years the Company's business has expanded to include investment in and development of commercial real estate. Founded in 1993, Lyme Properties, the Company's commercial real estate arm, is the largest life sciences property developer in New England and the third largest in the United States. Lyme Properties specializes in the acquisition, development, and leasing of first-quality life science and mixed use properties located in prime educational, research, and medical centers.

In 2002, in order to provide its investors with a dedicated way to invest in forestland, the Company organized the Lyme Northern Forest Fund L.P. (LNFF) as the Company's exclusive vehicle for forestland investment. The investment period for the LNFF was completed in 2005. (See website www.lymetimber.com for a description of the LNFF investments.) Subsequently, also in 2005, Lyme raised a new dedicated forestland investment fund, The Lyme Forest Fund, L.P. (LFF). The LFF is Lyme's sole vehicle for new forestland investment. Both LNFF and LFF are closed to new investors.

Auditor Biographies

Katherine F. Abbott

Biography. Kathy Abbott received her BS degree Suma cum laude from the University of Massachusetts at Amherst, Department of Landscape Architecture and Regional Planning and a Master of Public Administration from the Kennedy School of Government at Harvard. Kathy also has an Associates Degree with honors in Arboriculture and Park Management from the Stockbridge School of Agriculture at UMass, Amherst where she remains active as a member of the School's Foundation Board.

She started her career as a park ranger. As a planner, Kathy went on to become the first Director of the Commonwealth of Massachusetts' state forest and park stewardship planning program, the first

Director of Natural Resources Planning in the Department of Environmental Management (DEM) and finally, the first Assistant Secretary for Land Conservation in the Massachusetts Executive Office of Environmental Affairs. In this capacity she oversaw the land policy, planning, management and acquisition activities of the state's five environmental agencies and coordinated these activities with other governmental and non-governmental entities. She returned to DEM as the Deputy Commissioner to create the Division of Resource Conservation through a consolidation of technical and professional staff in the legal, planning, design, engineering and capital financial management fields for the purposes of improved statewide natural and cultural stewardship.

Kathy left the public sector to begin her career in non profits by becoming the first Vice President for Program at the School for Field Studies (SFS), an international study abroad program for college undergraduates in environmental studies. In that capacity she was responsible for transitioning the academic program to a more applied educational model. Later her responsibilities were broadened beyond academic leadership and management to include institutional administration. Kathy left SFS to become the first Executive Director of the Island Alliance. In this capacity she lead the first non-profit ever legislated by Congress into the management team of a national park, she worked closely with the National Park Service and 12 other partners to plan, develop and raise the necessary funds to support the Boston Harbor Islands National Park Area. She was elected President in 2001 and helped raise over eleven million dollars for the national park area.

Most recently, Kathy Abbott was appointed the first Commissioner of the new Massachusetts Department of Conservation and Recreation and was charged with building a new more effective environmental management agency. After her resignation in 2005 she became the Director of the Conservation and Recreation Campaign at the Trust for Public Land, a campaign to increase public funds for the management of public lands.

Forrest Berkley

Biography. Forrest Berkley holds a B.A. in Mathematics *magna cum laude* from Yale University (where he was elected to *Phi Beta Kappa*) and M.B.A. and law degrees from Harvard.

Following his graduate studies, he worked as a management consultant for Bain & Company (1981-84) and as the Assistant for Fiscal Reform to the Minister of Finance of Indonesia (1984-1985).

In 1986 Forrest joined GMO (formerly known as Grantham, Mayo, Van Otterloo & Co.) as the portfolio manager for the firm’s actively managed investments in Japan, France, Italy, Switzerland and Canada. In 1989 he moved to GMO’s International Quantitative Group and served as the first Portfolio Manager of the GMO International Core Fund, which he managed through 1994. He devised the first GMO hedge fund in 1992.

In 1990 Forrest became a partner of GMO, and joined the firm’s Governance Committee from 1996 through 2002. In 1999 and 2000, he served as the acting head of Client Service and Marketing, and in 2003 he was named Head of Global Product Management for the firm. From 2003 through 2005 he served as a member of the Asset Allocation portfolio management team. On January 1, 2006 Mr. Berkley retired from GMO.

Forrest Berkley also is a member (since 1997) and former chairman (2002-2004) of the Investment Committee of the Maine Community Foundation, with nearly $160 million in assets, and is a Director of the Foundation. He also serves on the Boards of Directors of Maine Coast Heritage Trust, the Gulf of Maine Research Institute and the Boston Athenaeum.

Katherine Birnie

Biography. Katherine Birnie is a first year MBA student at the Tuck School of Business at Dartmouth. Prior to Tuck, she worked five years for Peninsula Open Space Trust (POST), a land trust in the San Francisco Bay Area. As a Project Manager at POST, she completed fee and conservation easement transactions on the San Mateo County Coast. Prior to POST, Katherine worked for the Tri-Valley Conservancy, The Nature Conservancy, and the Appalachian Mountain Club. Katherine has a BA in Biology and Environmental Studies from Williams College. She will serve as an intern on the Forest Ecosystem Services College Investment Fund with the Wilderness Society this summer.

