

# Conservation Capital:

Sources of Private  
Funding for  
Land Conservation

Citizen's  
Guide



THE WILDERNESS SOCIETY

## Our Mission

Since 1935, **The Wilderness Society** has worked to preserve America's unparalleled wildland heritage and the vast storehouse of resources these lands provide. From the threatened tupelo and cypress forests of the Southeast to critical grizzly bear and wolf habitat in the Yellowstone-to-Yukon corridor to the incomparable, biologically rich Arctic, The Wilderness Society has forged powerful partnerships with members and friends across the country to conserve interconnected landscapes for our nation. We want to leave a legacy rich in the biological diversity and natural systems that nurture both wildlife and humans alike.

Headquartered in Washington, D.C., the Society also maintains nine regional offices where our staff address on-the-ground conservation issues linked to local communities. Since spearheading passage of the seminal Wilderness Act in 1964, we have been a leading advocate for every major piece of Wilderness legislation enacted by Congress, work that is supported by an active membership of more than 200,000 committed conservationists. Our effectiveness stems from a team approach to conservation, which links our scientists, policy experts, and media specialists to thousands of grassroots activists — creating a potent force to promote change.

Building the case for land preservation with tactical research and sound science is the key to successful environmental advocacy and policy work. Nearly a quarter century ago, The Wilderness Society helped pioneer strategies that incorporated expert economic and ecological analysis into conservation work. Today, through focused studies, state-of-the-art landscape analysis — and diligent legwork by our many partners who provide us with on-site data — our **Ecology and Economics Research Department** is able to serve the needs of the larger conservation community.

Legislators, on-the-ground resource managers, news reporters, our conservation partners, and — most importantly — the American people must have the facts if they are going to make informed decisions about the future of this nation's vanishing wildlands. The answers to the pressing legal, economic, social, and ecological questions now at issue are the stepping stones to that understanding and, ultimately, to achieving lasting protection for the irreplaceable lands and waters that sustain our lives and spirits.



# **Conservation Capital:**

## **Sources of Private Funding for Land Conservation**

**By  
Ann Ingerson**

THE WILDERNESS SOCIETY



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Editor: Caroline Taylor

Design/format:  
Mitchelle Stephenson

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1615 M Street, NW  
Washington, DC 20036  
Tel: 202-833-2300  
Fax: 202-454-4337

Web site: [www.wilderness.org](http://www.wilderness.org)

This citizen's guide is part of a series that stems from conservation research studies conducted by The Wilderness Society's Ecology and Economics Research Department.  
See also:

- **Conservation Capital: Sources of Public Funding for Land Conservation**

The entire series is available at The Wilderness Society's Web site <[www.wilderness.org](http://www.wilderness.org)> and from The Wilderness Society, Communications Department, 1615 M Street, NW, Washington, DC 20036 (202-833-2300 or 1-800-THE-WILD).



## Preface

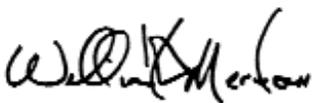
Troubled by rampant suburban sprawl and the loss of open space, millions of Americans share a common goal: land conservation. The hard-edged truth, however, is that land conservation costs money—and lots of it. The outlay begins with the original land purchase and continues through annual management expenses. In many cases, federal, state, and local governments can pay these costs, but the reality of tight public budgets demands creative approaches to conservation and conservation funding.

In The Wilderness Society's newest citizen's guide, *Conservation Capital: Sources of Private Funding for Land Conservation*, author Ann Ingerson, an economist based in our Vermont office, describes the latest techniques for stretching scarce conservation dollars. This guide is the perfect companion to her report on sources of public funding released in April 2004.

The guide covers familiar strategies, including bargain sales and private philanthropy, and it explains novel approaches, such as tapping new-markets tax credits and forming partnerships with a new generation of corporations that own forest lands. Throughout, Ingerson shows how these tools can make land protection both more affordable and more effective in an era of shrinking public dollars for conservation.

These models and this guidebook will be particularly useful in places such as the eastern United States, which has little public land and where the turnover of forest ownership has increased dramatically during the last decade. Turnover raises the risk that large parcels of forest land will be divided into smaller lots or converted to other uses. When that happens, important wildland values may be lost. At the same time, a high turnover rate also presents opportunities by bringing land or development rights into public ownership—the surest way to protect the benefits of wild forest lands in the long term. Those benefits include ecosystem services, such as purifying air and water, places for recreation and personal renewal, and habitat for irreplaceable plants and wildlife.

By applying the thinking and examples described in this citizen's guide, we can make great strides toward achieving our nation's sustainable land conservation goals.



William H. Meadows  
President  
The Wilderness Society



G. Thomas Bancroft, Ph.D.  
Vice President  
Ecology and Economics  
Research Department

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## Introduction

In the crowded landscape of the eastern United States, large uninterrupted tracts of forestland grow increasingly scarce. Yet large parcels offer the best opportunities to manage for wildlife habitat, as well as for remote recreation and commercial timber production. Advances in conservation biology have moved us beyond the assumption that isolated reserves can meet critical habitat needs and have instead underscored the importance of buffers, corridors, and other broad landscape-scale protections. Landscape-scale conservation means thinking big, in terms of both acres and dollars.

In the East, turnover of large forestland parcels has accelerated over the past few decades. Each transfer increases the risk that large parcels will be converted to other uses or divided into smaller lots. By the same token, land transfers present an opportunity to bring land or development rights into public ownership, thereby assuring the provision of important public values far into the future.

Public funding at federal, state, and local levels, described in *Conservation Capital: Sources of Public Funding for Land Conservation* (Ingerson 2004), will continue to provide the bulk of funds for land protection. But paying for large-scale conservation projects requires creativity in tapping many different sources of funds. In many cases, private capital can help stretch available public funds.

This report describes a variety of approaches to using private funds to finance forest conservation. Foundation grants and private donations are the most straightforward way to increase funding for conservation land purchases. In addition to providing outright gifts, foundations and individuals may provide capital through investment-donation hybrids that earn a modest return while simultaneously advancing philanthropic

goals. Several foundations also help lower land purchase costs through revolving loan funds that provide rapid-response, low-cost capital for land purchase. Beyond providing funds for land purchases, individuals or organizations may also donate land or easements directly, or may voluntarily commit to land management practices that protect important public values.

Several federal, state, and local tax policies increase the incentives for taxpayers to donate land or easements for conservation purposes or to commit to keeping their forestland intact. These policies include income tax deductions and credits at the federal and state levels, estate tax exemptions and use-valuation at the federal level, and use-value property tax at the local level. Special federal income tax provisions facilitate two new tools for forest conservation financing: new markets tax credits and community forestry bonds.

For “working lands” that buffer fully protected reserves, revenue from land-based products and services can help nonprofit or public owners cover a portion of land or easement purchase costs. When land remains in private hands, diversification of land-based revenue allows landowners to reduce the intensity of timber harvest to comply with the provisions of conservation easements. Some land-based products and services fill new niches within established markets: certified forest products, nontimber forest products, recreational leases, or limited conservation-compatible development. Other sources of forest-based revenue depend on government regulatory policies that promote markets for ecosystem services like habitat mitigation and carbon emissions offsets.

Given the overwhelming financial need for land protection funds, strategies that reduce the costs of conservation will be equally important as those that raise new funds. One way to reduce conservation costs is to cooperate with pri-

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**Landscape-scale conservation means thinking big, in terms of both acres and dollars.**  
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vate investors on land purchases. Timber Investment Management Organizations (TIMOs) are proliferating, and many of them view development rights or public access easements as viable revenue sources. TIMOs with socially responsible investors (foundations, pension funds, college endowments, or individuals) might even forego maximum short-term returns to support public forest benefits and long-term forest productivity.

Few socially responsible investors are in a position to purchase and manage forestland directly or even to influence policy for an existing TIMO. These investors need mechanisms to pool funds and provide forest management services. Conservation-based TIMOs (sometimes called Forest Investment Management Organizations, or FIMOs) can specialize in long-term sustainable approaches to forest management, including maximizing revenue from nontimber services.

In addition to cooperating with forest investors and forming new investment entities, conservation organizations have also developed creative land transaction strategies that minimize the cost of pro-

tecting vast forested acreages. These approaches, which commonly involve less-than-full-fee ownership of property, may separate timber rights, public access rights, or development rights from ownership of the underlying land to target conservation dollars to the highest priority values.

As economists are fond of saying, “there is no such thing as a free lunch.” Less costly conservation methods usually imply lower levels of protection or higher long-term monitoring costs or both. Each compromise aimed at lowering initial costs requires careful thought and a determination to learn from past experience. Along with examples illustrating each financing tool, we have summarized some lessons learned along the way.

Institutions and tools have doubtless continued to evolve since this report was completed, as practitioners adapt to new obstacles and opportunities. We have provided contact information and Web sites for updates on the tools described here.

## Philanthropy

Conservation organizations often turn to philanthropic foundations and public-spirited individuals to supplement public funds for conservation purchases. These foundations and individuals act on behalf of the public good, in effect supplementing public dollars with their own donations of dollars or interests in land.

### Foundations

Private foundation grants offer several advantages over public funding. Foundations may be able to respond more quickly than government programs and often allow greater flexibility in grants administration and reporting. Foundations support conservation through direct donations, investment-donation hybrids, and revolving funds to provide bridge financing.

During the 1990s, charitable giving, including donations for land conservation, increased dramatically in the United States. Unfortunately, foundation endowments, as well as the net worth of individual donors, suffered from the stock market slump of the late 1990s and beyond. Independent foundations tracked by the Foundation Center lost 10 percent of their combined asset value from 2000 through 2002 (Renz and Lawrence 2004).

Faced with shrinking endowments, many foundations have tried to stabilize giving levels by increasing the percentage of assets distributed beyond the 5 percent required of charitable foundations by federal regulations. Despite that stabilizing influence, however, total grant volume of independent foundations declined 3.3 percent in 2003. Giving by corporate foundations also fell in 2003 for the first time since tracking began in 1987 (Renz and Lawrence 2004).

Despite these recent trends, private foundations will remain an important

source of funds for land conservation. The \$29.7 billion given by foundations in 2003, although less than in 2002, was still twice the level of giving in 1996 (Renz and Lawrence 2004), and giving for environmental purposes grew even faster. Furthermore, new foundations continue to emerge; 40 percent of existing foundations with at least \$1 million in assets were formed during the 1990s, with an additional 6 percent formed since 1999 (Renz and Lawrence 2004).

The Foundation Center (<[www.fdncenter.org](http://www.fdncenter.org)>) provides regular summary reports about foundation activities. McQueen and McMahon (2003, pp. 119-133) also provide an excellent explanation and history of giving by selected private foundations with a special interest in land protection.

### Program-Related Investments and Investments Related to Program

Foundations (as well as individual donors) typically use grants to support their goals. A separate department within the foundation makes income-maximizing investments to maintain endowment value and thus provide future grant funds. Program-Related Investments (PRIs) bridge the gap between these two functions by investing the foundation's assets in a way that also advances its mission.

PRIs come in a variety of forms, including guarantees of financing from other sources (that may lower interest rates by reducing lender risk), direct loans (secured or unsecured), and equity investments. Because they are classified as grants, PRIs count toward the minimum 5 percent of endowment that most foundations must disburse each year. In order to qualify, PRIs must create programmatic benefits, not primarily profits. When PRI funds are repaid, the foundation must grant its required 5 percent of endowment in that year, plus

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Private foundations will likely remain an important source of funds for land conservation.  
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regrant or reinvest the returned funds, in order to comply with federal law.

PRIs can be tailored to the needs and strengths of individual projects and borrowers by negotiating such terms as interest charged, length of investment, repayment schedule, loan or equity instrument, and whether and how much security is required. Of most benefit to the recipient and least administrative cost to the donor are recoverable grants — essentially zero-interest loans. More common are below-market loans that cover donor costs and return a modest profit that helps maintain endowment value. This option might be particularly attractive to a foundation when chronically low interest rates and a sluggish stock market drag down endowment value.

No- or low-interest PRI loans might be combined with conventional sources of financing to reduce the overall cost of capital for forestland investments, thus reducing the pressure to generate high cash returns to repay purchase costs. PRIs might also supply so-called “patient capital” that allows managers to make the initial investment required to restore depleted forests and establish a long-rotation approach to forest management.

Investments at near-market rates of return are often called “investments related to program.” In the division of responsibilities between program officers who award grants and fund managers who maintain endowments, investments related to program rest on the endowment management side. Although endowment managers might primarily aim at protecting or growing total endowment value, investment choices might also help advance the foundation’s mission. See the section on Socially Responsible Investment, page 38, for information on the potential to tap these funds for forest protection.

### Revolving Funds

Perhaps the most conventional way for a business or government to stretch funds is to use debt to leverage available capital. Many conservation buyers borrow from commercial banks at market interest rates to avert possible land conversion through an immediate purchase and then work hard to raise funds to repay the loan as quickly as possible. Rather than pay interest to commercial banks, organizations with a large endowment and an established reputation can issue their own bonds. Socially conscious bond holders may accept lower interest than warranted by the risk rating, because they are eager to support a good cause. The Nature Conservancy, for instance, recently issued \$325 million in bonds backed by its endowment (Schuyler 2004, personal communication).

Few conservation organizations, however, have the scale or the expertise to issue their own bonds. Foundations can fill a similar function through revolving loan funds that provide the flexibility and speed needed to respond to immediate land sale opportunities. As conservation borrowers repay their loans through donations, grants, and resale of selected property rights, those funds become available to back additional land purchases.

If foundations use PRIs to capitalize revolving funds, their below-market returns can be passed on to borrowers in the form of low-interest loans. (Any low-interest funding would provide similar benefits. See Tax-Exempt Community Forestry Bonds, page 15, for another approach to low-interest funding.)

A low-interest revolving loan fund can help a conservation organization speed up repayment of the initial land investment, thereby lowering the total interest costs. Several large land deals in the Northeast illustrate the significance of interest in total land purchase costs and thus how

critical low-interest funding can be in making a project affordable. For example, a single year's interest would add \$2.1 million in costs to The Nature Conservancy's St. John River project in northern Maine and an estimated \$1.26 million to the Connecticut Lakes project in northern New Hampshire (Ginn 2003, personal communication).

Several regionally focused revolving funds currently provide bridge funding or longer-term financing for land conservation. The Northern Forest Protection Fund is operated by the Open Space Conservancy (an Open Space Institute affiliate). The fund offers both grants and loans to promote sustainable forestry, protect ecosystems, and secure opportunities for public recreation. In April 2002, the fund made its first loan, \$2.5 million for the Connecticut Headwaters project in northern New Hampshire. The loan financed the initial purchase of 171,500 acres of land by the Trust for Public Land from International Paper. The land was eventually sold to the state of New Hampshire and to Lyme Timber Company, with conservation easements held by the state. A second \$2 million loan was made to The Nature Conservancy to help finance the Katahdin Forest Project, through which the Conservancy purchased 41,000 acres and obtained working forest easements on 200,000 additional acres near Maine's Baxter State Park. (See New Markets Tax Credits, page 11, for information on other financing for this project.)

The Open Space Institute also administers the New Jersey Conservation Loan Fund, launched in 2003 with PRIs from the Geraldine R. Dodge and William Penn Foundations. This fund provides low-cost interim capital to enable conservation buyers to act quickly, while providing time to coordinate complex financing packages from multiple funding sources. As of January 2004, the fund had loaned more than \$3 million to

protect over 10,000 acres of New Jersey open space.

Farther down the east coast, the Low Country Conservation Loan Fund makes land acquisition loans of up to \$250,000 to conservation organizations working in coastal South Carolina. The fund was established in 2001 with support from the Merck Family Fund and the Gaylord and Dorothy Donnelley Foundation. The program is administered by the Community Foundation Serving Coastal South Carolina and targets lands with ecological, wildlife, scenic, and recreational value. In 2003, Doris Duke awarded a \$4 million three-year grant to the Low Country Forest Conservation Partnership for conservation work in this same region with \$2.3 million of the grant capitalizing a revolving loan fund with a goal of protecting 60,000 acres of land.

In the western United States, the Pacific Forest Trust manages the Strategic Opportunities Conservation Fund, launched in 2000 through a grant from the Surdna Foundation. The fund can be used in a variety of ways, including bridge loans that provide up-front payment for easements while permanent public funding is sought. The fund can also provide working capital for landowners who forego current returns to restore depleted timber stocks or finance direct and indirect costs of certification under Forest Stewardship Council standards.

The Strategic Opportunities Conservation Fund illustrates broader use of revolving funds beyond simply facilitating land or easements purchases. Across much of the eastern United States, second- or third-growth forests are dominated by relatively low-value small trees, and revolving funds might finance up-front costs of forest restoration. A revolving fund could, at low interest, finance the costs of timber stand improvement, property taxes, and

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**Individuals or families...may donate land or easements directly or may voluntarily commit to management that protects public values.**  
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simply the cost of waiting for trees to grow to their highest value.

A common rule of thumb in forestry is that forest growth will produce a real rate of return of about 4 percent per year although superior sites or intensive management may earn much higher rates of return. When commercial interest rates and stockholders' expected returns are well above this level, the timber investment manager will likely cut for higher immediate returns rather than wait for timber to reach high-quality sawlog or veneer dimensions. Low interest financing through a revolving fund would shift financial incentives toward long-term value and remove the pressure for quick cash flow. Eventually, the harvest of large high-value trees would generate sufficient revenue to more than repay the carrying costs that were financed at low interest rates. Figure 2 on page 45 illustrates how a low-interest revolving fund, combined with an advance purchase agreement, might generate revenue to purchase conservation easements.

For more information about revolving funds, contact Bill Ginn of The Nature Conservancy or Peter Howell of the Open Space Institute.

**Gifts of Land or Interests in Land**

Like foundations, individual philanthropists might make cash donations or below-market-return investments to support land purchase. In other cases, individuals or families with a strong conservation ethic may donate land or easements directly or may voluntarily commit to management that protects public values.

The state of Maine provides two well-known examples of generous individual donors of public land. Maine's Governor Percival Baxter bought nearly 6,000 acres near Mount Katahdin in 1930 for \$25,000 to give to the state. In 1962, at age 87, Baxter acquired the last piece of

land for Baxter State Park, bringing his total gift to the state to more than 200,000 acres, along with a trust fund of nearly \$7 million to finance park maintenance and administration.

The Northeast Wilderness Trust recently established a Wildlands Philanthropy Fund to allow individuals of more moderate means to follow Governor Baxter's lead. The fund combines smaller individual donations to purchase priority wildlands or easements in a region from Maine to New York and south to Connecticut. (See <[www.newwildernesstrust.org](http://www.newwildernesstrust.org)> for more information.)

In addition to individual philanthropists, large industrial or investor landowners may also donate land or easements. In New York State in 2004, International Paper donated an easement on the 15,810 acre Sperry-Whitney tract to establish a wilderness park with accessible facilities designed for people with disabilities. By donating development rights, International Paper will reduce its tax liability on the property but retain ownership and continue low-impact forest harvest. The park was created in honor of retired International Paper CEO John Dillon.

**Bargain Sale**

As an alternative to donating land outright, landowners may be willing to bargain sell land or easements. With a bargain sale, the land purchaser (public or charitable conservation organization) gains by acquiring land or easements at less than full market value. The seller or donor accepts a below-market return and receives the satisfaction of knowing that the land will provide public benefits in perpetuity.