Armando Carbonell

Biography. Armando Carbonell is Senior Fellow and Co-Chairman of the Department of Planning and Development at the Lincoln Institute of Land Policy in Cambridge, Massachusetts. He has been a Design Critic and/or Lecturer in Urban Planning at the Harvard Graduate School of Design since 2000. He also co-teaches a planning studio at the University of Pennsylvania. He is the co-editor, with Terry Szold of M.I.T., of the volume *Smart Growth: Form and Consequences.*

Prior to his appointment to the Lincoln Institute in 1999, Carbonell had been Executive Director of the Cape Cod Commission, a regional planning and land use regulatory agency. In 1986, he initiated Prospect: Cape Cod, the strategic planning project that led to the 1989 passage of the Cape Cod Commission Act. During 1992-1993, he held a Loeb Fellowship in the Graduate School of Design at Harvard University. He chaired the National Academy of Sciences/National Research Council panel on groundwater vulnerability in 1991 and 1992.

Carbonell is a Member of the American Institute of Certified Planners. He serves on the Board of Directors of the Center for Coastal Studies in Provincetown, MA. He has been a Member of the Salzburg Congress on Urban Planning and Development and a Fellow of the Institute for Urban Design in New York. He has served on the Loeb Fellowship Advisory Committee and is a member of the Loeb Fellowship Council at Harvard. Carbonell received his A.B. degree in geography from Clark University and was a Doctoral Fellow in geography at the Johns Hopkins University.

Brian Donahue

Biography. Brian Donahue is Associate Professor of American Environmental Studies on the Jack Meyerhoff Fund, and among the core faculty in the Brandeis Environmental Studies Program. He teaches courses on environmental issues, environmental history, and sustainable farming and forestry. He holds a B.A., M.A., and Ph.D. from the Brandeis program in the History of American Civilization. He co-founded and for 12 years directed Land's Sake, a non-profit community farm in Weston, Massachusetts, and was Director of Education at The Land Institute in Salina, Kansas. He is the author of *Reclaiming the Commons: Community Farms and Forests in a New England Town* (Yale University Press 1999), which won the 2000 Book Prize from the Society for the Preservation of New England Antiquities. His most recent book, *The Great Meadow: Farmers and the Land in Colonial Concord* (Yale Press 2004) won the 2004 Marsh Prize from the American Society for Environmental History, the 2005 Saloutos Prize from the Agricultural History Society, and the 2004 best Book Prize from the New England Historical Association. His primary interest is the history and prospect of human engagement with the land. Brian is also a co-author of the Harvard Forest's *Wildlands and Woodlands* report.

Carolyn Fine Friedman

Biography. As a trustee of the Fine Family Foundation, Carolyn Fine Friedman makes grants across interrelated environmental issues. She seeks to promote a healthy built environment, to integrate human health with natural ecosystems and to preserve ecosystems large enough for evolution to unfold in. A small funder with a personalized approach to philanthropy, Carolyn pursues these goals by supporting initial phases of ventures and by funding leverage points within larger efforts. Carolyn realizes her vision of large scale forest conservation in the northeast U.S. by funding organizations such as The Initial Wildlands and Woodlands report by the Harvard Forest, Two Countries, One Forest, The Wildlands Project Carnivore Habitat Study and The Northeast Wilderness Trust, a New England wide wilderness only land trust.

Through her association with Health Care Without Harm and The Healthy Building Network, Carolyn helped launch Building in Good Faith, an initiative to help churches and synagogues build green buildings. She is currently engaged in an effort to "green" the Rose Art Museum on the campus of Brandeis University, a unification of her involvement with the Environmental Studies Department and the Museum.

Carolyn is on the Board of Directors for the New England Grassroots Environment Fund, The Rose Art Museum at Brandeis University, The Advisory Committee of the Northeast Wilderness Trust and a is member of Rachel's Network, a network of women environmental philanthropists.

Carolyn lives in Newton, Massachusetts. She collects contemporary art and she devotes much of her time and energy to her family, who all hike, bike and ski at different levels.

Perry Hagenstein

Biography. Perry R. Hagenstein has been an independent natural resources economics and policy consultant since 1976 in Wayland, Massachusetts. He is President of the Institute for Forest Analysis, Planning, and Policy and Chairman of the Board of Trustees of the New England Natural Resources. He has degrees from the University of Minnesota (1952), Yale University (1953), and the University of Michigan (1963, Ph.D.). He was research forester, Fordyce Lumber Company, Arkansas (1956-58); principal economist, Northeastern Forest Experiment Station, U.S., Forest Service (1960-66); senior policy analyst, U.S. Public Land Law Review Commission (1966-1970); research fellow, Harvard University (1970-71); and executive director, New England Natural Resources Center, (1971-76). He has served on numerous committees and boards of the National Academy of Sciences/ National Research Council and is a lifetime National Associate of the National Academies. NRC study committees on which he has served include the Committee on Environmental Issues in Pacific Northwest Forest Management, the Committee on Scientific and Technical Criteria for Federal Acquisition of Lands for Conservation, and the Committee on Prospects and Opportunities for Sustainable Management of America's Nonfederal Forests. He is a former President (1984-86) and long-time Board member (1976-1997) of American Forests, the nation's oldest national citizens' conservation organization.

Timothy A. Ingraham

Biography. Tim Ingraham currently serves as President of the New England Forestry Foundation's board of Directors and as temporary 'Acting Director'. He is a Director and Vice President of Pingree Associates, the management company for a 165 year old family timberland owner-ship in Maine, and serves in similar capacity with several other family businesses. Mr. Ingraham received a BA in Biology from Lake Forest College in Illinois. He is a trustee of the Peabody Essex Museum and Lake

Forest College, Chairman of the Stephen Phillips Memorial Preserve Trust, and a director of Harmony Grove Cemetery in Salem, Massachusetts. Tim Ingraham has been a tree farmer for 30 years and enjoys sailing, hunting, and fishing when time permits.

Wayne Klockner

Biography. Mr. Klockner joined the Massachusetts Chapter of the Nature Conservancy in 1999 after four years with the Conservancy's Asia Pacific Program, where he served as senior advisor in Indonesia for three years. With a degree in biology and environmental planning, Mr. Klockner began his conservation career as a biologist for the Maryland Department of Natural Resources in 1975. His first work for The Nature Conservancy was in the Maryland office from 1981 to 1988, where he held various positions including Biologist, Delaware Field Representative, Land Owner Registry Director, and Assistant State Director. In 1988, he moved to Rochester, NY, to open The Nature Conservancy's first office in central and western New York. He then returned to Maryland in 1990 as the chapter's State Director. Mr. Klockner helped raise over $10 million in public and private funds for natural areas preservation and developed two major landscape-scale conservation projects in Maryland. In his most recent position as Senior Advisor to the Conservancy's Indonesia Program, Mr. Klockner shepherded the Conservancy through a period of significant expansion of its efforts to preserve Indonesia's biodiversity, including the establishment of a new national nongovernmental organization (NGO) to lead the biodiversity conservation effort in the future. Mr. Klockner has recently led the Massachusetts Chapter in its most ambitious fundraiser ever, raising $61 million in just 18 months for conservation across the Commonwealth. Other accomplishments include the launch of new landscape conservation programs in Plymouth and the Westfield River Basin.

Kathleen Fallon Lambert

Biography. Kathy is the founder of Ecologic: Analysis & Communications, a consulting practice specializing in the translation of ecosystem science for policymakers and the public. She is also the former executive director of the Hubbard Brook Research Foundation (HBRF) where she designed a program called “Science Links” to help bridge the gap between long-term research from the Hubbard Brook Experimental Forest and related public policy. The HBRF Science Links program is currently focused on the four pollutants under deliberation within the “multi-pollutant” legislative framework: sulfur, nitrogen, mercury, and carbon. In 2001, the flagship Science Links project “Acid Rain Revisited” galvanized public attention around this long-standing issue that many had dismissed as solved by the passage of the 1990 Clean Air Act Amendments. As a consultant, Kathy has worked on science and policy projects with HBRF, BioDiversity Research Institute, Harvard Forest, Institute of Ecosystem Studies, Bard College, Natural Resources Council of Maine, Vermont Institute of Natural Science, Connecticut River Joint Commissions, Conservation Law Foundation, and the Climate Variability and Change Working Group of the Northeast Ecosystem Research Cooperative. She has published over 20 articles and papers in magazines and peer-reviewed scientific journals. Kathy holds a B.A. from Dartmouth College and an M.F.S. from Yale University. She is a Switzer Fellow, Leopold Schepp Scholar and recipient of the U.S. EPA Environmental Merit Award.

Merloyd Ludington

Biography. Merloyd Luddington is an editor/publisher. Through a co-publishing arrangement with the Perseus Book Group, under the imprint “Merloyd Lawrence Books,” she has edited and published books on psychology, health, nature/ environment and biography. Among the authors on her list are: Sissela Bok, T. Berry Brazelton MD, Robert Coles, Children’s Hospital Boston, Susan Love MD., and the photographer/scientist Lennart Nilsson. Books edited and published in the nature/environment area include: LIVING DOWNSTREAM: An Ecologist Looks at Cancer and the

Environment by Sandra Steingraber; YOU CAN'T EAT GNP: Economics as if the Environment Mattered, by Woods Hole Research Center scientist Eric Davidson; and the forthcoming UNDERWATER TO GET OUT OF THE RAIN by marine biologist Trevor Norton. Merloyd is currently a member of the board of the New England Forestry Foundation, the Woods Hole Research Center, Island Press, and the Northeast Wilderness Trust.