Bargain sellers may be partially compensated through a tax deduction for the difference between full market value and the negotiated sale price. (See Federal Income Tax: Incentives to Make Conservation-Oriented Forestland Investments, page 11, for current proposals to extend

tax benefits, including credits as well as deductions for bargain sales.)

Corporations, as well as generous individuals, may choose to make bargain sales. In October, 2000, the Hancock Land Company made a bargain sale of easements on 3,280 forested acres near Sebago Lake, Maine. Public access and conservation easements on the land were sold for \$280,000 less than their assessed value.

In 1996, the Dupont State Forest was established in North Carolina's Blue Ridge Mountains through bargain sale of 7,600 acres to the state. The Conservation Fund worked with the Dupont Company and the state to facilitate the transaction, and the North Carolina Natural Heritage Trust Fund provided funding.

When sellers make a bargain sale or other property donation, they may well reserve key parcels for their own use or for separate commercial sale. Those accepting the gift will need to consider whether future uses of those unprotected lands will affect conservation values on the protected acres. (This same caveat holds in the case of a full-market-value purchase although bargain sale recipients are likely to have less leverage to influence sale terms than would a full-price purchaser.)

In the case of the Dupont State Forest, a private company, Sterling Diagnostic, Inc., also purchased some acreage from Dupont and in 1999 put 2,200 acres in the center of the state forest up for sale. This tract contains several waterfalls beloved by the public; and when the new property owner threatened to deny access and subdivide for development, the state invoked eminent domain and purchased the additional property to add to the state forest. See <[www.dupontforest.com/](http://www.dupontforest.com/)>.

This precautionary tale highlights the fact that as land is successfully conserved, nearby lands become more attractive to developers, making additional protection more difficult over



PHOTO BY RICK SAWICKI

time. Strategic thinking about ultimate conservation goals is important; substantial up-front investments might save dollars and aggravation in the long run.

### **Management in the Public Interest**

Some individuals or families hold forest land as a long-term investment and manage it to high standards of stewardship. Rather than donating land or an easement outright or offering a bargain sale, these landowners make less direct gifts to benefit the public. They might voluntarily accept a lower or delayed return, for instance, in order to grow larger trees, provide wildlife habitat, or protect recreation access and scenic corridors along popular waterways.

Northern New England's tradition of long-term family timberland ownership provides a few examples:

Baxter State Park is Maine's largest unit of public land, including centerpiece, Mt. Katahdin. The park was established through a generous donation from Governor Percival Baxter.

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 To ensure a high level of stewardship over the long run, conservation easements that include forest management guidelines can be placed on private timber lands.  
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- The Pingree family has a 160-year history and current holdings of more than 750,000 acres in northern Maine.
- Hancock Land Company manages more than 40,000 acres in southern and western Maine. Managed since 1848 by six generations of the same family, the company’s mission is “to stay in business within and across generations — vigorously promoting socioecologic forest systems” (<[www.hancockland.com](http://www.hancockland.com)>). (In addition to managing its own lands, Hancock Land Company has recently begun contracting with outside investors to purchase and manage forestland. See TIMOs as Conservation Partners, page 35.)

Relatively new landowners are continuing that tradition through new ownerships:

- In northern Vermont, Essex Timberlands purchased of 84,000 acres of former Champion International paper company lands in 1999 as part of a larger conservation package that involved land trusts, the state of Vermont, and the Silvio O. Conte National Wildlife Refuge.
- Meadowsend Timberlands, Ltd. (MTL) is a family partnership with about 30,000 acres in Vermont, New Hampshire, and Maine. Among the company’s principles are the following: “be responsible stewards of the land; provide opportunities for education; provide a variety of habitats for wildlife; maintain a healthy, productive, and aesthetically pleasing forest; maintain or enhance the water quality of streams and wetland systems; maintain the stability and integrity of the entire ecosystem; meet the standards for ‘FSC’ forest certification and continued Tree Farm status; consider all the elements of a natural forest ecosystem during management decisions; uphold the concepts of environmental conservation by keeping MTL

land as open green-space.” See <[www.mtlforests.com/index.html](http://www.mtlforests.com/index.html)>.

These public-spirited landowners often seek public recognition of their responsible practices through forest certification. The Forest Stewardship Council (FSC) system sets regional standards of ecologically, economically, and socially sound forest management; verifies that practices meet those standards; and provides for a certified chain-of-custody that guarantees to consumers that FSC labeled products are made with certified wood. The Pingree, Hancock, Essex, and Meadowsend ownerships are all certified under the FSC system. Although markets for certified products are still young, buyers in Europe, and increasingly in the United States, are beginning to demand certified product as a guarantee that their purchases support environmentally, socially, and economically responsible forest practices.

Despite the best intentions of current owners, however, timberland ownership is not forever; and future owners may not embrace the same high standards. To ensure a high level of stewardship over the long run, conservation easements that include forest management guidelines can be placed on private timberland. Funds for easement purchases, like those for purchase of land in fee, can come from a variety of public and private sources.

The ownerships described previously have also sold or donated easements on at least a portion of their lands. The Pingree Family, for instance, sold conservation easements on more than 750,000 acres to the New England Forestry Foundation for about \$37 per acre, with the deal struck in 1999 and completed in 2001. Funds for the purchase came from a combination of private foundations and public programs. At the time, this project set a new record for the scale of conservation easements.

Portions of Hancock Land Company

land are under easement. The entire Essex Timberlands property is protected by easements negotiated in a complex public-private deal to purchase 132,000 acres in northeastern Vermont from Champion International paper company. Nearly one-third of Meadowsend lands

are also protected by permanent conservation easements held by local land trusts.

For more information about easements as a strategy, including some of their limitations, see *Unbundling Property Rights to Reduce Conservation Costs*, page 41.

## Government Incentives to Increase Private Conservation Spending

Although forestland owners may provide public benefits out of pure altruism, key tax code provisions provide significant financial incentives to donors. Less obvious than direct grants, these tax expenditures nevertheless provide significant public subsidies for land conservation. Because each taxpayer's situation is unique, tax subsidies will not apply to every land transaction. In particular, wealthy individuals may be subject to alternative minimum tax, and nonprofit institutions — including pension funds and endowments — do not benefit at all from tax credits or deductions. For specific situations, however, tax benefits can make an important financial contribution to a conservation project. The Land Trust Alliance is a good source of current information about federal tax provisions that affect conservation donations. See <[www.lta.org/publicpolicy/index.html](http://www.lta.org/publicpolicy/index.html)>, Tax Benefits for Conservation.

### Federal Income Tax: Incentives to Donate Land or Easements

Several provisions of the federal income tax code encourage private timberland owners to consider sales to conservation buyers when divesting land to achieve investment returns. Tax benefits may also encourage new investments in timberland by individuals or firms because of better after-tax returns.

Section 170(h) of the federal tax code applies to donations or bargain sales of easements or land. The organization receiving the land or easement must be eligible to accept charitable gifts. For gifts of appreciated property, a taxpayer can deduct up to 30 percent of adjusted gross income, with a five-year carry-over (for six years of total deduction). Individuals who receive at least 51 per-

cent of income from agriculture and forestry may deduct up to 100 percent of adjusted gross income, rather than be limited to 30 percent.

The Charities Bill considered during the 2003-4 congressional session carried several suggested revisions to this aspect of the federal tax code. One provision would raise the deductions limit to 50 percent of adjusted gross income. Another provision increased carry-over from 6 years to 16 years total (Shay 2003, personal communication).

Income from the sale of easements or land is already taxed at the lower capital gains rate. Proposed Charities Bill reforms also included further reductions to capital gains taxes (by 25 to 50 percent) on easements or land sold to a conservation organization.

Other proposals not included in current legislative initiatives would provide federal income tax *credits* (not just deductions) for donations and bargain sales. Similar provisions already exist in many states (see State Income Tax, page 18).

Many additional income tax provisions also influence private forestland management through treatment of expenses and timber revenue and through requirements for material participation in management of forest operations. Although timber tax reform may provide some marginal public benefits by encouraging long-term forest investments, we focus here on forms of permanent protection and will not describe those tax elements in detail.

The impacts of tax incentives depend on the tax situation of the landowners. Private investors may be attracted to timberland investments because profits can be taken as capital gains on appreciated timber (taxed at a lower rate than ordinary income). If a tax-exempt nonprofit (like a college endowment or a pension fund) owns shares in a timberland investment company, however, such tax subsidies as lower capital gains

rates or tax credits offer no incentive to donate land or easements. Pension funds and other tax-free institutions that invest in timberland can also be subject to unrelated business investment tax if the IRS deems that they are participating in a profit-making business (Ginn 2004, personal communication).

For more information, contact Russ Shay at the Land Trust Alliance.

### **Federal Income Tax: Incentives to Make Conservation-Oriented Forestland Investments**

Beyond general tax code provisions that encourage individuals or for-profit organizations to make conservation donations, two new creative financing tools have recently emerged that also use federal income tax incentives. New markets tax credits provide income tax credits to qualified investors in special low-income target areas. Tax-exempt community forestry bonds boost after-tax returns for investors who finance the purchase of forests managed for public benefit.

#### **New Markets Tax Credits**

Several New England organizations have begun using a new tool for conservation deals that is based on a special federal income tax provision. Although the program is not primarily designed as a conservation incentive, it is described here in light of the substantial subsidies it is providing for land purchases in the Northeast.

The New Markets Tax Credit (NMTC) was enacted in December 2000 as part of the Community Renewal Tax Relief Act. The program helps disadvantaged areas by providing federal income tax credits to encourage job-creating investments in those communities. From 2002 through 2007, the program authorizes tax credits sufficient to secure a total of \$15 billion in equity investments targeted to low-income communities. Information about the New Markets

Tax Credit is available at the Community Development Financial Institutions (CDFI) Fund Web site at <[www.cdfifund.gov/programs/nmtc/](http://www.cdfifund.gov/programs/nmtc/)>. The CDFI Fund is a federal agency that is part of the U.S. Department of the Treasury.

Coastal Enterprises, Inc. (CEI), a CDFI in Maine, successfully argued that investments in forestland and easements should be eligible uses of the NMTC, because a stable timberland base is crucial to future employment in disadvantaged areas of the Northern Forest region (northern Maine, New Hampshire, Vermont, and New York). In 2003, CEI received an allocation for \$65 million of New Markets Tax Credit investments, \$40 million of which will be used for timberland investments across the Northern Forest region. In 2004, CEI received an additional allocation of \$64 million, with a portion to be targeted to forestland investments. Information about CEI's New Markets Tax Credit program is available at <[www.ceimaine.org/nmtc.htm](http://www.ceimaine.org/nmtc.htm)>.

#### **Program Details**

Only an approved Community Development Entity (CDE) can get an NMTC allocation. Prospective CDEs apply to the Community Development Financial Institutions (CDFI) Fund for approval (existing CDFIs like Coastal Enterprises, Inc. are automatically approved). Once approved, a CDE applies for an allocation. After an allocation is made, the CDE has five years to actually use the credits by soliciting loans or equity investments.

Taxpayers (individuals or corporations) who invest in the CDE or a subsidiary claim a tax credit of 5 percent of their investment for the first three years and 6 percent for the last four years, for a total credit of 39 percent of the capital invested over seven years. Capital must remain committed for the entire seven years. The CDE uses invested funds to

▼  
Two new creative financing tools have recently emerged that also use federal income tax incentives.  
▲

help businesses in target communities, usually through loans. Because of the tax credits, the CDE can pay its investors a lower return and pass those savings on to its beneficiaries.

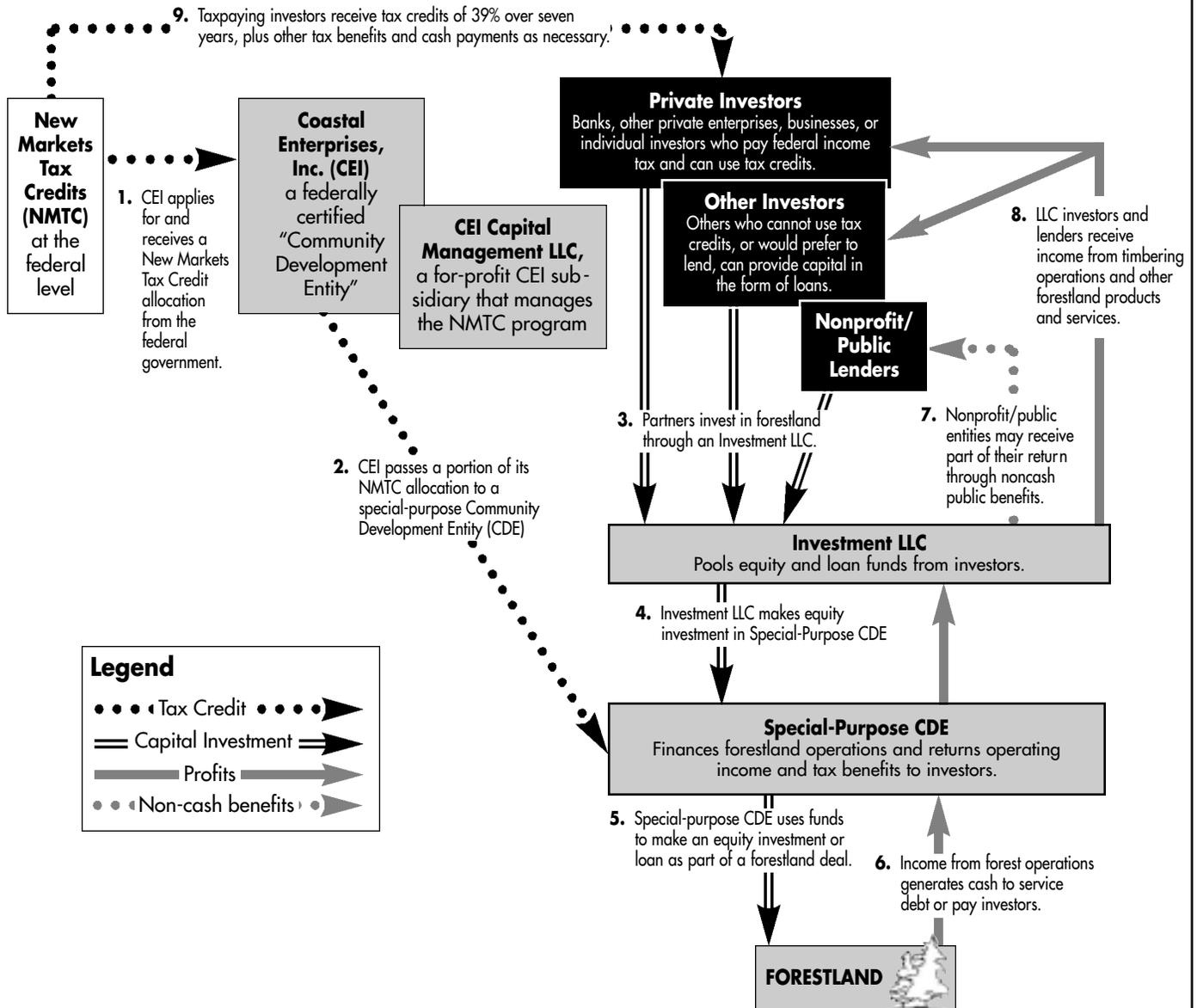
To qualify for a loan, equity investment, or other assistance from the CDE, a business must have a substantial presence in a low-income community and must generate revenue and jobs. Targeted low-income communities are U.S. Census tracts with at least 20

percent poverty or with a median income less than 80 percent of the area or state median. Forestland investments are eligible for financing when they are linked to wood products manufacturing or other forest-based jobs, a requirement that limits the use of this tool to “working forest” conservation projects.

Figure 1 illustrates how New Markets Tax Credits would contribute to a typical land conservation transaction.

FIGURE 1.

**Timberland Transaction Using New Markets Tax Credits**



When NMTCs are used to finance forestland investments, the landholding entity must repay the initial capital at the end of the seven-year tax credit period and generate adequate future returns without a continuing subsidy. There are several possible exit strategies:

1. The landholding entity might retain ownership of the land with land-based revenue providing future returns to investors. In this case —
  - The original NMTC-eligible investor might leave its capital invested and continue as a part owner, with returns now based on earnings from forest products and services.
  - The investor might sell its share back to the landholding entity, which refinances through a commercial loan or through new investors who expect market returns.
  - The landholding entity might meet a portion of its capital repayment by selling easements to government or nonprofit buyers.
2. The land-holding entity might sell the land to a combination of public and private purchasers, using the proceeds to pay off loans and/or buy out investors.

The ultimate goal for a conservation project would be to protect land through permanent easements during the seven-year grace period.

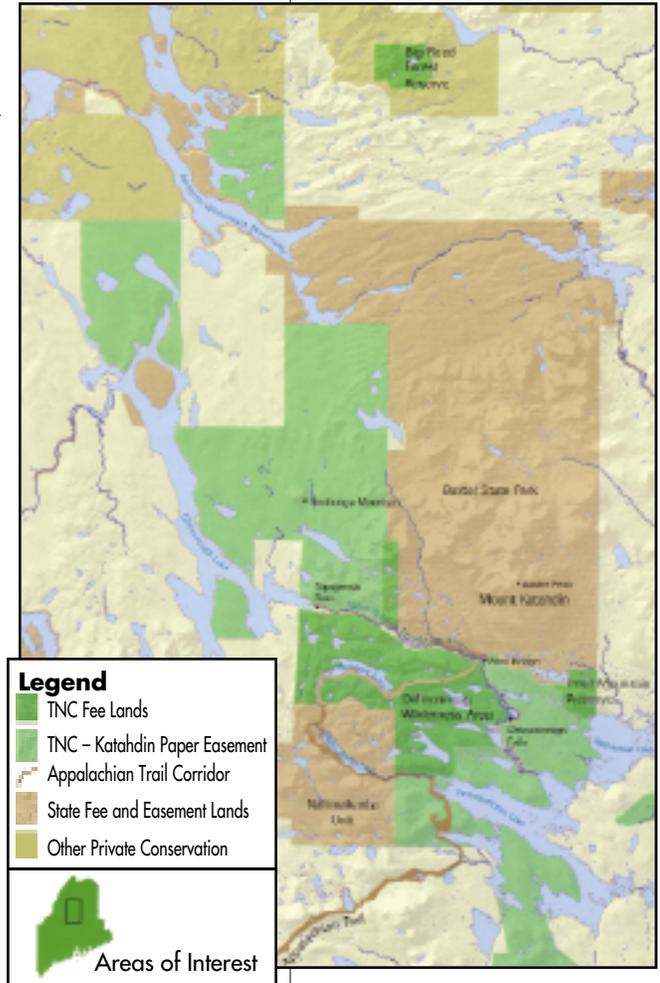
This approach does have important limitations: (1) The complex arrangements and tracking of funds might impose high transaction costs, which absorb some of the available funds. (2) Spending must occur in an eligible low-income area and must involve economic activity (although there can also be a preservation element to the deal). (3) Private investors need to be in a position to use the credits. (They cannot be nonprofit entities, for instance, or wealthy individuals for whom the alternative minimum tax precludes use of

the credits. For “pass-through” corporate structures like limited partnerships or real estate investment trusts, passive loss rules also restrict the amount of credit each individual can take. On the other hand for-profit banks are good candidates for investments, especially those seeking opportunities to comply with Community Reinvestment Act requirements to lend to the local community.)

For more information, contact Steve Weems at Coastal Enterprises, Inc.