Frank Lowenstein

Biography. Frank Lowenstein has worked to conserve forest land in western Massachusetts for the last 13 years. In his career with The Nature Conservancy, he has written both working forest and forever wild conservation restrictions, negotiated purchases of several dozen parcels totaling some 3,000 acres, and created innovative partnerships to improve management of forest land across a 120,000 acre area of the southern Berkshires. He currently serves as Director of the Forest Insect and Disease Program of The Nature Conservancy's Global Forest Partnership; in this role he is actively engaged in promoting forest health across the nation. Frank serves on the boards of the Southern New England Forest Consortium, Inc. and of Project Native. He is currently completing his second book, on the role of protest in societal change.

Martha (Marcy) West Lyman

Biography. Marcy has worked for over 25 years in the conservation field. She was former Director of Policy for the Society for the Protection of New Hampshire Forests where she managed policy issues related to forest land conservation, river conservation and management, acid rain, public land management and wilderness. She worked in philanthropy where she designed and administered an environmental grantmaking program for the New Hampshire Charitable Foundation and administered the Switzer Environmental Fellowship Program. She currently works in the field of community-based natural resource management for the Quebec-Labrador Foundation/Atlantic Center for the Environment (QLF), a bi-national, community-based non-profit where she is developing community forest programs within the Atlantic region and writes on community-based natural resource management. She conducted an evaluation of QLF's community-based programs and an assessment of the Mt. Agamenticus to the Sea Conservation Initiative, a landscape-scale community-based land conservation initiative in southern Maine.

Marcy has several recent publications, including the 2004 book, which she co-authored with Brian Child, Natural Resources as Community Assets: lessons from two continents (Sand County Foundation/Aspen Institute). She received a Bachelor's degree from Harvard/Radcliffe College, worked towards a master's degree in botany and plant geography at the University of Missouri Columbia, and received a Master's degree from Harvard University's John F. Kennedy School of Government, where she was a Switzer Fellow. She lives in Manchester, New Hampshire.

Deidre Peroff

Biography. Deidre Peroff is currently living in Somerville, Massachusetts and is working as an intern to Jim Levitt and the Harvard Forest. She grew up in Kansas City, Kansas and received a Bachelor's degree in Geography: People and the Environment and a certificate in Environmental Studies from the University of Wisconsin-Madison in June of 2003. Since then, she has taught environmental education from coast to coast and to people of all ages. Specifically, in Madison, Wisconsin; Tishomingo, Mississippi; Idyllwild, California; and Belmont, Massachusetts at Habitat Wildlife Sanctuary. Deidre plans, in the next several years, to continue studying conservation and earn a master's degree.

Robert T. Perschel

Biography. Robert Perschel is currently Northeast Regional Representative for the Forest Guild and Research Scholar at the Yale School of Forestry and Environmental Studies. He is drawing upon his 25 years of experience as a conservation professional to develop a new model of environmental leadership that will allow us to reconnect people to the natural world and rally them to work on sound environmental policy. Bob served as Director of The Wilderness Society's Land Ethic Program where he developed and published The Land Ethic Toolbox: Using Ethics, Emotion and Spiritual Values to Advance American Land Conservation. He has also been Director of The Wilderness Society's Network of Wildlands Program, Regional Director for Northeast Region, chairman of The Northern Forest Alliance and Eastern Forest Partnership. He has a master's degree in forestry from the Yale School of Forestry and Environmental Studies and a psychology degree from Yale College. He has worked for forest industry as Manager of a forest management department and run his own forestry consulting business, Perschel Forest Management. This spring The Forest Guild will publish Bob's analysis of working forest easement in the Northeast: Ensuring Sustainable Forestry through Working Forest Conservation Easements. In his current research with Yale Bob is considering the emotional, spiritual and psychological aspects that contribute to excellence in environmental leadership. He is bringing his research together under a book tentatively titled The Heart and Mind of Environmental Leadership.

Wes Ward

Biography. Wes Ward joined The Trustees of Reservations' staff in 1981 and has served as Director of Conservation for nearly two decades. Over that period, TTOR has protected dozens of reservations and helped to establish scores of conservation restrictions. Ward now manages a staff of land conservation practitioners across the Commonwealth.

A Vermonter by birth and spirit, Wes Ward previously worked in community, regional and open space planning in his home state. He has a Masters in Landscape Planning from the University of Massachusetts in Amherst and a Masters in Public Administration from Harvard's Kennedy School of Government. Wes Ward, his wife and daughter live in Cambridge, Massachusetts.

Bob Wilber

Biography. Bob Wilber is the Director of Land Protection for Mass Audubon, the largest conservation organization in New England. He worked in similar capacities for the Massachusetts Department of Environmental Management, and the Massachusetts Chapter of the Nature Conservancy previously. Bob currently serves as vice chair of the Massachusetts Land Trust Coalition. He lives in Stow, where he is on the Board of Directors of the Stow Conservation Trust, and chairs the Open Space and Community Preservation Committees. During his 23 years in land conservation, Bob has been directly involved in the permanent protection of more that 25,000 acres in Massachusetts.

Leigh Youngblood

Biography. Leigh Youngblood is the executive director of Mount Grace Land Conservation Trust, a regional land trust based in the North Quabbin Region of central Massachusetts which has protected nearly 20,000 acres since 1986. During her 12 years at Mount Grace, Leigh has completed or managed more than 160 land protection projects, including several involving limited development. Mount Grace owns and manages 1400 acres of forest land, two-thirds under Forest Stewardship Plans

and one-third as wildlands. Prior to joining Mount Grace, Leigh worked with landowners for seven years at the municipal level for the conservation and planning departments of the town of Ware, MA and studied conservation economics at the University of Massachusetts in Amherst. Ms. Youngblood has extensive experience effecting conservation in partnership with state agencies, all-volunteer land trusts, and multi-level collaboratives.

APPENDIX 2: A First Order Approximation of the Cost of Implementing Wildlands and Woodlands

For The Program on Conservation Innovation at the Harvard Forest – Woodlands and Wildlands Conservation Finance Roundtable
April 17& 18, 2006

By Kathy Fallon Lambert, Ecologic: Analysis & Communications

The Charge:

Assess the scale and feasibility of achieving Wildlands and Woodlands by:

- Estimating the cost of protecting $1.5 million acres of forestland.
- Compare the results to current and historic land protection funding in Massachusetts.

A Refresher:

- There are 5 million acres in Massachusetts.
- W&W Goal is to protect 2.5 million acres.
- Status = 1.0 million acres are currently protected.
- Need = protect 1.5 million acres over the next 20-30 years.

Methods:

- We divided the state into three regions.
- We assigned market values to remote and readily developable land in each region.
- We estimated the number of acres that would likely be protected in each region.

Figure 1: Massachusetts - Regional Map for Finance Analysis

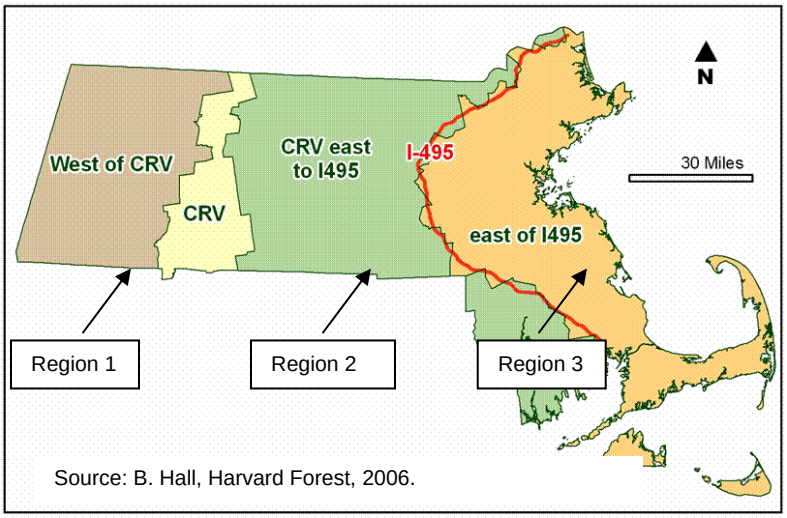
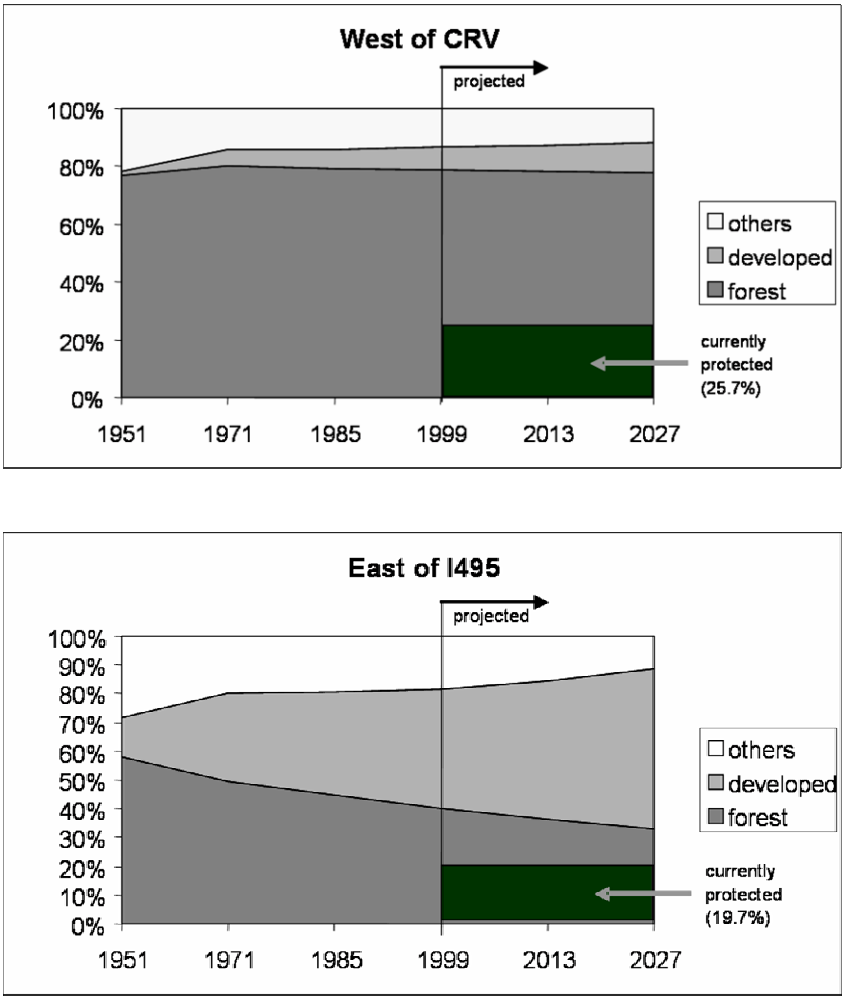