### Timberland Investment Example

CEI's first NMTC allocation to be dedicated to timberland investments was applied to a project managed by The Nature Conservancy (TNC). In August 2002, TNC negotiated a debt-for-nature swap with then Great Northern Paper Company. TNC retired \$14 million and refinanced \$36 million of the company's debt at favorable interest rates (less than half what the company was paying). In return TNC received conservation easements on 200,000 acres of company land and purchased outright 41,000 acres of land in the Debsconeag Lakes region. The Nature Conservancy has sought funds to finance its \$50 million commitment from a variety of sources, including the Land for Maine's Future program, Forest Legacy, and private donors.



MAP COURTESY THE NATURE CONSERVANCY

The Katahdin Forest Project protected more than 240,000 acres of land south and west of Baxter State Park in Maine in 2002. The project was the first use of New Markets Tax Credits to finance land conservation.

In partnership with CEI, Inc., TNC used the New Markets Tax Credit program to transfer much of the remaining debt it still holds. The project fits the requirements of the NMTC program because it supports the continued operation of paper mills in Millinocket and East Millinocket that provide high-quality jobs in an eligible low-income region.

In early 2003, Great Northern Paper declared bankruptcy, and the land and mills were purchased by Brascan, with debts assumed by the new owner. TNC transferred that debt to a special subsidiary of CEI Capital Management, LLC. The subsidiary LLC received the funds they needed to buy the debt from a third-party private investor, GE Capital. This investor received New Markets Tax Credits (approximately \$11.7 million over 7 years) for an investment of \$30 million in the project.

As the special LLC receives debt payments from Brascan, those dollars will finance the agreed payments to GE Capital, both at below-market interest rates. The tax credits make up the difference between commercial interest rates (quite high given the risk) and the favorable rates agreed upon between TNC and Great Northern. Essentially, the tax subsidy helps purchase easements on 200,000 acres.

In general, only quite large-scale projects can take advantage of this funding source because transactions costs are so high. Both TNC and CEI, for instance, take fees to cover the costs of setting up financial arrangements for the Katahdin Forest Project. These costs are likely to fall, however, for succeeding transactions. The Nature Conservancy plans to work with CDEs nationwide to seek further NMTC allocations of \$100 million for forest conservation funding.

To remain eligible for future tax credit allocations, TNC, CEI, and other partners need to ensure public benefit from their investments, and scrutiny of land deals by conservation advocates can help

ensure that the program maintains its focus on public benefit.

For more information, contact William Ginn at The Nature Conservancy or Steve Weems at Coastal Enterprises, Inc.

### **The Northern Forest Center's Forest Economy Initiative**

The Forest Economy Initiative of the Northern Forest Center, headquartered in Concord, New Hampshire, promotes sustainable forestry and a sustainable forest products economy in the Northern Forest region (northern New York, Vermont, New Hampshire, and Maine). The initiative's goals incorporate the following economic, ecological, and community components: to promote sustainable harvesting practices, achieve permanent land conservation, and support the growth of innovative value-added companies by building markets and increasing access to risk capital. The initiative includes a loan fund to finance both land protection and value-added forest products processing that supports sustainable forest management.

As part of this initiative, the Northern Forest Center has entered into a contract with Coastal Enterprises, Inc. to use New Markets Tax Credits to enhance land conservation and other mission-related objectives. (See New Markets Tax Credits earlier for details about how this federal program works.) CEI has earmarked \$10 million of its original New Markets Tax Credit allocation for this contract. CEI will review and approve any projects developed by the Forest Economy Initiative that use New Markets Tax Credits as part of the financing package.

Bridge funding might be one important function for the loan fund that is central to this initiative. New Markets Tax Credits will provide incentives for bridge owners to hold land for at least seven years, thereby giving conservation organizations and public agencies time to

raise funds, conduct detailed inventories, and negotiate permanent easements. Because interim forestland owners will likely want to divest or intensify management once the tax benefits end after seven years, the Northern Forest Center sees permanent easements as critical to ensuring that good stewardship continues on these lands. The center, with its land conservation organization partners, will therefore negotiate special management restrictions (such as certification under the FSC system) and/or secure conservation easements on properties purchased. Where practical, the center will also seek to provide opportunities for community forestry ownership and value-added processing of forest products linked to conserved lands.

The original vision for this regional dedicated loan fund involved capitalization through PRIs and socially responsible investments. Although the flagging stock market reduced the likelihood of full funding from these sources, the fund hopes to tap these sources in the future to increase its reserves.

For more information, contact Steve Rohde at the Northern Forest Center.

### **Tax-Exempt Community Forestry Bonds**

U.S. Forest Capital's Tom Tuchman and Joe Euphrat have been developing a different model for using federal income tax incentives to generate capital for semi-public forestland investments. U.S. Forest Capital seeks to apply tax-exempt revenue bond financing to forestland acquisitions. The tax-exempt bond market is the only private capital market that was created to finance public benefits. For nearly 100 years, such private investment has financed the construction of nonprofit hospitals, educational facilities, and other public works. Similarly, Community Forestry Bonds™ make private capital available for public purposes, in this case to acquire forests for conservation and rural development purposes.

U.S. Forest Capital hopes to tip the balance in favor of conservation-oriented forest management. Tuchman and Euphrat contrast three approaches to forest management: intensive commercial management, land conversion, and conservation-based management.

Intensive commercial management generates sufficient returns to repay the costs of raising capital through conventional financial markets. Conversion to non-forest uses involves both higher cost and higher return — higher cost due the increased risk of the investment and higher return as land is sold for its “highest and best use.” Both these options are able to repay their capital costs through land-based profits. Conservation-based management, on the other hand, will likely generate lower returns (for example, because of longer rotations, set-aside of sensitive areas, and other conservation measures) and thus cannot repay conventional capital costs.

The purpose of Community Forestry Bonds™ is to lower the cost of capital so that conservation-based management can compete financially with the more intensive options. If funds for forestland purchase can be raised at a sufficiently low interest rate (e.g. 4 to 6 percent, compared to a 9 percent commercial rate), then conservation-based management can generate sufficient returns to repay the lower acquisition costs. Those low rates are provided through the tax-exempt bond market, with special tax treatment justified by the public benefits provided through conservation-based management.

A land transaction using Community Forestry Bonds™ would involve the following steps:

1. Identify for purchase priority lands with both a willing seller and substantial public interest in protecting that parcel.
2. Select or form a potential buyer. The proposed landowner must be a private nonprofit or quasi-public corporation

(similar to a hospital or public utility). To ensure management for public benefit and to provide confidence to capital markets that the debt will be repaid, the board governing use of the property should have wide representation, including community, environmental, business, and timber representatives.

3. Identify a third-party holder of the conservation easement. To assure that public benefits are achieved, the fee buyer donates a conservation easement that complies with Section 170(h) of the Internal Revenue Code to a qualified independent third party. The fee owner would pay the easement holder to monitor and enforce the easement.
4. Develop a management plan for the property that provides for bond repayment over a reasonable term (perhaps 40 years) through timber and other property revenue.
5. Issue tax-exempt revenue bonds for the planned term through a state authorized "issuing authority" (usually a municipality or state) already entitled to issue these bonds. In addition to the easement holder, the IRS and state bond issuing authorities ensure compliance with the community and conservation purposes that justify use of tax-exempt bonds. The issuing entity will require public hearings and proof of substantial public benefit to justify foregone tax revenue related to the bonds.
6. Use bond revenue to purchase land and donate the permanent conservation easement.
7. Begin managing the property to provide both cash returns to make bond payments and the public benefits identified in the management plan. Continue oversight by a multi-party nonprofit board.
8. Once bonds are paid off, the nonprofit continues to operate in a manner that protects the defined community and

conservation purposes, as governed by the management plan and the conservation easement. If the owner chooses to sell to a new buyer, the easement will permanently protect these values.

The approach has several distinct advantages:

- Unlike land conservation bonds commonly used by states to purchase open space, this approach to land protection does not draw on the existing tax base. These are project-specific bonds, not general revenue bonds, and forest revenue, not general public funds, will cover repayment. Thus, there are no additional tax liabilities to local governments.
- Because these lands receive a degree of protection in perpetuity without public ownership, this approach avoids the acrimony over opposition to public ownership in many rural parts of the country. Substantial protection can be negotiated by the multi-party board so long as debt service is maintained. The proposed 104,000-acre Evergreen Forest near Seattle, Washington would have included approximately 20,000 acres in reserve status, the largest contiguous private reserve area in the state.
- Incentives provided through a tax credit last only as long as the credit exists. A for-profit entity with fiduciary responsibility to stockholders is likely to do only the minimum required to qualify for the credit. In contrast, once tax-free bonds are issued, the obligation continues until the bond is repaid. The nonprofit community forest owner has a clear obligation to the public, and the IRS, the bond issuer, and public board representatives will provide continuous oversight.

- Because the landowner is a non-profit, there is no pressure to maximize returns. The goal is to provide public conservation benefits and sustainable employment opportunities in communities. Thus, there is less pressure to maximize timber harvest.
- Conservationists will share decision-making authority on large-scale ownerships.
- Very large sums of money (\$10 million to \$1 billion) can be raised independent of state or federal funding.

There are also significant obstacles or limitations to this approach:

- Because Community Forestry Bonds™ extend tax-exempt status to a new realm, their use requires modifications to the Internal Revenue Code. Under the Code, when property is purchased through use of unqualified 501(c)(3) bonds, the buyer cannot use the property for an “unrelated trade or business.” Selling timber could be considered a use unrelated to the community and conservation purposes of a community forest. The land manager must demonstrate that only net timber growth will be sold and that public benefits, as defined by the conservation easement ahead of time, will be undiminished by that sale.
- Legislation considered by Congress in the fall of 2003 (part of the “Charities Bill”) would have authorized this special use of tax-exempt bonds. The Senate version would have allowed \$2 billion in bonds nationwide over 3 years, while the House version was limited to \$250 million in bonds, and only in Washington State, over 3 years.
- Because of the expense of forming an ownership organization, developing a multi-party board, convey-

ing and monitoring a conservation easement, negotiating a management plan, and making financial arrangements, land transactions would probably need to be \$10 million or larger.

- The process takes time, and few timberland sellers can afford the wait. Therefore, Community Forestry Bond™ transactions are more useful with sellers who are willing to undertake a negotiated sale versus an auction where a nonprofit would have to compete with the for-profit sector that can work much more quickly. Once changes to the tax code are passed, U.S. Forest Capital expects future transactions to take 6 to 12 months.
- This conservation approach does not apply to public lands or to lands purchased strictly for wilderness purposes.

Although the first proposed Community Forestry Bond™ transaction was never completed, the process illustrates the potential of this approach to develop a conservation consensus among many parties. In 2002, Weyerhaeuser agreed in principle to sell the 104,000 acre Snoqualmie Tree Farm to the Evergreen Forest Trust, a nonprofit formed for the purpose, for \$185 million. U.S. Forest Capital worked with community leaders and the Cascade Land Conservancy to structure the deal, form the Evergreen Forest Trust, develop a multi-party board and begin negotiating a management plan. Because of delays in passing authorizing legislation, Weyerhaeuser sold the land to Hancock Timber Resource Group. Knowing that the financing can work, the Trust looks forward to undertaking another transaction once national authorizing legislation passes.

For more information, contact Tom Tuchman at U.S. Forest Capital.

▼ Several states have increased conservation incentives by allowing direct tax credits for donated land or easements. ▲

**Federal Estate Tax**

In addition to income tax incentives, estate taxes also influence decisions about forest protection. Estate taxes are paid by the heirs, with a portion of the estate’s value exempt from the tax. Because of revisions passed by Congress in 2001, the amount of an estate exempt from taxation is increasing rapidly. In 2004 and 2005 the first \$1.5 million of estate value is tax-free, by 2009 the exempt amount will increase to \$3.5 million, and the tax will be abolished altogether for estates of people who die during 2010. In the absence of further congressional action, however, the tax will revert to its pre-2001 level beginning January 1, 2011.

Because of these scheduled changes, estate tax incentives to encourage land or easement donations face an uncertain future. As long as the tax still applies, however, estate tax provisions encourage conservation by excluding the value of donated easements from the estate. Further provisions exclude a portion of nonrestricted timber value on land under easement and allow the estate to be assessed at its forest-use, rather than market, value. A lower estate value means lower tax liability.

Donating an easement to a conservation organization is one accepted way to reduce the taxable estate. Under section 2031(c) of the Internal Revenue Code, either a landowner or an heir (within one year of the previous owner’s death) can elect to donate an easement and hence reduce the estate tax. A further special exclusion allows 40 percent of the value of the remaining property unaffected by the easement to also be excluded from the taxable estate value, up to a maximum exclusion of \$500,000. This provision is useful for timberland where the trees are much more valuable than the land itself. In this case, the easement has little effect on total property value because the development rights encumbered by easement constitute a small

percentage of total forest value. In these cases, estate taxes remain high in spite of easement restrictions, and without the special provision there may be a perverse incentive to cut valuable timber immediately to pay the tax (Shay 2003, personal communication).

Section 2032A of the Internal Revenue Code allows for special-use valuation of estate property. In cases where fair market valuation might force heirs to sell property to generate sufficient cash to meet tax obligations, this provision allows for continuation of a farm or forestry business without undue tax burden. A series of complex requirements determines whether timberland is eligible for this lower estate valuation. Heirs must commit to keeping the land in timber production for at least ten years, subject to recapture of the tax owed (Jacobson and Becker 2001).

For more information, contact Russ Shay at the Land Trust Alliance.

**State Income Tax**

Many states allow income tax *deductions* similar to those in the federal tax code. Several states, however, have increased conservation incentives by allowing direct tax credits for donated land or easements. While a tax deduction reduces the income to which taxes are applied, and credit is subtracted directly from the amount of tax owed. Nine states (North Carolina, Virginia, Delaware, Colorado, Connecticut, South Carolina, California, Maryland, and New Mexico) currently provide tax credits for easements or land donated or sold to a qualifying conservation organization.

Specific benefits vary from state to state. For example, Connecticut allows a credit at 50 percent of the donated value of land or interests in land, but only for corporate donors. Delaware allows donors a credit of 40 percent of fair market value for donated land or interests in

land, with the total credit capped at \$50,000 per individual. South Carolina allows a credit of 25 percent for donations to an approved conservation organization, with a cap of \$250 per acre and \$52,500 per taxpayer (Shay 2003, personal communication).

Benefits from tax credits are limited by the tax liability of the donor. Conservation tax credits cannot be used, for instance, by an organization or individual who wishes to donate land or easements in a state where the donor owes no income tax. For those who do pay taxes in the state where the land is located, the credit might be limited by the size of the donor's tax bill. Consider a donor of an easement worth \$300,000. A 50 percent tax credit entitles that donor to \$150,000 in tax credits. If that donor pays state income taxes of \$5,000 per year, the donor's actual credit in a state with five-year carry-forward would be limited to \$30,000. Even when states address this limitation with generous or unlimited carry-forward provisions, incentives shrink when they occur in the distant future. The donor just mentioned would need to wait 30 years to receive the full tax credit value.

Both Colorado and Virginia recently addressed this limitation by making their tax credits transferable. This modification allows the donor to receive immediate cash payment by selling the tax credit to another party who owes enough income tax in that state to fully use the credit. Brokers have emerged to manage this market, with up-front cash payments for credits ranging from 50 to 90 percent of full value (Hocker 2004, personal communication).

For more information, contact Phil Hocker at Conservation Service Company, LLC.

### **Use-Value Appraisal Property Tax**

High property taxes can discourage long-term private ownership for those



PHOTO BY JIM WAITE

who receive little or irregular forest income. Landowners dedicated to protecting sensitive natural communities on their land may find the carrying costs prohibitive. Special property tax provisions can reduce this barrier to permanent conservation.

According to a survey by Hibbard et al. (2001), the 50 states administer a total of 66 programs that give special property tax consideration to forestland. The goals of these programs vary from state to state. Some programs require management for timber production to support a forest products industry. Others focus on open space protection or public access.

Thirty-six of these programs use "current use" (the income-producing potential of the property in forest production) rather than fair market value to assess eligible forest properties. Fifteen programs use comparable sales (actual transactions involving land of similar quality), often reducing assessments to a fixed percentage of that value. Nine states have a fixed tax per acre, and three states totally exempt private forestland from property taxation under certain circumstances (Hibbard et al. 2001).

Enforcement of management standards and goals also varies from state to state.

Virginia's innovative transferable income tax credit encourages landowners to donate land or easements to protect forests like this one along the popular Appalachian Trail.

Only 16 programs require a forest management plan, and only 19 impose penalties for noncompliance or withdrawal from the program.

The two examples that follow are derived from Hibbard et al. (2001).

### **Georgia**

Georgia classifies land into ten categories for property tax purposes. Forestland is generally classified as agricultural property, conservation use property, or environmentally sensitive property. All three special classifications apply to ownerships of up to 2,000 acres. State agencies determine land valuations under each classification.

The preferential assessment program for agricultural property requires that 80 percent of the owner's income be derived from farming. Property under this classification is assessed at 75 percent of fair market value.

Conservation use land must be used primarily to produce timber, with up to half the land "dormant" at any given time.

Environmentally sensitive land must be certified by the Georgia Department of Natural Resources. Landowners for both conservation use and environmentally sensitive land classes must commit to maintaining the existing land use for ten years. Penalties for withdrawing from the program include rollback taxes plus interest on the entire parcel enrolled, even if only a portion is withdrawn.

Both these classifications value land partly at current use, based on the land's productivity class, and partly at comparable sales value. Sixty-five percent of

the value for each productivity class is determined by capitalizing average annual per-acre timber revenue statewide, with 35 percent determined by actual market sales for comparable lands. Standing timber is exempt from property taxes but is assessed at 100 percent of its fair market value at the time of harvest or sale, with property tax paid on this amount at the standard rate for that jurisdiction.

### **New Hampshire**

To receive reduced valuation under New Hampshire's Current Use Law, a parcel must be greater than ten acres, able to produce an annual gross income of at least \$2,500, or be a Certified Tree Farm. The program offers an additional reduction in use value (approximately 50 percent) if the owner practices "responsible land stewardship," most often evidenced by a management plan. The state provides a further 20 percent reduction in the use-value if the landowner allows year-round non-motorized public access.

A statewide Current Use Board determines use values annually, based on capitalization of timber income for four forest types (white pine, hardwood, other, and unproductive). As in Georgia, standing timber is not assessed for property tax purposes, but at harvest the landowner pays a yield tax of 10 percent of the stumpage value, under the state's Timber Tax Law.

An owner who changes land use to a nonqualifying one pays a penalty of 10 percent of the fair market value of the parcel.

## Paying for Land Through Forest-Based Earnings

Although federal, state, and local programs reduce the tax burden for landowners seeking to keep their forestland intact, some forest-based revenue will be needed to fully cover carrying costs. Many conservation organizations actively promote environmentally friendly revenue sources that provide incentives for voluntary private forest conservation. These same sources can help conservation owners to recoup some of their purchase costs through property-based revenue.

Profit-generating activities on conservation lands are bound to create controversy. Revenue that derives from ecosystem services or carefully managed recreation leases is compatible with a high level of resource protection. Marketing of timber or limited development, however, requires some compromises in the level of protection achieved. Even when conservation owners set stewardship standards and channel development away from critical areas to protect key values, land protection advocates will be concerned about damage to critical resources. At the same time, commercial competitors might perceive unfair competition from public or nonprofit owners. Yet future landscape scale conservation depends on innovation in this fertile and confusing arena.