Figure 2: Land Cover Projections Based on Historic Development Rates for Two Regions in Massachusetts: West of the Connecticut River Valley (CRV) and East of Interstate 495 (I495)



Source: B. Hall, Harvard Forest, 2006.

Figure 3: Estimated Forestland Values and Protected Acres by Region

Region 1 (Western MA and CT River Valley)			Region 2 (Central MA)		Region 3 (Eastern MA)
Land type	Back land	Front land	Back land	Front land	Front land
Value 2005	$750 -1000	$1300 – 2000	$1200 - 1500	$2500 - 3000	$5000 - 15000
Protected Acres	750,000	100,000	450,000	100,000	100,000

Analysis Assumptions:

- 75% of the acres will be protected through conservation restrictions; 25% through fee acquisition.
- Conservation restrictions and fee acquisitions will be purchased at roughly 75% of the appraised value.
- Inflation rate = 3%
- Appreciation - 2 values were used to estimate low and high rates of appreciation.

Results: Annual Costs

Year 1 = $115 million to 130 million
(this represents a 15% to 30% increase above current funding)

Year 20 = Approximately $250 million

For Comparison:

- Annual cost of protecting 1.5 million acres of forestland = $115+ million/year (2005 dollars).
- In fiscal year 2007, Governor Romney has proposed a total transportation spending budget of about $236 million ***
- Big Dig = $14.65 billion between 1991 and 2005, or about $1 billion/year**
- Forests provide $2.9 billion/year in ecosystem services in MA.*
- $200 million/year in ecosystem services lost to development in MA.*

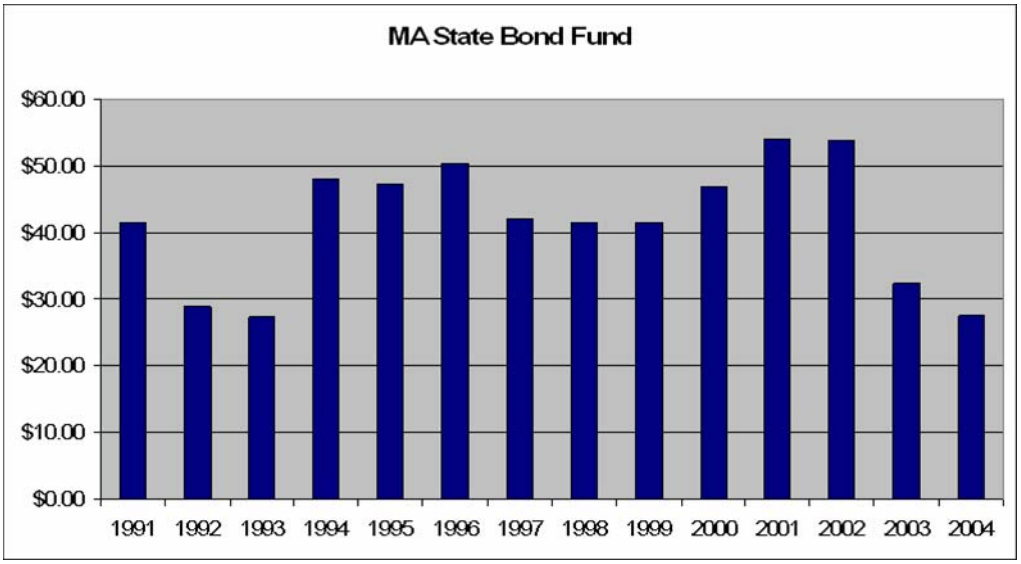
* Source: Mass Audubon, *Losing Ground: At What Cost?*, 2003.
** For Big Dig costs, see: **www.massturnpike.com/bigdig/updates/progress_challenges.html**
*** Includes spending by the Office of the Secretary of Transportation, Highway Department, Registry of Motor Vehicles and Massachusetts Aeronautics Commission, see:
http://budget.mass.gov/budget/2007budrec/sec/h600.htm