### Timber and Nontimber Forest Products

One way to generate land-based revenue, while maintaining well-recognized standards of ecological and social integrity, is to sell certified timber. One original intention of forest certification under the Forest Stewardship Council system was to increase returns for timber produced in a way that also protects a variety of other forest values from biodiversity to water quality to public access. Although current premiums are spotty,

the market continues to develop; and growing public awareness might eventually produce more widespread price incentives.

Depending on forest condition, timber revenue can cover a conservation owner's carrying costs, and perhaps — depending on purchase price, stocking and ownership goals — contribute toward repaying a portion of the purchase cost. A project in northern Vermont illustrates the potential for working conservation lands to partially pay their own way.

In 1997, the Vermont Land Trust and The Nature Conservancy formed the Atlas Timberlands Partnership to purchase 26,789 acres of former investor-owned lands in northern Vermont. The partnership hoped to learn firsthand about the challenges of managing large timberland parcels, to cover landholding and management costs, and to increase the asset value of the land over time. The organizations agreed to hold major portions of the land for at least ten years, while using the remainder as a tool to advance conservation of other lands, possibly swapping land for easements on priority parcels.

On land where the highest value timber was already removed by the previous owner, current harvests include relatively small volumes of sawlog quality timber as the resource is given time to grow. In addition to some sawtimber, pulp, and firewood-quality material is being removed to improve the ratio of acceptable growing stock to unacceptable growing stock in the residual stand.

Managing the forest for future production of quality sawlogs and veneer logs, while maintaining high harvesting standards, requires patience and a tolerance for low current returns. As careful management increases timber quality over the long-term, the owners will benefit financially from the increased value of the standing trees rather than from current harvest income. The value of any

parcels sold in future years will reflect today's investment in timber stand improvement. The Atlas lands have been certified under the FSC system, and the partners are hoping to further increase wood value by pursuing value-added opportunities.

For more information, contact Carl Powden at the Vermont Land Trust.

Nontimber forest products, including medicinals, florals, and edibles, might produce supplemental revenue for forestland owners without requiring timber harvest. Best and Jenkins (1999) estimate that in the Pacific Northwest landowners can earn \$5 to \$15 per acre annually through sale of permits to harvest nontimber forest products. In the eastern United States, such markets are limited although revenue might be earned from leasing rights to harvest balsam boughs for wreath-making, to tap maples for syrup production, to harvest wild blueberries, or to gather pine straw for horticultural mulch. Markets for fiddleheads, ginseng, and mushrooms can also be lucrative. In Maine, Hancock Land Company has found a niche in sales of spring water to bottled water companies (see TIMOs as Conservation Partners, page 35).

For more information, contact Matt Hancock at the Hancock Land Company.

### **Recreation**

Recreation and hunting leases might also supplement forestland returns, especially where timber harvest or other commercial uses have been restricted by easement terms. Like timber harvest, unmanaged recreation can damage protected resources. Although certification of "ecotourism" enterprises has been proposed, the system to date is less well organized and widely accepted than FSC wood products, especially within the United States.

In some regions, income from forest recreation is a well established source of

revenue for private landowners. The USDA Forest Service estimates that about 8 percent of private forestland in the United States is leased for some recreational use. Best and Jenkins (1999) estimate that hunting leases can generate \$2 to \$15 per acre per season, especially in the South where such leases are traditional. In Arkansas and Mississippi, Anderson-Tully, a forest industry landowner, receives \$3 to \$6 per acre per year for hunting rights. In Washington State, Champion International has sold hunting permits for \$13 per day or \$200 per individual per year (Best and Jenkins 1999).

Mississippi State's Forest and Wildlife Research Center recently surveyed landowners in the state with at least 40 acres of land about the 1986-98 hunting seasons. Only 14 percent of landowners surveyed charged a fee for hunting, with larger ownerships more likely to charge a fee. Lease prices ranged from \$1.50 to \$25 per acre per year, and net revenue from hunting leases averaged \$3.91 per acre per year (Jones et al. 2001).

In the northeastern United States, the tradition of free public access makes paid recreational leases difficult to implement. Snowmobile clubs, for instance, do not typically pay landowners for their extensive use of private forestland (partly to avoid possible landowner liability). Yet one northeastern company illustrates the potential for landowner income from recreation.

Since 1995, Timberland Trails has operated a system of dispersed yurts on private lands in northern New Hampshire, Vermont, and Maine. The company first leased the Phillips Brook Backcountry Recreation Area in northern New Hampshire from International Paper (IP) in early 1997. When IP sold the majority of its New Hampshire lands to a combination of private and public conservation buyers in 2001, it retained the 24,000 acres at Phillips Brook and continued to renew the Timberland

Trails recreation lease on an annual basis.

The lease included the right to install yurts for hut-to-hut touring and exclusive use of 75 miles of old logging roads and trails as mountain bike and cross-country ski trails. Recreational users did not pay directly for land access, so the landowner was protected from liability through state laws favoring free public access. Through cooperative agreements with a number of local guides and rental companies, guests were offered a variety of activities including fly fishing, canoeing, kayaking, moose tours, tracking, hunting, mountain bike tours, dog sledging, cross-country skiing, and snow cave building.

In November, 2003 IP canceled the Phillips Brook lease, and Timberland Trails must move its yurts and lose the considerable investment it has sunk in this property. From a landowner perspective, the recreational lease brought too little return and restricted operations that might have affected the recreation experience of visitors. Timberland Trails continues to offer yurt lodging on other private lands, including 900- and 1,500-acre properties in Vermont, and is actively investigating new locations in New Hampshire and Maine.

Bill Altenburg, Timberland Trails entrepreneur, considers the five-year Phillips Brook experiment a successful demonstration of the potential of fee recreation on private land. He believes that his approach fits both revenue needs and goals of conserved lands. Since conservation owners have usually made a long-term commitment to forestland ownership and may harvest less intensively, they may be more willing to offer long-term recreational leases. Conservation-oriented landowners also benefit from building public awareness of wildlife when visitors spend a night out in the woods and can observe wild animals that are active at dawn and dusk.

Altenburg has also developed a perma-

nent recreation easement as an alternative to a renewable term recreation lease. A permanent easement is more costly up front but provides the long-term security needed to justify investments in permanent facilities. Timberland Trails, as owner of the easement, would assume the burden of managing public access, maintaining trails, etc., thus minimizing landowner costs. For the seller of the easement, the up-front payment can contribute to the costs of land purchase.

Several key obstacles block wider use of this model. Many current-use property tax programs, for instance, prohibit charging for lodging on enrolled properties.

Easements financed through Forest Legacy commonly prohibit overnight stays. New Hampshire's Connecticut Lakes Headwaters project developed the first Legacy-financed easement that allows overnight stays on the land (Altenburg 2004, personal communication).

If these obstacles can be overcome, recreation leases or easements might offer conservation owners a significant source of nontimber revenue. Working with a variety of northeastern conservation groups, Altenburg has calculated that, when recreation management is combined across multiple parcels, recreation leases can cover the full carrying costs for conserved properties. He proposes that smaller ownerships tap recreation potential by teaming up with local lodging businesses who might offer an overnight stay in a local yurt as an additional option.

For additional information, contact Bill Altenburg at Timberland Trails.



PHOTO BY JAY WOOLSEY

Outdoor outfitters like Timberland Trails lease recreation rights from private landowners to expand opportunities for remote recreation.

### Limited Development

As a last-resort source of revenue, a portion of the land resource can be sold for housing or other developed uses, with proceeds used to finance protection of the remainder. Because this limited development approach involves development of some portion of the land, the necessary compromises inevitably generate controversy. Will designated open spaces be rugged terrain unsuited to development or rich sites that best meet wildlife needs? Will marketing appeal to up-scale buyers at top prices, or will potential revenue (and total acres protected) be sacrificed to provide broad public access?

Limited development approaches vary in scale. At the smallest scale, land trusts occasionally sell one or two lots from a conserved property to finance development restrictions on the remaining acreage. Because buyers appreciate the amenities of permanently protected green spaces nearby, they are likely to pay more for the developed property than they would have were there no protected areas nearby.

Rapidly growing suburban areas might encourage developers to employ a similar strategy by clustering house sites on a small portion of a property and protecting the remaining open space through permanent conservation easements. The cluster approach allows the same number of housing units as would be permitted under standard zoning (sometimes slightly more to provide an extra incentive) but allows the developer to group those units on one densely developed portion of the property. One of the leaders in the promotion of clustered "conservation subdivisions" is Randall Arendt, who founded the Growing Greener program of the Natural Lands Trust, south of Philadelphia. Growing Greener has expanded into a statewide program that helps communities throughout

Pennsylvania develop comprehensive plans, zoning ordinances, and subdivision regulations that protect green space (Natural Lands Trust 2001).

Most limited or conservation development projects are at the scale of single farms or subdivisions. Some projects, however, involve thousands of acres. Large-scale limited developments predictably draw both praise (for innovative subdivision design that permanently protects key ecological resources) and criticism (for developing at all in critical natural areas, claiming golf courses as protected open space, and restricting access to those who can afford expensive real estate).

For small conservation subdivisions, a residents' association typically manages common lands. Larger conservation developments often establish an affiliated nonprofit, funded by real estate transfer fees, to manage their larger acreages of protected open space. The best models for these nonprofit trusts have independent boards, with respected environmental scientists represented to ensure that common spaces address ecological priorities and not simply residents' recreational demands.

Here are some limited development examples across the country:

#### Prairie Crossing

Grayslake, Illinois, on the outskirts of Chicago. 677 acres with 350 acres protected, including 90-acre Prairie Crossing Farm and more than 200 acres of restored prairie, wetlands, and hedgerows, 10 miles of trails and a 22-acre lake. 359 homes starting at \$350,000, on-site charter school. The nonprofit Liberty Prairie Conservancy manages education, stewardship, and volunteer restoration activities for Liberty Prairie Preserve which includes 3,200 acres of conserved farmland, nature reserves, and open space (including Prairie Crossing and neighboring public and private lands). Prairie

Crossing is an early model of conservation development founded in 1992 (<[www.prairiecrossing.com/pc/site/index.html](http://www.prairiecrossing.com/pc/site/index.html)>).

### **Hidden Springs**

North of Boise, Idaho. 1,844 acres with 800 acres of open space. 1,000 homes starting at \$219,000, walker-friendly town center with club house, post office, store, and school. Hidden Springs and other recently built planned communities incorporate such livable-communities priorities as walker-friendly retail centers, as well as permanently conserved open space. See <[www.hiddensprings.com](http://www.hiddensprings.com)>.

Prairie Crossing and Hidden Springs provide models for reducing the environmental impact of conventional suburban subdivisions by designing for accessible community facilities and open space. Such developments typically incorporate about 50 percent open space. Because these models often protect land in scattered patches, interspersed with homes and retail services, they contribute little to biodiversity or wildlands protection. Other limited development models aim to protect larger contiguous acreages.

### **Spring Island**

Coastal South Carolina. 3,000 acres with 1,200 acres of open space. 400 homes listed at \$1 to \$4 million, gated community with golf course and other recreational amenities. The affiliated Spring Island Trust owns land or easements on 1,000 acres of open space, employs naturalists who work with landowners to ensure resource protection, and makes recommendations about environmentally sensitive development design. See <[http://privatecommunities.com/visit/index.htm?community\\_id=149&community\\_name=Spring%20Island&link\\_location=top](http://privatecommunities.com/visit/index.htm?community_id=149&community_name=Spring%20Island&link_location=top)>.

### **Santa Lucia Preserve**

Carmel region of Coastal California. 20,000 acres with 18,000 acres protected. 300 homes listed at up to \$4 million with bare lots selling for \$1 million, gated community with extensive recreational facilities. The affiliated nonprofit Santa Lucia Conservancy manages the permanently protected acres for wildlife, research, and recreation, supported by a \$20 million endowment provided through land sales. See <[www.santaluciapreserve.com/](http://www.santaluciapreserve.com/)>.

Spring Island and Santa Lucia represent the exclusive gated-community extreme of the limited development spectrum. Because of high real estate values, these models generate sufficient funds to protect large reserve acreages but at the cost of reduced public access. These two examples illustrate the wide range of standards within the limited development concept, with 40 percent versus 90 percent protected open space. Design details also matter, as protected acreage may include extensive luxury golf courses or isolated patches of open space with limited conservation value.

### **Heritage Ranch**

This organization, founded by Jim Winder, manages more than 140,000 acres (including 83,000 acres of federal and state public grazing lands) on four working ranches in central and southern New Mexico. Grazing follows the Holistic Management model, using livestock to achieve ecological restoration objectives and carefully monitoring for impact. Portions of each ranch property are subdivided for sale as housing lots, and buildings must comply with standards set by Heritage. Revenue from lot sales finances the ranch purchase, allowing Heritage to place conservation easements on the remaining acreage. Sale of home sites also supports educational programs and volunteer restoration work that involves residents in on-site conservation activities.

House sites currently on the market start at \$89,000. Acreages and number of lots for each of the ranches are shown in Table 1 below:

Heritage Ranch seems closest to the limited development ideal. It conserves private lands in large units, maintains open spaces of high value to wildlife, demonstrates a substantial commitment to ecological restoration, is managed by traditional ranchers who see themselves as guardians of local culture and biodiversity, sells properties at a reasonable price, and involves residents in sustainable design and education and restoration efforts.

TABLE 1.

**Heritage Ranch Land Allocation**

Ranch Property	Public Acres (BLM, USFS, State)	Private Acres	Easement Acres	Developed Acres	Number of House Lots
Berrenda Creek	14,000	10,000	7,000	3,000	74
Cougar Mountain/Corona Ranch	21,000	9,000	6,000	3,000	75
Deer Canyon	0	12,640	6,320	6,320	316
Lake Valley	48,000	4,000	1,800	1,500*	20

\* plus 700 miscellaneous acres.

Source: Jim Winder 2004, personal communication.

Recognizing that much of the habitat essential to the survival of threatened and endangered species is in private ownership, the Heritage Ranch managers are committed to range restoration and biodiversity protection on their properties. Heritage cooperated with Defenders of Wildlife, for instance, to offer a predator-friendly haven for the Mexican gray wolf (*Canis lupus baileyi*) and developed a pilot program to market predator-friendly Wolf Country beef. Recent projects include reintroduction on the Heritage ranches of black-tailed and Gunnison’s prairie dogs (*Cynomys ludovicianus* and *Cynomys gunnisoni*) and Rio Grande chub (*Gila pandora*). See <[www.heritage-ranch.com](http://www.heritage-ranch.com)>.

Heritage Ranch’s conservation commitment was formalized in 2002 with the establishment of an affiliated nonprofit, the Heritage Ranch Institute (<<http://www.heritageranchinstitute.org/>>). The institute cooperates with regional universities and government agencies to promote research and education about human impacts on natural resources. The institute ultimately aims to extend lessons learned about ranching methods that protect biodiversity and will also promote techniques of home and road construction that minimize the human footprint.

Of the examples included here,

Although limited development can potentially fully fund land protection efforts, it is best suited to staving off imminent development of less conservation-friendly design. Where no immediate land conversion threat exists, direct public acquisition can better protect critical ecological values. Where land is expensive and growth is rapid, however, this tool can protect havens of precious open space in the path of encroaching sprawl.

**Mitigation Funding**

Beyond harvest of timber and nontimber products, recreation fees or leases, or limited development of portions of the land, a whole suite of forest ecosystem services can bring substantial supplemental revenue to landowners. Markets for these services are just beginning to develop, and in most cases depend on government regulations that protect public values. For example, environmental regulations prohibit actions that harm wetlands, destroy threatened or endangered species habit, or impair water quality. To allow some flexibility for new highway construction, factories, and other development, government agencies sometimes allow limited damage to a protected resource at one site in exchange for “mitigation” elsewhere.

Because mitigation costs money, those who provide the mitigation service can charge a fee to developers who benefit from the service.

Although mitigation cannot yet generate sufficient funds for an entire land purchase, it can supplement other public and private funding or encourage existing owners to accept conservation easements that limit land management practices. When landowners receive revenue for protecting wetlands, providing wildlife habitat, maintaining river buffers, or increasing carbon sequestration, they may be more likely to accept permanent limitations on timber harvest, road building, or other activities that affect the services provided by their lands. Limited-term contracts have been used, but many conservation advocates agree that high quality environmental services depend on permanent easements that allow natural processes to develop over long periods of time. Regulations governing markets for these services can and should require permanent easements as a condition of participation.

The National Mitigation Banking Association, formed in 1998, publishes a newsletter and tracks legislation (<[www.mitigationbanking.org](http://www.mitigationbanking.org)>). The Environmental Defense Center for Conservation Incentives also researches and tracks mitigation programs (<[www.environmentaldefense.org/article.cfm?ContentID=151](http://www.environmentaldefense.org/article.cfm?ContentID=151)>).

### **Wetlands Mitigating Banking**

Wetlands provide the most established example of mitigation markets. The service provided is relatively easy to document and monitor, and newly constructed wetlands have been allowed to replace those destroyed by filling or construction.

When the Army Corps of Engineers set out to implement the policy of “no net loss” of wetlands in the early 1990s, off-site mitigation offered a popular solution to compensate for the unavoidable

wetlands impacts of development projects. Ecologists and wildlife biologists were skeptical about whether off-site mitigation that relied on isolated artificial wetlands could replace the full range of natural wetland functions. Developers often hired inexperienced engineering firms to design constructed wetlands, and after initial installation these sites all too often failed to mimic the natural system that they had replaced (Roberts 1993).

State agencies, with highway departments taking the lead, began to develop more effective large-scale wetlands “banks” that could provide functional wetlands to offset those destroyed by public construction projects. In some cases, private developers could also buy credits from a public mitigation bank to compensate for damage (debits) to wetlands elsewhere in the state. Eventually, entrepreneurs began to develop mitigation banks as profit-making ventures.

As noted by Shabman, et al. (1993), mitigation banks provide several advantages over ad hoc project-by-project mitigation. Banks increase predictability and timeliness for developers by providing measurable mitigation services at a lower per-unit cost because of economies of scale. Banking also provides long-term maintenance of wetlands complexes, and the full functioning of these wetlands prior to the sale of credits ensures that the promised mitigation actually occurs.

Even private mitigation banks depend on government policy for their existence and smooth functioning. The ability to charge for wetlands services itself relies on tightly enforced wetlands protection regulations. Regulatory agencies must also determine whether the wetland functions and values provided by a bank adequately compensate for the damage caused by a particular project. In November 1995, five federal agencies issued a joint “Guidance for the Establishment, Use and Operation of Mitigation Banks.” Since that time,

▼  
 Wetlands banking could help compensate for easement provisions that restrict an investor's timber revenue.  
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large-scale commercial wetland banks have emerged in anticipation of selling credits to future projects with wetland impacts. More than 300 wetlands mitigation banks now exist nationwide (Davis 2004, personal communication).

Most banks generate credits for restoring, expanding or constructing new wetlands, but regulators may also allow credits for permanent protection of existing wetlands. Significant questions persist as to whether banks should be allowed to sell credits before their projects are fully functional, how to measure wetland function, and how to ensure permanence of constructed wetlands.

Early transactions tended to be measured in acres of generic wetlands, but increasingly sophisticated techniques are being developed that measure specific wetland functions and will reward more effective management. Because high-quality wetlands restoration generates more saleable credits, wetlands banking entrepreneurs have an incentive to provide truly effective wetlands protection. One-time off-site mitigators, on the other hand, are more likely to expend the minimum effort required and seldom provide long-term management.

Because forested wetlands tend to be patchy in distribution, a wetlands bank is unlikely to provide sufficient funds for large-scale forest conservation projects. But for the right special situation, wetlands banking could help compensate for easement provisions that restrict an investor's timber revenue.

**Wildlife Habitat Mitigation**

As with wetlands mitigation, parties who harm threatened or endangered species may be required to compensate society for the damage caused by their actions. Initially, compensation occurred after-the-fact. The *Exxon Valdez* oil spill, for instance, drew widespread public attention to cash payments by parties responsible for massive wildlife impacts.

The East Coast has seen lesser-known

smaller-scale cases of mitigation for habitat damage. On January 19, 1996, an oil barge grounded on Moonstone Beach in southern Rhode Island after the tug pulling it caught fire. The barge spilled an estimated 828,000 gallons of home heating oil, which destroyed shellfish, damaged piping plover nesting habitat, and killed more than 400 loons and eiders. The Rhode Island Department of Environmental Management, National Oceanic and Atmospheric Administration, and U.S. Fish and Wildlife Service (the "Trustees") negotiated a financial settlement with the barge and tug owners.

The Trustees agreed that full compensation would require protecting sites for 33 nesting pairs of loons and 315 eider nesting sites, among other actions. An environmental assessment estimated the full value of loon damages at \$7.5 million, and the final settlement reached in 2000 provided \$3 million to fund loon conservation. The Trustees agreed that on-site mitigation was impractical and that loons would benefit most from protection of nesting habitat along lakeshores in northern New England.

The U.S. Fish and Wildlife Service administers the North Cape Loon Restoration Fund funded by the settlement, which has protected lakeshore loon nesting sites in northern Maine. The fund contributed \$500,000 to the Pingree easement purchase in northern Maine, completed in 2001, and also helped finance the West Branch of the Penobscot River project, also in Maine, completed in early 2004.

Aside from compensatory funding for negligent actions, mitigation can also generate conservation funding through advanced planning for projects that will affect critical habitat. Under section 10 of the Endangered Species Act, the U.S. Fish and Wildlife Service can grant permission to develop land of critical concern to endangered species only if the landowner agrees to mitigate the loss of habitat. Wildlife habitat banks, like wet-

lands banks, manage for particular environmental services in advance, then sell credits to projects that reduce habitat elsewhere. Habitat banking can potentially apply to a much broader array of forest types than is the case with wetlands banking.

In April 1995, California became the first state to embrace conservation banking as a means of conserving endangered species. Since then, many conservation banks have been established throughout the state, but especially in southern California, an endangered species hotspot. For more information on California's experience with wildlife habitat banking, see <<http://ceres.ca.gov/topic/banking>>.

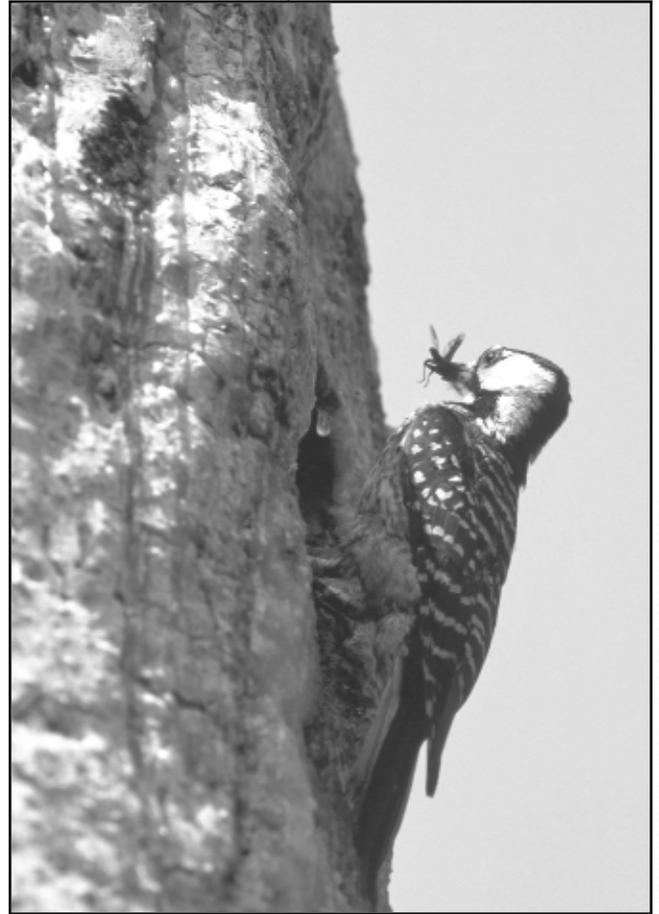
In May, 2003, the U.S. Fish and Wildlife Service issued "Guidance for the Establishment, Use, and Operation of Conservation Banks." Nationwide there are now more than 60 endangered species habitat banks (Davis 2004, personal communication). Unlike wetlands mitigation banks, which have tended to involve constructed wetlands, most habitat conservation banks protect and manage *preexisting* habitat that harbors a target species. The bank's saleable credits result from permanent ownership by a conservation organization or deed restrictions that perpetuate the critical habitat. Although habitat mitigation banks are still rare in the East, the examples that follow (highlighted by Environmental Defense at <[www.environmentaldefense.org/article.cfm?ContentID=151](http://www.environmentaldefense.org/article.cfm?ContentID=151)>) illustrate their use by both private and semi-public entities.

International Paper (IP) followed the mitigation banking model in its 1998 Habitat Conservation Plan for the Red-cockaded Woodpecker (*Picoides borealis*). Through this 30-year plan, developed in concert with the U.S. Fish and Wildlife Service, IP agreed to intensify management for woodpecker habitat on its Southlands Experimental Forest in Bainbridge, Georgia, which contains

1,500 acres of suitable habitat. IP's goal is to increase suitable habitat to 5,000 acres supporting 25 to 30 Red-cockaded Woodpecker clusters. From 1998 to 2003, management of Southlands increased the woodpecker population there from 3 males to 11 clusters with 42 birds total. As the number of Southlands clusters increases, IP can increase harvest on other lands it owns, trading off woodpecker clusters on a one-for-one basis.

Public agencies are frequently partners in mitigation projects. The North Carolina Department of Transportation contributed habitat mitigation funds to establish the 9,700 acre Palmetto-Peartree Preserve in eastern North Carolina. The project involved a broad coalition of partners, including the U.S. Fish and Wildlife Service, The Nature Conservancy, The Conservation Fund, the U.S. Army-Fort Bragg, North Carolina Wildlife Resources Commission, and several local governments. In addition to being managed for Red-cockaded Woodpecker habitat, the property will be used for limited timber harvest and ecotourism. See [www.ncdot.org/secretary/env-steward/partnerships/](http://www.ncdot.org/secretary/env-steward/partnerships/) and <[www.conservationfund.org/?article=2398](http://www.conservationfund.org/?article=2398)>.

Mobile County, Alabama provides an example of a semi-public agency using habitat mitigation banking. In 2001 the Mobile Area Water and Sewer System



USFWS/PHOTO BY JOHN AND KAREN HOLLINGSWORTH

Wildlife habitat mitigation funding from North Carolina's Department of Transportation helped purchase the Palmetto-Peartree Preserve that provides habitat for the Red-cockaded Woodpecker.

(MAWSS) established a conservation bank for the threatened gopher tortoise (*Gopherus polyphemus*). MAWSS owns 7,000 forested acres that protect public water supply sources and has agreed to manage 222 acres specifically for gopher tortoises. Landowners who want to build on tortoise habitat elsewhere in Mobile County can purchase credits from the bank. As of January 2003, landowners had purchased 35 credits in the gopher tortoise bank, and about 40 tortoises were established on the MAWSS conservation bank site.

Perhaps the biggest challenge for mitigation banks of all kinds is the cost of measuring and verifying the wetlands or habitat services provided. In particular, effective mitigation depends on maintaining benefits over time, so monitoring must extend into the indefinite future. As for many other conservation finance alternatives, transaction costs can be a deal-breaker.

For more information, contact Robert Bonnie at Environmental Defense or Adam Davis at Solano Partners, Inc.

### Carbon Sequestration

Carbon sequestration is a third forest-based ecosystem service that could produce cash returns through mitigation markets. Despite U.S. rejection of the Kyoto Protocol and lack of national commitment to reducing carbon emissions, both politicians and the business community increasingly recognize the reality of global climate change and the need for effective policies to reduce emissions of greenhouse gases. Kyoto Protocol negotiators discussed several options for flexible compliance, including carbon credit markets. Carbon offset markets offer a flexible system for meeting reduction targets and have gained some degree of acceptance from utilities and other industry sources. Fully functioning carbon markets, however, depend on federally enforced carbon reduction targets with penalties for noncompliance.

Carbon markets would be modeled on the “cap and trade” system of emissions permits used by the EPA since 1995 to allocate sulfur and nitrogen oxide emissions among utilities (<[www.epa.gov/air-markets/arp/overview.html](http://www.epa.gov/air-markets/arp/overview.html)>). Under this system, regulators issue permits for the allowable quantity of emissions, and these permits become transferable among sources through a market (the EPA uses the Chicago Board of Trade). Market trades ensure that those with the lowest abatement costs perform most of the emissions reductions, selling their permit allocations to the high-cost emitters. The system theoretically achieves targeted emissions reductions while minimizing the overall costs of compliance.

For carbon markets to function properly, the carbon purchased as an offset must meet several standards. To clarify each standard, a host of technical issues must be resolved.

- **additional:** The offset must represent a real increase of fixed carbon, compared to the status quo. What year constitutes the base line against which additionality is measured? Should fixed carbon be additional to the legal minimum of carbon emitted, to past practices of the land manager, or to industry averages?
- **verifiable:** It must be possible to measure the fixed carbon to ensure actual compensation for the carbon emitted by the purchaser of the offsets. For forest carbon, would increases in biomass, woody debris, and soil organic matter constitute sufficient evidence of sequestration? Because of the uncertainties involved in measuring sequestration, carbon offsets would most likely be traded at a discount, compared to more easily verified carbon emissions reductions.
- **permanent:** In order to function as a true offset, carbon must

remain sequestered for at least as long as the carbon emitted by the credit-purchaser remains in the atmosphere. Should forest-based carbon trades be backed by permanent easements guaranteeing that x tons of carbon per acre be maintained by all future owners?

Could insurance or bonding cover the risk of accidental or negligent release of sequestered carbon under contract as an offset to emissions elsewhere?

- **enforceable:** Penalties for breach of the carbon offset sales contract must be severe enough to ensure compliance. Who will monitor the forest management practices required to ensure increased sequestration? What responsibility does the forest manager have to compensate the buyer of carbon credits if carbon is released because of forest fire or other natural disaster, and who will enforce that responsibility?
- **non-leaking:** Leakage would occur if the sequestration method caused increased carbon releases elsewhere. If changes in forest management reduce current harvest, for instance, do higher current timber prices drive up the intensity of harvest on nearby land, with a consequent release of carbon or reduction in fixed carbon?

In spite of the lack of carbon regulation, to date voluntary trades worth \$300 million have already occurred, with buyers purchasing carbon credits as a public relations gesture and a hedge against future regulation (Davis 2004, personal communication). In 2000, for instance, Green Mountain Energy, a renewable energy company, paid the Pacific Forest Trust (PFT) \$6,000 for 2,500 tons of CO<sub>2</sub> credits (approximately 680 tons of carbon) to offset half the emissions resulting from corporate administration. These credits were

generated through management changes secured by easements on 5,000 acres of forestland (Pacific Forest Trust 2000). Experience with voluntary trades allows carbon markets leaders like PFT to work out the details of marketing carbon from forests.

Pacific Forest Trust's efforts include a multi-year research effort to document carbon storage in forests under various management regimes (ranging from reforestation to avoided deforestation to lengthening rotations, promoting retention of coarse woody debris, and protecting soil carbon stores). PFT modeling for land owned by MacMillan Bloedel showed that silvicultural methods with higher retention could store 14 to 111 tons more carbon per acre than clear-cutting. In the less productive forests of the northeastern United States, management changes might increase carbon uptake by one-half to one and one-half tons per acre per year compared to the status quo (Manion 2004, personal communication).

PFT is also testing mechanisms for marketing credits, including a carbon credit bank called the Forests Forever Fund, which offers documented carbon credits from private forests in the Pacific Northwest for sale to utilities and other carbon producers (<[www.pacificforest.org](http://www.pacificforest.org)>). PFT expects carbon payments to range from \$5 to \$40 per ton of carbon sequestered. If financed through annual rental payments, the shift to high-retention silviculture studied on MacMillan Bloedel land could generate about \$50 per acre per year if offsets were priced at \$10 per ton of carbon (Wayburn 1999).

Carbon purchase contracts might take a number of forms. A utility might purchase 200 tons of carbon one year for a one-time payment, leaving options open for the best way to offset its future emissions. Or a buyer might lock in an emissions offset solution by up-front payment or guaranteed annual lease over five or ten years, long enough to transition to

▼ Thus far, carbon trades are motivated by good public relations rather than regulatory compliance. ▲

alternative technologies that permanently lower emissions.

Compared to documenting the carbon impact of management changes on existing forests, planting trees in a deforested area produces easily documented increases in carbon uptake. Trees grow and take up carbon fastest in regions with high rainfall and long growing seasons. Hence, most of the actual carbon trades in the United States thus far have been payments by utilities for tree planting in the South. The Southern Company (with its affiliates Georgia Power, Alabama Power, and Mississippi Power), has been a leader in this effort. Through the National Fish and Wildlife Foundation, the Southern Company provides \$1 million per year starting in 2003 for long-leaf pine reforestation, including land purchase. Each project must document an increase in sequestered carbon, and The Southern Company will secure those carbon credits through long-term easements. See <[www.nfwf.org/programs/socollp.htm](http://www.nfwf.org/programs/socollp.htm)>.

Like other mitigation funding, carbon markets depend on regulations that require remedial action by those causing environmental damage. Thus far, carbon trades are motivated by good public relations rather than regulatory compliance, but this could change in the future. At the national level, in 2003 Senators John McCain and Joe Lieberman sponsored the Climate Stewardship Act (S. 139), that would have established a mandatory nationwide carbon dioxide cap-and-trade program and required emissions reporting. After a close 43-55 vote in the Senate, the bill was re-referred to the Senate Committee on Environment and Public Works, but the sponsoring senators hope to reintroduce it after building national support.

In the Northeast, both Massachusetts and New Hampshire have passed legislation that requires coal-burning plants to reduce greenhouse gas pollutants (as well

as nitrogen oxide, sulfur, and mercury). Massachusetts will allow forest-based sequestration to offset a portion of utility emissions and is currently developing regulations to govern this market. At a broader regional scale, New York Governor Pataki is leading efforts of the northeastern governors to develop a carbon cap-and-trade program for power generators in the region. The group hopes to have a program in place by 2005. See <[www.state.ny.us/governor/press/year03/july24\\_03.htm](http://www.state.ny.us/governor/press/year03/july24_03.htm)>.

Forest protection advocates should participate in the development of regulations governing carbon, to ensure that documented forest carbon offsets are considered. The Union of Concerned Scientists is tracking carbon markets measures and has explored the potential to cooperate with conservationists to develop forest offset markets. Although carbon offset sales are unlikely to generate sufficient funds to buy land outright, such sales could help finance purchase and monitoring of easements and/or make it financially feasible for landowners to comply with easements that restrict harvest.

For more information, contact Michelle Manion at the Union of Concerned Scientists or Michelle Passero at the Pacific Forest Trust.

**Dam Relicensing Through the Federal Energy Regulatory Commission**

Our final environmental mitigation example involves damage to waterways caused by hydroelectric facilities. Dams are licensed by the Federal Energy Regulatory Commission (FERC) for a term of 30 to 50 years. Many existing dams were licensed before environmental regulations applied and will soon require relicensing. Conservation groups who participate in the relicensing process have negotiated settlements that mitigate the impacts of dams through both on-site land protection and funding for off-site mitigation.

Dam owners must apply for relicensing two years before their previous license expires. FERC uses one of three approaches to the relicensing process: traditional, alternative, and integrated. Each approach presents opportunities to participate at various stages of the process, from advance scoping teams, to formal intervenor status, to public comments on Draft Environmental Impact Statements. For details on relicensing procedures, see <[www.ferc.gov/industries/hydropower/indus-act/hl-over.asp](http://www.ferc.gov/industries/hydropower/indus-act/hl-over.asp)>.

American Rivers has been particularly active in FERC relicensing, and its advocacy guide is available at <[www.amrivers.org/hydropowerdamreform/hydropowerreform.htm](http://www.amrivers.org/hydropowerdamreform/hydropowerreform.htm)>. The Property Rights Foundation of America, Inc. (<<http://prfamerica.org>>) also provides information from a different political angle about how to participate in the process, including a list of dams up for relicensing through 2010.

The following examples describe provisions of several recent FERC dam relicensing processes in the eastern United States that involved purchase of land or easements. These settlements also included a number of other provisions (not described here) related to minimum flow, restoration of riparian vegetation, etc. These examples are provided by American Rivers through its Web site.

#### **Deerfield River Settlement (Massachusetts and Vermont)**

The New England Power Company (NEP) will grant term conservation easements for the length of the license to qualified government or nongovernment land management organizations to provide for the continued preservation in a natural state of 18,335 acres of riparian and watershed lands owned by the company. The intent of the conservation easements is to protect the aesthetic quality, forest, and other natural resources of the lands from uses that would conflict with preservation. The

holders of the conservation easements will be selected by NEP, the Conservation Law Foundation, and the Appalachian Mountain Club through unanimous decision. NEP will reimburse the easement holder's reasonable costs for monitoring and enforcing the terms of the conservation easement and give the holders an option to purchase, at fair market value, easement lands that are not required for electrical generation and transmission purposes.

#### **Beaver River Settlement (New York)**

Niagara Mohawk will deposit \$80,000 within one year of FERC license acceptance into a Beaver River Fund. Niagara Mohawk will contribute at least \$14,000 annually to the Beaver River Fund for the first 15 years after license acceptance, and \$20,000 annually for the following 15 years. All or part of the initial \$80,000 will be used to facilitate the state's acquisition of conservation easements and fee title to reservoir shoreline, sand, and gravel rights along a bypassed stretch of river and other Niagara Mohawk lands of special public interest. The remainder of the Beaver River Fund will be used within the Beaver River Basin for projects and services including public education, ecosystem restoration and protection, natural resource stewardship, facility maintenance, and additional public access to outdoor recreational resources. A council made up of signatories to the settlement will determine how these funds are allocated.

#### **Penobscot River Relicensing (Maine)**

In its draft environmental impact statement for the West Branch of the Penobscot River in Maine, FERC recommended a 200-foot expansion of project boundaries around all reservoirs of the Ripogenous and Penobscot Mills Hydroelectric projects. The expansion would include a 200-foot building setback (prohibiting all residential

and/or commercial development within the area) and a 100-foot vegetative buffer (preventing clear-cutting and/or vegetation removal in the proposed area). These measures would preserve the wilderness character of the area for the 130,000 people annually who visit the Penobscot's West Branch for recreation or sightseeing. Riparian corridors, bald eagle habitat, and water quality would also be protected. In addition, the existing conservation easement on the West Branch, located below the Ripogenous Project, would be expanded.