A Review of Current and Historic Land Protection Funding

2005 funding for land protection = about $98 million from public and non-profit sources

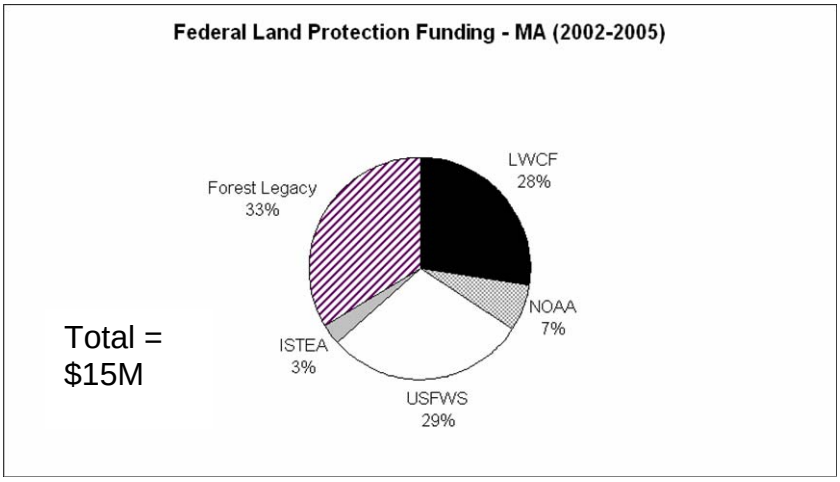
W&W Year 1 = $115 million to 130 million
(15% to 30% increase over 2005)

Figure 4: Massachusetts Bond Funds for Land Conservation
(1991-2004, in millions of dollars)



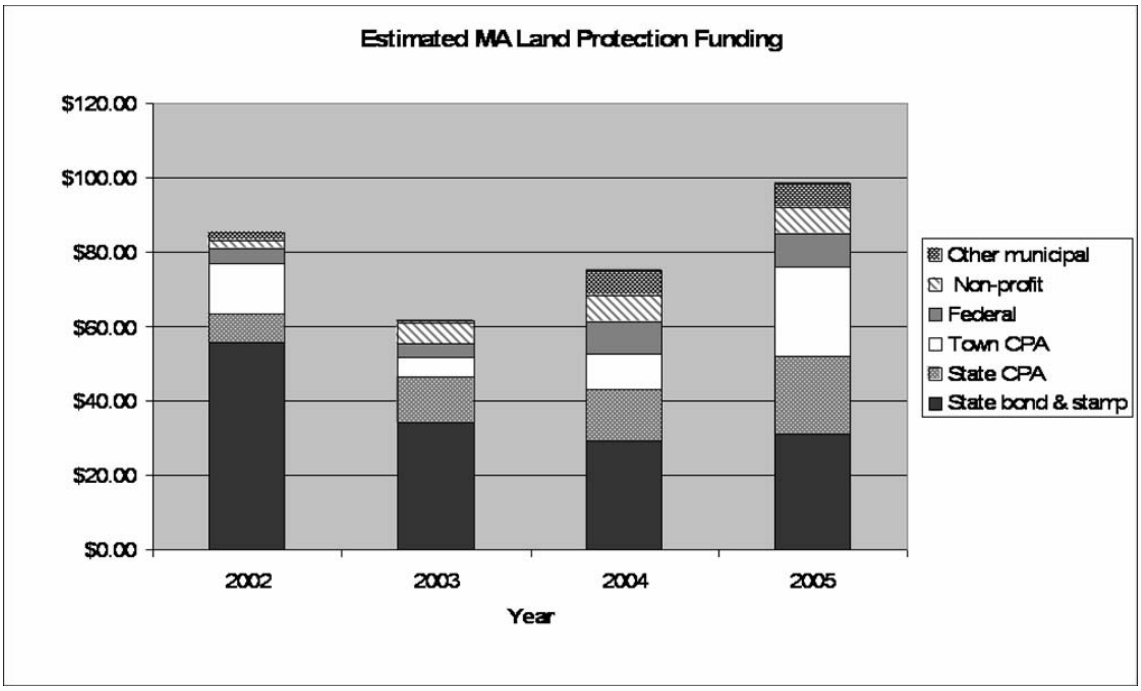
Source: adapted from MA EOEA data, 2006.