**Pigeon River, Walters Hydroelectric Project (North Carolina and Tennessee)**

Carolina Power and Light operates the Walters Hydroelectric dam on the Pigeon River. The generating facility involves dewatering of a 12-mile stretch of the Pigeon River, the basin of which includes part of the Great Smoky Mountains National Park. After operating on annual license extensions from 1976 through 1994, Carolina Power and Light reached a settlement with FERC and intervenors.

In the settlement, Carolina Power and Light agreed to release water from the project reservoir into the dry section of the Pigeon as soon as dioxin levels in the 340-acre Waterville Lake reservoir drop to an agreed standard. Until those releases can be made, Carolina Power and Light will make contributions to the Pigeon River Fund. This fund supports activities that provide direct benefits to surface water quality, fish and wildlife

habitat, fishery management, and public access in or near the Pigeon River and French Broad River Basins. Although the most prevalent projects involve education or pollution control, the fund has also been tapped to purchase greenway easements. Carolina Power and Light made an initial contribution of \$1 million in 1996 with lesser annual payments defined in the 1994 settlement. (See <[www.pigeonriverfund.org/guidelines.htm](http://www.pigeonriverfund.org/guidelines.htm)> for details about fund operations.)

**Wind Power Licensing**

Many conservation groups are struggling to develop coherent policies that both support the use of renewable wind energy and protect pristine ridgelines from the roads, power lines, lights, and other development necessary for industrial-scale wind generation. Negotiations over wind farm permitting could follow the model of hydroelectric license negotiations. Permits could require permanent protection of remote ridgelines to mitigate damage caused on-site. Technological advances, rising energy costs, and a federal production tax credit of 1.5 cents for each kilowatt-hour of wind energy generated have recently changed the economics of wind power. New wind farm proposals all along the Appalachian chain invite development of this mitigation option. Unlike hydropower projects, the FERC has no jurisdiction over wind power facilities. In order for wind-power mitigation to support land protection, public utility commissions would need to develop mitigation procedures in each state.

## Partnering with Private Forest Investors

Ambitious landscape-scale protection efforts are unlikely to generate sufficient dollars through massive fund-raising campaigns, low-interest loans, government incentives, and land-based revenue to purchase outright all the acres of interest. An effective strategy for the “working lands” that provide buffers around and connections between highly protected reserves involves working with existing private landowners who have compatible goals. By purchasing only the most critical resources or land rights, conservation dollars can protect a broader landscape. Depending on the specific arrangements, working with industrial or investor owners can be viewed as a way to raise new conservation dollars by broadening the base of partners, or as a way to reduce costs by targeting available dollars to protection of only the highest-priority resources.

Traditional forest industry landowners increasingly see conservation partnerships as a way to increase financial liquidity and lower landholding costs without selling timberlands. One of the largest transactions was announced in April 2004 by International Paper (IP), the Conservation Fund, and the state of New York. IP agreed to sell easements on 255,000 acres of its land in the Adirondacks region to the state, with the Conservation Fund providing bridge financing until state (Environmental Protection Fund) and federal (Forest Legacy) funds are secured. The purchase is expected to occur over three years, for a total cost of about \$25 million. The easement restricts future development, provides public access to important recreational sites, protects key river corridors and wildlife habitats, and requires adherence to Sustainable Forestry Initiative (SFI) standards. After the easement sale, IP will pay lower property taxes because of the lower assessed value,

with the state compensating the 34 host towns for lost property tax revenue.

Beyond working with industrial owners, opportunities for conservation partnerships also exist with the Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) (often lumped together as institutional investors) that have emerged as the primary buyers of large forestland tracts. Many of these new forestland investment firms present themselves as responsible stewards eager to cooperate with conservation interests to protect resources. As TIMOs purchase new acreage, or when they cash in their investments after a typical 10- to 15-year holding period, many of them consider easement sales to be a key source of income from the transaction.

For a detailed discussion of forestland investments, including ownership trends and timberland transactions, see Appendix C, page 56.

### TIMOs as Conservation Partners

A conservation partnership with a forest investment firm requires research into the firm’s history and performance. Not all TIMOs operate identically. Some have a permanent staff of experienced foresters, while others contract out forest management. Some have a long track record of stable ownership, while others have emerged recently and have little forest management expertise. If head-office financial managers, rather than on-the-ground foresters, direct forest planning, then immediate cash return may take precedence over long-term forest condition (Best and Jenkins 1999).

According to Best and Jenkins (1999), a forest investment company geared toward long-term sustainable management and resource protection should minimize debt, emphasize capital appreciation over harvest income, manage for longer-term investment life, and minimize tax obligations that put pressure on the resource. Two examples from New

England illustrate the potential for conservation interests to partner with the right timberland investor to achieve the objectives of both parties.

New Hampshire based Lyme Timber Company is one TIMO that focuses on partnerships with conservation organizations. Lyme typically acts on behalf of a group of investors who own shares in a forestland parcel, with ownership often structured as a Limited Liability Corporation (LLC).

Lyme Timber Company's participation in the Connecticut Lakes Headwaters project in northern New Hampshire provides an example of how conservation groups and TIMOs might work together. This complex project involved the initial sale in 2001 by International Paper Company of more than 171,000 acres of forestland (about 3 percent of the state of New Hampshire) to the Trust for Public Land (TPL). Lyme participated early in the project by lending bridge funds to TPL to cover its costs of holding the land during the two-year process of seeking public input, making plans for the property, and putting together a permanent financing package.

Lyme Timber Company eventually purchased roughly 146,000 acres of working forest, with an easement held by New Hampshire's Department of Resources and Economic Development. The easement prohibits development, guarantees public access, and mandates sustainable forestry practices. Funds for the easement purchase came from a combination of federal and state public funds, private foundations, a local bank, and a variety of individual donations. By paying a lower price for land encumbered by the state-held easement, Lyme Timber can provide an acceptable return to investors while following easement restrictions. The remaining 25,000 acres of land, designated as a natural area, were purchased by The Nature Conservancy (TNC) and later resold to the New Hampshire Fish and Game

Department, with an easement held by TNC.

Hancock Land Company (not related to Hancock Timber Resource Group) plans to fill a similar niche in Maine. Although a typical TIMO attracts investors who own shares in a variety of properties throughout a region, the country, or the world, Hancock Land Company plans to work with high-net-worth individuals who seek exclusive ownership of forestland tracts. This approach involves higher risk for the landowner, but it appeals to investors who like the idea of visiting, and influencing management of, their own land.

Hancock Land Company sees its niche in "mid-cap" investments of \$200,000 to \$1 million, purchasing forest parcels from 1,000 to 10,000 acres in size. At this scale, the entire purchase price can be raised by one individual rather than by a group of shareholders. Yet the scale is sufficient to repay the transactions costs of conducting inventory, investigating property title and rights-of-way, etc.

After purchase, Hancock Land Company contracts with owners to manage their property and earns revenue from three sources: a 4 percent acquisition fee, a small annual maintenance fee for ongoing management, and a percentage of timber harvest or other land-based revenue. Certification appeals to many socially responsible investors who want to be assured of responsible forest management for their land. Hancock is certified under the Forest Stewardship Council system as a resource manager, so it can offer certification services on lands it manages for other owners.

In addition to managing for timber, Hancock Land Company develops a variety of nontimber revenue sources for lands it manages, from cell towers and gravel pits to sale of conservation easements. Hancock has developed expertise in the sale of spring water trucked to commercial bottling plants. Hancock sees

bottled spring water as a growing market and water sales as an important future revenue source for forestland owners.

In the future, Hancock Land Company expects to work with conservation groups on joint purchases. Hancock finds it challenging to involve outside investors in these kinds of projects, which require substantial up-front investments for very long-term returns. Yet Hancock expects that, as more projects succeed, investor interest will increase.

Hancock Land Company’s participation in the Tumbledown Mountain-Mount Blue project in western Maine provides a possible model for this type of collaboration. In 1999, the Tumbledown Conservation Alliance formed, with a goal of protecting from development 30,000 acres surrounding Mount Blue State Park and Tumbledown Mountain. In 2001 Hancock Land Company purchased nearly 12,000 acres of land in the region from Hancock Timber Resources Group. In 2002, the state of Maine purchased conservation easements on 7,800 acres of this land, which Hancock Land Company will continue to own and manage. The state also purchased 3,800 acres in fee, including the summit of Tumbledown Mountain. Hancock Land Company purchased an additional 3,300 acres of nearby land from the Trust for Public Land, with conservation easements held by the state, bringing the total acres of protected land to 15,000. As a result of this project, lands surrounding Tumbledown Mountain, a popular hiking destination, and Mount Blue State Park, will remain forever undeveloped. The most fragile high-elevation areas will be reserved under state ownership, with future public access assured.

**FIMO or CTIMO**

Beyond partnering with existing TIMOs, the Pacific Forest Trust and oth-

ers across the country have suggested forming special-purpose for-profit TIMOs, variously called a Forest Investment Management Organization (FIMO) or a Conservation Timber Investment Management Organization (CTIMO). Socially responsible investors, including foundations making program-related investments, are likely sources of capital for FIMOs. These investors might be willing to accept lower initial returns to support the public values provided by this type of management.

A FIMO/CTIMO might focus on long-rotation forests with low initial returns leading to a potentially high pay-off from harvest of large-diameter high quality timber. Long rotations might also enable the FIMO/CTIMO to earn carbon credits or habitat mitigation payments for species that depend on old-growth conditions. The Pacific Forest Trust characterizes some of the major differences between a conventional TIMO and a FIMO that practices what PFT calls “stewardship forestry” as shown in Table 2:

**TABLE 2.**  
**Comparison of Conventional and Stewardship Forestry**

Conventional TIMO	FIMO/CTIMO
<ul style="list-style-type: none"> <li>• 60% of returns through timber harvest</li> <li>• 40% of returns through asset appreciation</li> </ul>	<ul style="list-style-type: none"> <li>• 35% of returns through timber harvest</li> <li>• 50% of returns through asset appreciation</li> <li>• 15% of returns through ecosystem services</li> </ul>
<ul style="list-style-type: none"> <li>• Simplifies forest</li> <li>• Manages for maximum fiber output</li> <li>• Emphasizes quantity</li> <li>• Reduces volume of standing timber</li> <li>• Environmental protection is a cost</li> </ul>	<ul style="list-style-type: none"> <li>• Restores forest complexity</li> <li>• Manages for multiple products</li> <li>• Emphasizes quality</li> <li>• Increases volume of standing timber</li> <li>• Environmental protection is a benefit</li> </ul>

*Adapted from <[www.pacificforest.org/policy/index.html](http://www.pacificforest.org/policy/index.html)> and Best and Jenkins 1999*

**Ecotrust Forests, LLC**

In the Pacific Northwest, Ecotrust recently launched a new company that will follow the FIMO/CTIMO model. With headquarters in Portland, Oregon,

Ecotrust is dedicated to building a restorative economy in the region from Alaska to California. Through its \$20 million Natural Capital Fund, Ecotrust invests in key restorative economy busi-

nesses, and \$1 million of this fund will help launch the new Ecotrust Forests, LLC.

Ecotrust Forests, LLC will acquire Pacific Northwest coastal rain forest in the United States and Canada, in parcels of at least 10,000 acres. Land will be managed by Ecotrust Forest Management, Inc., a wholly owned subsidiary of Ecotrust, which will charge a 1 percent management fee. Consistent with the Ecotrust emphasis on restoration, the new LLC will target purchase of second-growth forest in watersheds of high ecological value, par-

ticularly those of importance to Pacific salmon (*Oncorhynchus* spp.). Timber management will follow an ecological forestry model that over time develops large-diameter high-value trees, retains dead snags and downed logs, and mimics natural openings for landscape diversity. The last sentence of the prospectus sums up the management philosophy of Ecotrust Forests, LLC: "Where others see timberlands, we see a forest."

Ecotrust Forests, LLC is seeking investors looking for long-term stable returns, including high-net-worth individuals with a commitment to social and ecological sustainability and families and foundations interested in mission-related investing. A total of \$8 million has been raised so far toward the \$12 million goal

before commencing forestland purchases. The LLC expects to earn a 7 to 9 percent return on capital, with 6 percent from timber and 1 to 3 percent from ecosystem services, nontimber forest products, recreation income, easement and conservation land sales, and other nontimber returns.

In addition to Ecotrust Forests, LLC, similar conservation-oriented forest investment firms have recently been established by Lowell, Blake and Associates in Boston (LBA Forest Stewardship Initiative, LLC and Vermont Timber Associates, LLC) and by Forest Legacy Investments, LLC in Seattle and Portland.

For more information, contact Bettina VonHagen at Ecotrust.

### Socially Responsible Investment

TIMOs act in the interest of their investors. When these investors demand maximum return on investment, the TIMO has a fiduciary responsibility to deliver. This responsibility may limit the ability of the TIMO to enter into some kinds of land-protection partnerships. If, on the other hand, investors hold nonfinancial goals as more important than maximum return, those nonfinancial goals open the way to conservation-friendly investments consistent with the FIMO model. This section summarizes trends in socially responsible investment (SRI) that point the way to sources of funding for conservation-based forest ownership.

Individual and institutional investors committed to environmental protection may demand that their investments support the causes that they support. According to Claros, a research firm in Great Britain that specializes in socially responsible investing, property ownership gives investors a great opportunity to control the impacts of their investment. Claros points out that, because property management is at the core of many debates about social and environ-



PHOTO BY GREG VAUGHN

Ecotrust Forests, LLC will protect salmon habitat in the Pacific Northwest through purchase, restoration, and harvest of key tracts of forestland.

mental policy, pension fund managers who ignore property management may be putting future returns at risk. Specific environmental factors flagged for SRI fund managers by Claros include climate change (need to offset CO<sub>2</sub> emissions) and protection of open space (<www.claros.com>).

According to the Social Investment Forum (2001), socially screened portfolios in the United States exceeded \$2 trillion in 2001, which constitutes more than 12 percent of total professionally managed assets. Socially screened portfolio assets grew 35 percent since 1999, while total professionally managed assets grew only 22 percent. There are two basic types of socially screened investments: mutual funds (pool investments from a variety of institutions and individuals) and individual accounts (managed for an institution or person).

### **Mutual Funds**

More than 181 mutual funds throughout the country now offer socially screened funds, with \$136 billion under management (Social Investment Forum 2001). Mutual funds generally use negative screens (avoiding investments in tobacco or nuclear power, for example), rather than positive screens that support responsible enterprises. However, "in recent years, many socially responsible portfolios have moved beyond selecting companies that are working to halt their negative environmental and social impacts to choosing companies that are actively working to improve their social and environmental performance" (Social Investment Forum 2001).

A few mutual funds do have a primary commitment to environmental concerns. Green Century Funds was founded in 1991 by a group of nonprofit environmental organizations organized as Paradigm Partners (<www.greencentury.com>). Its funds are managed by Green Century Capital Management of Boston, and it currently has slightly over \$70

million in its Balanced Fund (Green Century Funds 2002).

Although it has no real estate investments, sustainable forestry seems quite compatible with Green Century Fund's mission. According to its prospectus, "the environmentally responsible companies in which the Balanced Fund invests have clean environmental records; many also make positive contributions toward actively promoting a healthier environmental future". One of its shareholder advocacy campaigns recently convinced British Petroleum to drop out of a lobby group promoting oil drilling in the Arctic National Wildlife Refuge.

Portfolio 21, with about \$22 million in worldwide investments, is another mutual fund with a focus on environmental sustainability. It is advised by the Progressive Investment Management Corporation of Portland, Oregon. According to its Web site "ecological pressures such as global warming, population, consumption, and resource depletion are having a real and increasing effect on business and the world. The classic response of business has been to view environmental initiatives as harmful to the economy and the bottom line. However, a growing number of corporate leaders disagree (<www.portfolio21.com>)." This fund owns shares in several Scandinavian forest products companies, in UBS (whose subsidiary, UBS Timber Investments, owns timberland worldwide), and in the British Land Company, a U.K. real estate developer and manager (Portfolio 21 2003).

A third environmentally screened mutual fund has been developed by the Sierra Club and San Francisco-based Forward Management LLC. In 2003, the Sierra Club began supplying screens for two environmentally focused mutual funds managed by Forward Management, Sierra Club Balanced Fund and Sierra Club Stock Fund. In exchange for this service, the fund manager pays the Sierra

Club a royalty based on a percentage of management fees.

Four of the eight priorities that make up the Sierra Club screen are “protecting the wildlands, stopping urban sprawl, ending commercial logging on federal lands, and stopping global warming” (Sierra Club Mutual Funds 2003). The description of the fund states that “in the last century, there have been an increasing number of threats that have contributed to the exploitation of our natural resources. Pollution, logging, and mining are just a few. Our forests, mountains, deserts and wetlands are suffering, and if we do not take more appropriate actions now, we will eventually lose what remains today” (<<http://sierraclub-funds.com/index.htm>>).

A mutual fund pools many small investments to raise substantial capital. Individuals interested in forest conservation can deposit modest amounts in funds like the three examples just cited, and put their dollars to work to support their values. A fund with a clear social and environmental mission might purchase shares in a conservation-based TIMO, for instance, or might even purchase land outright and manage it to offset carbon emissions from other investments.

### **Individual Accounts**

Aside from a few specialized mutual funds, conservation-based investing might best focus on the \$1.87 trillion in individual professionally managed accounts, which grew 40 percent from 1999 to 2001. Individual accounts are established by religious organizations, municipal and state governments, unions, foundations, universities and

colleges, insurance companies, corporations, and individuals.

These accounts allow an institution or individual to develop a customized investment screen consistent with its particular values. As one example, Citizens Funds of New Hampshire finds that many 401(k) pension plans are requesting investment screens for fund options offered to employees. According to Citizens Advisers CEO John Shields, “Citizens is finding, particularly among the foundations and endowments, that clients want to align their investments with the values of an organization, so that, for example, the American Cancer Society isn’t investing in Phillip Morris” (St. Goar 2002). Issue-based screens have also become popular with clients of Citigroup Asset Management. According to Linda Descano of Citigroup (2002) “a client’s suitability test may rest principally on a company’s policies relating to clear cutting and deforestation [for example].”

Within the general category of individual accounts, many college endowments already have substantial forestland investments, and student and faculty advocacy might convince trustees to broaden college support for protection of special resources on those lands. University of Maine Green Endowment Forests, Yale School Forests, and the Dartmouth Second Land Grant (dated 1807) may serve as models for forestland managed by college endowments. Middlebury College has also received gifts of forestland and may consider new forest investments as a means of offsetting carbon emissions from college operations.

## Unbundling Property Rights to Reduce Conservation Costs

Partnerships with TIMOs or FIMOs provide indirect funding for land protection by reducing the costs of conservation. These partnerships work by allowing purchase of partial land rights by profit-making investors, with conservation dollars specifically targeted to critical public values. The following examples illustrate various ways of reducing the need to raise funds up front by separating ownership of individual land rights.

### Large-Scale Conservation Easements

Landscape-scale conservation tools include large-scale easements that may be held by nonprofit organizations, by governments, or by several entities jointly. Easements vary widely in their provisions and thus in purchase and monitoring cost. An easement involving only sale of development rights imposes few management burdens and would thus be acceptable to the widest range of landowners. Public access easements might add substantial management costs and require flexibility to avoid user conflicts (e.g. timing timber sales to avoid roads heavily used during hunting season). More restrictive easements (for example those designating no-harvest reserves, setting minimum forest stocking, or requiring management plan approval) place more burdens on the landowner and will thus cost more to purchase and monitor. At some balance point (likely well short of wilderness-like management), fee purchase will make more financial sense than easements as a protection strategy.

Over the past several decades, conservation easements have reached new levels of size and complexity. The 750,000 acre Pingree easement purchased by the

New England Forestry Foundation in 2001 set a new precedent for scale of easements. Recent large-scale examples include a 282,000 acre easement on the West Branch of the Penobscot purchased by the Forest Society of Maine and a New York state planned purchase of easements on 255,000 acres of International Paper land in New York State's Adirondack region. The four Northern Forest states of Maine, New Hampshire, Vermont, and New York together had more than 2.5 million acres under conservation easements by 2004 with over 1.5 million of those acres in Maine (Kingsley et al. 2004).

Increasingly, institutional and forest industry timberland owners see sale of conservation easements as an integral part of total financial returns to land ownership. Each time land changes hands, transaction costs must be covered; and prices rise to cover these costs. To minimize purchase costs, conservation buyers are increasingly seeking standing as partners with TIMOs in land purchases, rather than paying a higher price through a later transaction (sometimes referred to as buying wholesale rather than retail).

Several organizations are exploring ways for forest certification to complement easements. The Forest Stewardship Council U.S. (Ervin 1999) suggests, for instance, that easement language might specify that forests will be certified by an acceptable system so as to build public confidence in the standards of a working forest easement. Easement holders and certifiers might also achieve economies by cooperating in initial site inspections, stakeholder involvement, management plan review, and other information-gathering and monitoring activities. More recently, the Rainforest Alliance (Newsome, 2002) suggests that certification staff might review and approve management plans required under conservation easements and monitor easements on a contract basis, even for

▼  
 When easements are used to meet an immediate land-protection need, further protection through fee purchase remains a future option.  
 ▲

properties not currently certified. Frequent visits to neighboring properties for assessments or certification renewals would reduce the cost of this service.

When easements are used to meet an immediate land-protection need, further protection through fee purchase remains a future option as additional funds become available. To make efficient use of limited funds, this approach must first be affordable (easements must be much less costly than fee purchase); second, it must effectively achieve conservation objectives; and third, it must be enforceable in the long term for a reasonable cost.

The future option of full fee purchase has its own risks. Limited experience with large-scale easements makes it difficult to predict their impact on the future market price of land. Theoretically land under easement will always sell at a substantial discount below similar unencumbered property, because the sale includes only a portion of the complete bundle of land rights. In fact, if the future brings a declining forest products economy, land values may fall for property that cannot legally be converted to alternative uses. (The permitted “use value” is a smaller and smaller percentage of fair market value.) In this case, conservationists have little to lose by using easements to stretch available funds across more acreage. The land remains as intact forest, and at some future date funds may be available to purchase the remaining property rights for parcels of high public value at prices little inflated over today’s prices.

When easement costs approach the cost of fee purchase, usually the case in areas with substantial development pressure, some conservation groups fear they will essentially “pay twice” for the land, buying easements today and later purchasing remaining fee rights at much higher prices. Future land prices may well escalate, because of higher timber values or the emergence of new high-

value land uses unrestricted by the easement. In this case, immediate full fee purchase may be the best option. Substantially more public funds may be required to purchase land in fee beyond the dollars already invested in an easement.

**Separate Sale of Timber Rights**

Typical models of partial ownership by conservation interests leave fee ownership in the hands of forest industry or timber investors, with conservation easements (essentially development rights or restrictions on landowner use including forestry practices) held by a nonprofit or public agency. Another model developed in Tennessee’s Cumberland Plateau region reverses this model. In this case, the state owns the underlying fee or surface rights, and a TIMO owns timber rights, subject to restrictions included in a shared use agreement.

In 2003 the Conservation Fund, with assistance from the Nature Conservancy, Doris Duke Charitable Foundation, other nonprofits, and several government agencies, developed a complex and ambitious plan to conserve 74,000 acres of land owned by International Paper on Tennessee’s Cumberland Plateau. The Tennessee Wildlife Resource Agency now owns surface rights in the Sundquist Wildlife Management Area, and the Conservation Fund purchased timber rights, which it later resold to Renewable Resources, LLC. Mineral rights are controlled by another party through long-term leases that predate the conservation purchase. (When the mineral rights lease sunsets, the rights will revert to the state of Tennessee as surface rights owner).

This approach to separate sale of surface and timber rights gives the public ultimate control over disposition of the land and protects it from potential price inflation by purchasing before the development value of the land increases. The

state also retains a right of first refusal should Renewable Resources choose to resell the timber rights in future. Yet because much of today's land value resides in the timber, the sale of timber rights greatly reduces the capital that must be raised for land purchase.

Timber rights contracts, like conservation easements, can reflect restrictions that protect important values. Each additional restriction reduces the cash generated by the sale, however, and requires potentially costly monitoring. The Tennessee example is a case in point. Details are provided here in the spirit of learning from experience.

When the Sundquist Wildlife Management Area was formed, the state of Tennessee developed a shared-use agreement with the Conservation Fund as initial purchaser of timber rights. Although the Conservation Fund has since sold those rights to Renewable Resources, LLC, it retains the right to intervene in case of violations. The shared-use agreement specifies that forest operations will follow Sustainable Forestry Initiative (SFI) principles. SFI standards, developed by the forest products industry aided by an advisory board, include protection of habitat and water quality and, under the aesthetics criterion, set a limit of 120 acres on average size of clear-cuts. Both standards and monitoring procedures are weaker and less comprehensive than those for the FSC system.

Renewable Resources, LLC contracted timber management to Fountain Forestry, which has its U.S. headquarters in New Hampshire. Fountain Forestry is certified under the FSC system as a resource manager, but only for its New Hampshire operations. When timber harvest operations began under this arrangement in 2004, Tennessee Forest Watch, a local advocacy organization, reported several water quality violations. Fountain Forestry agreed to mitigate damage from the first harvest, but simi-

lar practices occurred in subsequent harvests (Murray 2004, personal communication). With responsibility split among the landowner (Tennessee Wildlife Resource Agency), the owner of timber rights (Renewable Resources, LLC), forest manager (Fountain Forestry), The Conservation Fund (shared-use agreement enforcer-of-last-resort) and the logging contractor, both oversight and liability for damage are unclear. The Conservation Fund is confident, however, that differences in interpretation of on-the-ground standards will be worked out over time, and that the Fund has the right to intervene if the agreement is violated (Boner 2004, personal communication).

The following suggestions are included for any future project using this model:

- Clarify the forest management standards governing timber harvest, (e.g. in this case whether protected riparian zones also count toward required buffers between clear-cuts).
- Clearly define lines of responsibility. (The shared-use agreement stipulates that the parties will support each other in case of third-party conflicts and will submit to binding arbitration in case of disagreements among partners. This provision was added to assure signatories that the Conservation Fund would not ratchet up standards subsequent to the initial agreement. Once the Conservation Fund resold timber rights, interested outside parties are left uncertain as to who will enforce



PHOTOS BY GARY M. FERRENCE, INDIANA, PA

By separating fee, timber, and mineral rights, a broad-based partnership (including the Tennessee chapter of the Rocky Mountain Elk Foundation) protected 74,000 acres of Tennessee's Cumberland Plateau from development. The new state lands will expand the potential range of Tennessee's recently reintroduced elk (*Cervus elaphus canadensis*).

management standards.)

- Provide continuous funding (perhaps through an endowment fund) for oversight by a credible third party.

For more information, contact Rex Boner at The Conservation Fund or Doug Murray at Tennessee Forest Watch.

### Forest Bank

The Nature Conservancy's Forest Bank approach also separates land from timber rights. Although this strategy does not finance conservation purchases, it can achieve conservation objectives without the need to purchase land or easements.

A Forest Bank leaves land in private ownership. Forest landowners essentially lease their timber rights to a regional "bank" in return for a guaranteed annual payment (commonly 4 percent of the initially deposited timber value per year, or the rate of return on five-year U.S. Treasury notes). This lease fee acts essentially as advance payment of timber revenue to forest bank depositors. Once an agreement has been signed, the forest bank assumes full control over harvest operations (guided by management plans developed in consultation with the landowner) and receives timber revenue. When a timber sale occurs, the landowner receives payment for the timber, minus previous lease payments and a 5 percent administrative fee. The timber value (the basis for calculating lease payments) is reassessed every ten years or after a harvest.

Every ten years or after a timber sale, the landowner has an option to withdraw from the lease agreement, subject to a penalty for early withdrawal that reimburses the forest bank for its investment in timber improvements. Along with a lease agreement, The Nature Conservancy also receives a right of first refusal on timber rights should the owner choose to sell. Landowners who

wish to sell before the end of their lease period give TNC 60 days notice, and TNC may then purchase the timber at its appraised value. In this case, TNC becomes full and permanent owner of the timber rights. The landowner still receives a royalty on any timber harvested, as a good-will gesture to acknowledge any inconvenience to the landowner resulting from harvest activity.

TNC has developed a manual to guide forestry operations of forest banks and ensure protection of critical resources it has inventoried on the land (Helm et al. 2002). The goal is to manage for high quality timber, as well as for a whole suite of nontimber values from biodiversity to water quality. By managing a cluster of regional properties, TNC can manage effectively for wildlife habitat, coordinate supply, achieve economies of scale, and develop specialty markets that appeal to conservation-friendly consumers.

In concept, a forest bank's timber revenue will cover the guaranteed payments to landowners plus all management costs. In reality, the initial organizational work requires substantial up-front investment. For future forest banks, these establishment costs should be lower. Because of conservative harvest practices, however, timber revenue is likely to lag behind payments to the landowner for some years. In the long run, the harvest of large high-quality trees in later years should repay this up-front investment. For these reasons, the forest bank approach does require considerable initial capital investment, although probably less than the cost of fee or easement purchase.

The Nature Conservancy has begun organizing banks in the Clinch Valley of Virginia and Tennessee (called the Conservation Forestry Program) and in the Blue River watershed of southern Indiana. The Clinch Valley Bank currently includes two large parcels (Rich Mountain Farm, 5,700 acres; and Clifton

Farm, 4,000 acres) owned by the Stuart Land and Cattle Company and several parcels purchased in fee by TNC. Program staff have developed a management plan in consultation with the landowners and have begun preparations for the first timber harvest.

Indiana's forest bank has 1,400 enrolled acres, with parcels averaging 90 acres in size and an average timber value of \$1,000 per acre. Payments to landowners range from \$11 to \$199 per acre per year, with an average of \$42 per acre. According to its business plan, the Indiana bank is projected to break even within 12 to 13 years. If enrollment reaches the planned 10,000 acres, the bank will require a total up-front investment of \$3 to \$5 million (Wilson 2004, personal communication), a cost roughly comparable to the cost of purchasing conservation easements.

For more information, contact Barry Wilson, The Nature Conservancy's operations manager for the Southern Indiana Forest Bank, or Steve Lindeman of The Nature Conservancy's Clinch Valley Conservation Forestry Program.

**Option to Buy or Right of First Refusal**

Purchase of easements reduces the immediate funding needed for a conser-

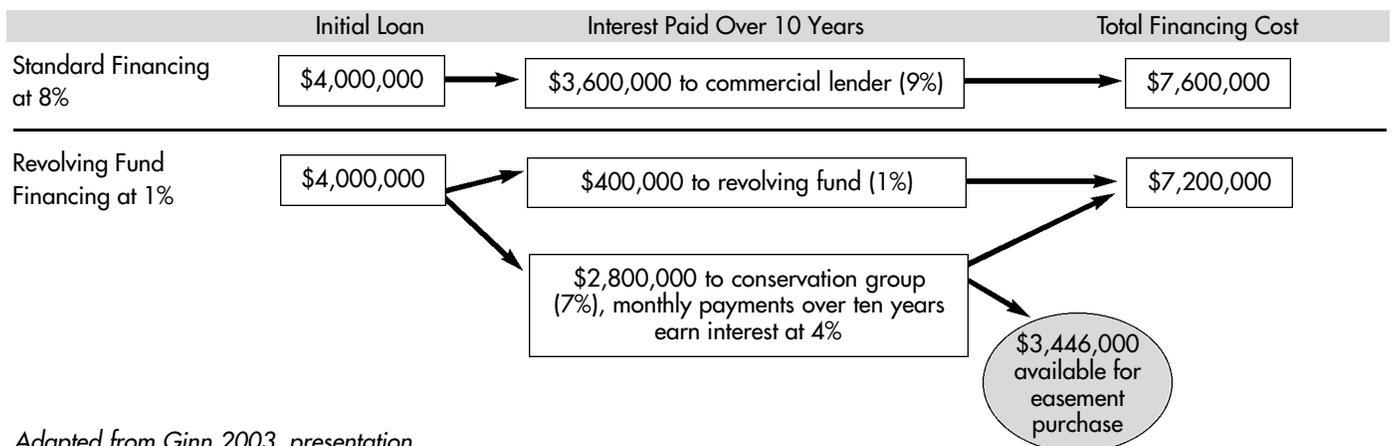
vation purchase. Purchasing options on property is another way to reduce the need for up-front funds. When the current owner has no immediate development plans, a conservation group or public agency can forestall threats of conversion or fragmentation by purchasing an option or right of first refusal on the land. Such an option buys time to raise funds from public and private sources to respond to the eventual resale of that land.

Figure 2 illustrates one creative approach to use of low-interest revolving funds and an option-to-buy to purchase easements in partnership with a timberland investor. At the request of a conservation group, a revolving fund might provide low-interest financing for a portion of a TIMOs purchase of land with high conservation value. For this simplified example, assume that the TIMO pays only interest for the term of the loan, with delayed repayment of principle at the end of the ten years. In return for an interest rate break, the TIMO conveys to the conservation organization an option to buy easements on the property, at a guaranteed price, when the land is sold in the future.

The TIMO pays interest at slightly below the full market rate (8 percent in this example), with interest payments

**FIGURE 2.**

**Easement Purchase with Low-Interest Revolving Fund Financing**



Adapted from Ginn 2003, presentation.

split between repaying the revolving fund at the subsidized rate (1 percent) and paying the remaining interest (7 percent) directly to a conservation organization or depositing to an escrow account. Those interest payments themselves will earn a return during the duration of the loan (4 percent in this example).

Depending on easement value, the accumulated interest payments might be sufficient to obtain easements at no further cost when the land is finally sold. This strategy eliminates the need for the conservation group to raise a large lump sum to purchase easements at the time the original land purchase is made.

Options-to-buy might include restrictions on land management practices to protect significant resource values. The Nature Conservancy recently contracted with a timber buyer in Maine who typically heavily cuts land and then subdivides for resale. TNC purchased an option on the land and an agreement

that the current owner would limit harvest in the most sensitive areas. Allowing the timber operation to occur before purchase reduced TNC's purchase cost (Ginn 2004, personal communication). Historically, buying forestland with depleted timber inventory made public purchase affordable for establishment of New York's Adirondack Park and the eastern national forests.

Right of first refusal can be combined with other conservation approaches to keep future options open. The state of Tennessee has right of first refusal on the timber rights on the Sundquist Wildlife Management Area, currently owned by Renewable Resources, LLC (see page 42 for project description). The immediate conservation need was to forestall development of the property at minimal cost, with land management practices a lower priority. If additional funds become available in the future, the state has an option to reunite surface and timber rights under full public ownership.

## Conclusion

Conservation innovation depends on an optimistic can-do attitude. But future success depends equally on a realistic assessment of results achieved in relation to costs. The innovations presented here have required a tremendous investment of dollars, time, and creativity.

Transaction costs, from organizational meetings to lobbying for regulatory changes, can add substantially to the total costs of conservation. Long-term monitoring of restrictive easements can also impose a tremendous burden on the easement holder. Less expensive conservation options require compromises in the degree of protection achieved.

The conservation community needs to employ not only creative new ways to raise funds or reduce costs, but also careful analysis to ensure that funds are well spent. Public funders, private donors, and investors need assurance that their dollars are carefully marshaled to buy the best possible conservation outcomes.

Only that assurance will guarantee sufficient financial support to meet the ever-increasing need. Conservation groups need to work together to carefully document the costs and returns, both initial and ongoing, of each land protection strategy. The work is not done when the deed is signed.

New conservation finance tools require a new set of skills seldom associated with land protection. Managing debt and investment capital requires different skills from those needed to solicit donations or survey land parcels. A new cadre of business and finance professionals has emerged to meet the need. In many cases, the individuals who invented the strategies outlined in this report have sacrificed personal gain to dedicate their considerable skills to conserving land for the good of others. As the eastern United States faces critical and irreversible decisions about maintaining our last wild spaces, we are fortunate that so many talented people are rising to the challenge.

▼  
The conservation community needs to employ not only creative new ways to raise funds or reduce costs, but also careful analysis so as to ensure that funds are well spent.  
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- Winder, J. 2004. Personal communication.