Figure 5: Distribution of Federal Land Conservation Funds in Massachusetts
(2002-2005)



Source: adapted from MA EOEA data, 2006.

Figure 6: Combined Funding Sources for Land Conservation in Massachusetts (2002-2005, in millions of dollars)



Source: adapted from MA EOEA data, 2006.

Figure 7: Massachusetts Land Conservation Funding by Source (2002-2005, in millions of dollars)

YEAR	Federal Sources		State bond and land stamp		State – CPA matching funds		Town – CPA funds		Other town funds		Private/non-profit		Annual Total	
2002	$4.0	4.5%	$55.4	65%	$8.0	9.5%	$13.7	16%	$2.0	2.5%	$2.2	2.5%	$85.3	***100%***
2003	$3.66	6%	$34.0	56%	$12.2	20%	$5.3	8.5%	$0.6	0.1%	$5.8	9.4%	$61.6	***100%***
2004	$9.1	12%	$29.1	38.6%	$13.8	18.5%	$9.5	12.7%	$6.6	8.8%	$7.0	9.4%	$75.1	***100%***
2005	$8.8	9%	$31.0	31.4%	$20.8	21.1%	$24.4	24.7%	$6.6	6.7%	$7.0	7.1%	$98.6	***100%***

Acknowledgements

Cost Estimate Information Sources:

- Shep Evans – Realtor
- Jim Levitt – Harvard Forest
- Robert O'Connor – Mass Executive Office of Environmental Affairs
- Peter Stein – Lyme Timber Company
- Ben Silberfarb – Lyme Timber Company
- Keith Ross – LandVest
- Abby Weinberg – Open Space Institute
- Rick Weyerhaeuser – Lyme Timber Company
- Shaffer et al. 2002. Noah's Options. BioScience.

Funding Information Sources:

- Christy Edwards – Mass Executive Office of Environmental Affairs
- Rachael Franks, Loring Schwartz – The Nature Conservancy
- Steve Irza – Trust for Public Lands (TPL)
- Robert O'Connor – Mass Executive Office of Environmental Affairs
- Katherine Roth – Community Preservation Coalition/TPL
- Jennifer Soper – Mass Executive Office of Environmental Affairs
- Wes Ward – The Trustees of Reservations
- Bob Wilber – Mass Audubon

ENDNOTES

[1] David Foster et al, *Wildlands and Woodlands: A Vision for the Forests of Massachusetts*, Harvard Forest, Petersham, MA, 2005, available at http://harvardforest.fas.harvard.edu/wandw/index.html .

[2] Globe Editorial, "Saving the Woods," *Boston Globe*, Sunday, May 25, 2005, Editorial page, available at http://harvardforest.fas.harvard.edu/wandw/globe_editorial_may05.pdf ; *Providence Journal*, Monday, May 16, 2005, "Editorial: Saving Our Woods" available at http://harvardforest.fas.harvard.edu/wandw/providence_editorial_may05.pdf .

[3] Note that the conference organizers intentionally put the word "Woodlands" before "Wildlands" in the conference title, as the bulk of the discussion at the roundtable was likely to be devoted to financing for the protection of working woodlands.

[4] James N. Levitt, editor, *From Walden to Wall Street: Frontiers of Conservation Finance*, Island Press, Washington, D.C. and Lincoln Institute of Land Policy, Cambridge, MA, 2005, available from www.islandpress.org .

[5] While David Foster and Hank Foster are professional colleagues and are both highly respected foresters, they are not related to one another.

[6] See Levitt, page 4.

[7] Charles Eliot, *Garden and Forest*, March 5, 1890, pages 117-118.

[8] Verbal conversations with key state officials and legislators involved in the passage of the Community Preservation Act in 2000 indicate that those officials and legislators were not, at the time of the CPA passage, aware of the interesting parallels between the provisions of the CPA legislation and the details of the 1634 protection of the Boston Common.

[9] See Levitt, pages 51-72.

[10] Kevin Breuning, *Losing Ground: At What Cost?*, Massachusetts Audubon Society, 2003, page 21, available at http://www.massaudubon.org/PDF/advocacy/losingground/LosingGround_All.pdf.

[11] See Massachusetts Budget and Policy Center, *Facts at a Glance: Impact of Reducing the Personal Income Tax Rate*, available at http://www.massbudget.org/Facts_at_a_Glance_PIT_reduction.pdf .

[12] See "Massachusetts Community Preservation Act: CPA Matching Funds", available at http://www.communitypreservation.org/CPAMatchingFunds.cfm .

[13] See Levitt, Chapter 10.