## Appendix A: Contacts

Bill Altenberg	Timberland Trails	(603) 447-1786 or 1-800-TRAILS8	waltenburg@aol.com
Connie Best	Pacific Forest Trust	(707) 578-9950	
Rex Boner	The Conservation Fund	(770) 414-0211 (404) 202-1267-cell	
Robert Bonnie	Environmental Defense	(202) 387-3500	rbonnie@ed.org
Adam Davis	Solano Partners, Inc.	(415) 454-8800	adavis789@sbcglobal.net
Kathy DeCoster	Trust for Public Land	(202) 543-7552	kathy.decoster@tpl.org
Bill Ginn	The Nature Conservancy	(207) 688-3333	wginn@tnc.org
Matt Hancock	Hancock Land Company	(207) 627-7637	mhancock@hancockland.com
Peter Howell	Open Space Institute	(212) 629-3981	phowell@osiny.org
Jim Levitt, Director	The Program on Conservation Innovation at the Harvard Forest	(617) 489-7800	james_levitt@harvard.edu
Steve Lindeman	The Nature Conservancy, Conservation Forestry Program	(276) 623-4007	slindeman@tnc.org
Michelle Manion	Union of Concerned Scientists	(617) 547-5552	mmanion@ucsusa.org
Will McDow	Environmental Defense	(919) 881-2601	Will_McDow/Environmental Defense@environmental defense.org
Doug Murray	Tennessee Forest Watch	(423) 562-5934	forestwatch@aol.com
Michelle Passero	Pacific Forest Trust	(707) 578-9950 x18	mpassero@pacificforest.org
Carl Powden	Vermont Land Trust	(802) 635-7611	carl@vlt.org
Steve Rohde	Northern Forest Center	(603) 715-1330	stevenrohde@hotmail.com
Keith Ross	LandVest	(978) 544-5767	
Al Sample	Pinchot Institute for Conservation	(202) 797-6581	alsample@pinchot.org
Kevin Schuyler	The Nature Conservancy	(703) 841-4588	kevin_schuyler@tnc.org
Russ Shay	Land Trust Alliance	(202) 638-4725 x305,	rshay@lta.org
Peter Stein	Lyme Timber Company	(603) 795-2129 x112	peterstein@lymetimber.com
Hank Swann	Wagner Forest Management	(603) 795-2002	hank@wagnerforest.com
Paul Trianowski	The Nature Conservancy	(423) 727-1294	
Tom Tuchman	U.S. Forest Capital	(503) 220-8103	tuchmann@usforestcapital.com
Bettina VonHagen	Ecotrust	(503) 467-0756	bettina@ecotrust.org
Steve Weems	Coastal Enterprises, Inc.	(207) 882-7552 x150	steveweems@ceimaine.org
Henry Whittemore	Maine Department of Conservation	(207) 287-4992	henry.whittemore@maine.gov
Barry Wilson	Southern Indiana Forest Bank	(812) 738-2087	bwilson@tnc.org
Jim Winder	Heritage Ranch	(505) 267-4227	jimwinder@heritage-ranch.com

**Appendix B: Helpful Web Sites**

American Forest Management	<a href="http://www.americanforestmanagement.com/index.html">http://www.americanforestmanagement.com/index.html</a>
American Rivers, Federal Energy Regulatory Commission Hydroelectric Dam Licensing	<a href="http://www.amrivers.org/hydropowerdamreform/hydropowerreform.htm">http://www.amrivers.org/hydropowerdamreform/hydropowerreform.htm</a>
Appalachian Mountain Club	<a href="http://www.outdoors.org">http://www.outdoors.org</a>
Coastal Enterprises, Inc.,	<a href="http://www.ceimaine.org/nmtc.htm">http://www.ceimaine.org/nmtc.htm</a>
New Markets Tax Credit Program Conservation Finance Alliance (international focus)	<a href="http://conservationfinance.org/">http://conservationfinance.org/</a>
Ecotrust Forestry Program	<a href="http://www.ecotrust.org/forestry/">http://www.ecotrust.org/forestry/</a>
Environmental Defense, Wildlife Habitat Mitigation Banking	<a href="http://www.environmentaldefense.org/article.cfm?ContentID=151">http://www.environmentaldefense.org/article.cfm?ContentID=151</a>
EPA Clean Air Markets	<a href="http://www.epa.gov/airmarkets/arp/overview.html">http://www.epa.gov/airmarkets/arp/overview.html</a>
Fall Line (on line newsletter for foresters and landowners)	<a href="http://www.flash.net/~falline/news.htm">http://www.flash.net/~falline/news.htm</a>
Federal Energy Regulatory Commission, Hydroelectric Dam Licensing	<a href="http://www.ferc.gov/industries/hydropower/indus-act/hl-over.asp">http://www.ferc.gov/industries/hydropower/indus-act/hl-over.asp</a>
Forest Capital Partners, LLC	<a href="http://www.forestcap.com">http://www.forestcap.com</a>
Forest Investment Associates	<a href="http://www.forestinvest.com/">http://www.forestinvest.com/</a>
Forest Systems	<a href="http://www.forestsystems.com">http://www.forestsystems.com</a>
Fountain Forestry, Inc.	<a href="http://www.fountainforestry.com/">http://www.fountainforestry.com/</a>
Friends of Dupont State Forest	<a href="http://www.dupontforest.com/">http://www.dupontforest.com/</a>
Global Forest Partners	<a href="http://209.50.232.155/index.html">http://209.50.232.155/index.html</a>
GMO Renewable Resources, LLC	<a href="http://www.gmo.com/">http://www.gmo.com/</a>
Green Century Capital Management (environmentally screened investments)	<a href="http://www.greencentury.com">http://www.greencentury.com</a>
Hancock Land Company	<a href="http://www.hancockland.com">http://www.hancockland.com</a>
Hancock Timber Resource Group	<a href="http://www.htrg.com/">http://www.htrg.com/</a>
Heritage Ranch	<a href="http://www.heritage-ranch.com">http://www.heritage-ranch.com</a>
Heritage Ranch Research Institute	<a href="http://www.heritageranchinstitute.org/">http://www.heritageranchinstitute.org/</a>
Hidden Springs (limited development)	<a href="http://www.hiddensprings.com/">http://www.hiddensprings.com/</a>
Land Trust Alliance (federal tax policy)	<a href="http://www.lta.org/publicpolicy/index.html">http://www.lta.org/publicpolicy/index.html</a>
Lyme Timber Company	<a href="http://www.lymetimber.com">http://www.lymetimber.com</a>
Meadowsend Timberlands, Ltd.	<a href="http://www.mtlforests.com">http://www.mtlforests.com</a>
National Association of Real Estate Investment Trusts	<a href="http://www.nareit.com">http://www.nareit.com</a>
National Council of Real Estate Investment Fiduciaries	<a href="http://www.ncreif.com">http://www.ncreif.com</a>
Natural Lands Trust (Growing Greener conservation subdivisions)	<a href="http://www.natlands.org">http://www.natlands.org</a>
New Jersey Conservation Loan Fund (Open Space Institute)	<a href="http://www.osiny.org/njclp.asp">http://www.osiny.org/njclp.asp</a>
New Markets Tax Credit	<a href="http://www.cdfifund.gov/programs/nmtc/">http://www.cdfifund.gov/programs/nmtc/</a>
North Carolina Department of Transportation (red-cockaded woodpecker habitat mitigation)	<a href="http://www.ncdot.org/secretary/envsteward/partnerships/">http://www.ncdot.org/secretary/envsteward/partnerships/</a>
Northern Forest Protection Fund	<a href="http://www.osiny.org/northernforest/home.asp">http://www.osiny.org/northernforest/home.asp</a>
Open Space Institute	<a href="http://www.osiny.org">http://www.osiny.org</a>

Pacific Forest Trust (carbon sequestration)	<a href="http://www.pacificforest.org/policy/index.html">http://www.pacificforest.org/policy/index.html</a>
Plum Creek Timber	<a href="http://www.plumcreek.com">http://www.plumcreek.com</a>
Portfolio 21 (environmentally screened investments)	<a href="http://www.portfolio21.com">http://www.portfolio21.com</a>
Prairie Crossing (limited development)	<a href="http://www.prairiecrossing.com/pc/site/index.html">http://www.prairiecrossing.com/pc/site/index.html</a>
Property Rights Foundation of America, Hydroelectric Dam Relicensing	<a href="http://prfamerica.org">http://prfamerica.org</a>
Prudential Timber Investments, Inc.	<a href="http://www.investmentmanagement.prudential.com/pim/page/0,2431,6067,00.html">http://www.investmentmanagement.prudential.com/pim/page/0,2431,6067,00.html</a>
Resource Management Service, Inc.	<a href="http://www.resourcemgt.com">http://www.resourcemgt.com</a>
Santa Lucia Preserve (limited development)	<a href="http://www.santaluciapreserve.com/">http://www.santaluciapreserve.com/</a>
Sierra Club Funds (environmentally screened investments)	<a href="http://sierraclubfunds.com/index.htm">http://sierraclubfunds.com/index.htm</a>
Socially Responsible Investment Forum	<a href="http://www.socialinvest.org">http://www.socialinvest.org</a>
Spring Island (limited development)	<a href="http://privatecommunities.com/visit/index.htm?community_id=149&amp;community_name=Spring%20Island&amp;link_location=top">http://privatecommunities.com/visit/index.htm?community_id=149&amp;community_name=Spring%20Island&amp;link_location=top</a>
The Campbell Group	<a href="http://www.campbellgroup.com/">http://www.campbellgroup.com/</a>
The Conservation Fund (carbon sequestration, habitat mitigation)	<a href="http://www.conservationfund.org/?article=2295">http://www.conservationfund.org/?article=2295</a> and <a href="http://www.conservationfund.org/?article=2398">?article=2398</a>
The Forestland Group	<a href="http://www.forestlandgroup.com">http://www.forestlandgroup.com</a>
The Foundation Center	<a href="http://www.fdncenter.org">http://www.fdncenter.org</a>
The Molpus Woodlands Group	<a href="http://www.molpus.com">http://www.molpus.com</a>
The Nature Conservancy, Conservation Forestry Program	<a href="http://nature.org/wherewework/northamerica/states/virginia/misc/art8136.html">http://nature.org/wherewework/northamerica/states/virginia/misc/art8136.html</a>
The Nature Conservancy, Forest Bank	<a href="http://nature.org/initiatives/programs/forestbank/">http://nature.org/initiatives/programs/forestbank/</a>
Timberland Trails (backcountry recreation)	<a href="http://www.phillipsbrook.org/">http://www.phillipsbrook.org/</a>
Timbervest	<a href="http://www.timbervest.net">http://www.timbervest.net</a>
UBS Timber Investments	<a href="http://financialservicesinc.ubs.com/Home">http://financialservicesinc.ubs.com/Home</a>
U.S. Forest Capital	<a href="http://www.usforestcapital.com/">http://www.usforestcapital.com/</a>
Wachovia Timberland Trust	<a href="http://www.wachovia.com">http://www.wachovia.com</a>
Wetlands Mitigation Banking	<a href="http://www.epa.gov/owow/wetlands/facts/fact16.html">http://www.epa.gov/owow/wetlands/facts/fact16.html</a>
Wildlife Habitat Mitigation Banking, California	<a href="http://ceres.ca.gov/topic/banking">http://ceres.ca.gov/topic/banking</a>

### Appendix C: Forestland Investments

Ideally, cooperation between commercial timberland owners and conservation interests benefits both parties. Through public purchase of easements, for instance, land is protected from development at minimal cost, and principled forest managers and investors are rewarded for “doing the right thing” instead of being penalized through below-market returns. What do conservation groups need to understand about forestland investors and managers to make cooperation work? Here is a brief primer.

#### Ownership Trends

Beginning in the 1800s, forest industry firms in the United States began to acquire timberland to support their mills, eventually accumulating 75 to 80 million acres nationwide (Block and Sample 2001). For well over a century, these ownerships remained largely intact, with consolidation or dispersal merely transferring land ownership (usually with associated processing plants) from one industrial entity to another similar owner. Over the past few decades, however, a new trend has emerged in the country that separates forestland ownership from processing capacity.

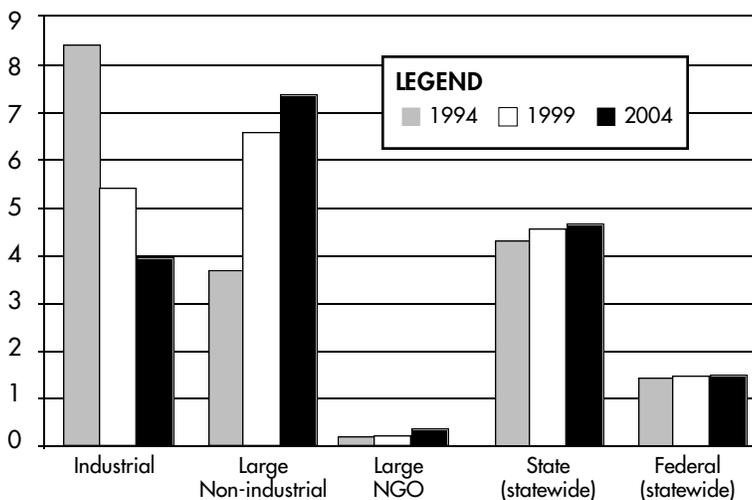
In 2002 Hancock Timber Resource Group analyzed transfers of timberland parcels of 10,000 or more acres from 1999 through 2001 in the South, Northeast, and Pacific Northwest (Binkley et al. 2002a). Some of their conclusions:

- 13 million acres changed hands during the survey period, including 5 million acres in the Northeast and 7.5 million acres in the South.
- The forest industry lost about 8.5 percent of its timberland over this three-year period, while institutional investors gained a substantial presence. Forest industry acres fell by 5.7 million while investor acres increased by 6 million and conservation group acres rose by 1.4 million.
- Institutional investors paid the highest per-acre prices for timberland, and prices in the South were well over twice as high as in the Northeast. In the Northeast, investors paid \$380 per acre, forest industry \$377, and conservation groups \$210. In the South, prices were \$1,015 for investors, \$899 for forest industry, and \$729 for conservation groups.

[Since this survey was conducted, average Northeast timberland prices have risen, while those in the South have fallen (Binkley et al. 2002a).]

When Hancock Timber Resource Group, one of the first TIMOs, was founded in 1985, institutional timberland investment totaled about \$300 million in the United States. By 1999 the total had risen to nearly \$8 billion (Block and Sample 2001). Today, the total stands at \$11 or \$12 billion and 9 million acres (Gilleland 2003). Despite this rapid growth, institutional investors nationwide still own less than 5 percent of the value and less than 4 percent of the acres in private timberland ownership across the country. (Gilleland 2003). In particular regions, however, the trend is much more pronounced, as illustrated by Figure 3 for the Northern Forest region

**FIGURE 3.**  
**Forestland Ownership Trends, Northern Forest Region\***



\*Northern Maine, New Hampshire, Vermont, and New York.

(northern Maine, New Hampshire, Vermont, and New York) (Kingsley et al. 2004).

Analysts have identified several motivations for the shift from industrial to investor ownership. First, forestland returns can be higher for TIMOs than for forest industry landowners because of differing landowner objectives. Industrial timberland (i.e. that owned by a forest products manufacturing firm) is not generally managed to maximize timber value. Instead, it is managed for a stable supply of timber for a processing facility. Or, it is managed as a timber reserve (hedge) against higher prices for timber from other sources. When timber prices are high, industrial land is likely to be cut more heavily; but instead of fetching the higher price on the open market, the material will go to the mill to keep mill costs down. Investment firms, by contrast, are less constrained by the need to feed company mills but can instead time their timber sales to respond to market peaks.

Second, the paper industry, a major holder of industrial forestland, has faced a glut in the increasingly global paper market, along with aging domestic manufacturing facilities. Timberland holdings are a relatively liquid asset that can generate capital for investments in equipment upgrades required to maintain competitiveness or even in expanded overseas operations.

Third, forest industry corporations generate profits only through sales of timber or processed forest products. Accounting rules dictate that the balance sheet of these firms does not reflect appreciated timber value until the trees are actually cut. Both TIMOs and REITs, on the other hand, can reflect standing timber value in current returns. These types of timberland ownership can thus maintain shareholder value and liquidity (the ability to recoup an investment by selling shares) without actually cutting the timber.

Finally, tax regulations have accelerated the shift of forestland ownership from industry (mostly “double-tax”) to investor entities (mostly “single-tax”). Standard corporations (a structure that applies to most forest industries) pay corporate taxes on profits, and then individual stockholders also pay taxes on the dividends they receive. “Single-tax” entities like sole proprietorships, partnerships, and pass-through forms of organization like S corporations, limited partnerships, limited liability corporations, and real estate investment trusts distribute profits directly to investors, rather than pay dividends on stock. The business entity itself pays no tax; only the ultimate investor is taxed. Since single-tax entities can keep a larger share of forest profits, double taxation of corporate profits can accelerate the sale of timberlands to organizations with lower tax liabilities.

For all these reasons, holding timberland has become relatively more attractive for TIMOs and less so for industrial landowners. Because TIMOs can benefit from the value of standing timber and do not need to maintain a steady flow of material to supply a manufacturing plant, conservationists were at first optimistic that emerging investor landowners would harvest their lands less intensively than the previous forest industry owners and would manage land for long-term value rather than short-term gain. With new TIMOs proliferating rapidly (see Forest Investment and Management Firms, page 61, for a relatively current list), the reality of investor behavior is in fact complex and variable.

### **Characteristics and Expectations of Large-Scale Forestland Owners**

Different classes of landowner have different motivations for owning forestland. For several reasons, new investor-owners of forestland are likely to behave differently than traditional industrial owners. Wood products manufacturing companies own land primarily to supply the firm’s processing facilities, and these firms traditionally hold land

for several decades and manage for relatively steady wood flow. TIMOs and REITs, on the other hand, generate profits from both current sales of timber and other resources and from appreciation in land and standing timber value. These dual goals influence the way land is managed, the length of tenure, and the ultimate disposition of land.

Appreciation of land and standing timber is based on expected future value rather than current revenue and is thus less stable than timber sales as a source of return. Over the past few decades, total returns to investments in U.S. forestland have averaged about 8 to 10 percent, but at various times and regions have ranged from -8.4 to +112.1 percent (Hancock Timber Resource Group 2003a). The National Council of Real Estate Investment Fiduciaries (NCREIF) timberland property index shows timberland operating EBITDDA (“earnings before interest, taxes, depreciation, depletion, and amortization” — a rough measure of profits from timber harvest) of about 8 percent in the early 1990s, falling steadily to about 4 percent by 2002. Returns due to appreciation were over 15 percent in the early 1990s but fell to 0 percent in 2000, -6 percent in 2001, and an estimated -2 percent in 2002 as expectations shifted from possible timber famine to a world glut of wood (Washburn 2003) (Figure 4).

Because returns from capital appreciation are so volatile, TIMOs and REITs may buy and sell land more frequently than traditional forest industry landowners to take advantage of perceived market under- or over-valuation of land. Conservation groups

may need to develop expertise in market valuation in order to anticipate and react quickly to land sales that threaten conversion or fragmentation of key parcels.

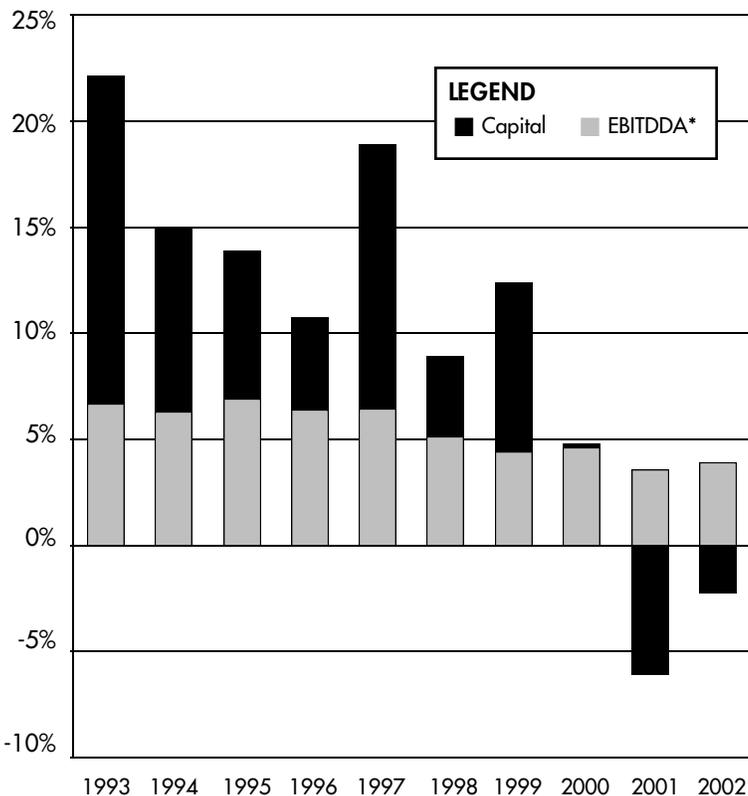
Capital appreciation derives from the value of standing timber and the value of the land itself. Standing timber increases in value because of several factors. Growth in tree volume, influenced by site productivity and silvicultural practices, contributes a fairly predictable and steady 3-4 percent return. As larger trees enter higher value classes, price per volume also rises. Overall timber prices for most species also appreciate faster than the rate of inflation (although this price trend is more volatile than tree growth as a source of returns and currently seems to be dampened somewhat as inexpensive pulp flows in from overseas).

Appreciation in the value of the land itself may be based on expected future timber prices or on development value. Maximum return requires selling land for its “highest and best use,” which may well include forest conversion. Plum Creek, a publicly traded REIT<sup>1</sup> that specializes in timberland transactions, has an active real estate development division.

TIMOs and REITs will likely hold land for shorter periods than have past industrial owners,

FIGURE 4.

**Timberland Returns from Capital Appreciation and Earnings**



\* Earnings before interest, taxes, depreciation, depletion, and amortization.

Source: Hancock Timberland Investor, Fourth Quarter, 2002. National Council of Real Estate Investment Fiduciaries Timberland Property Index

<sup>1</sup> To confuse the categories a bit, Plum Creek also owns wood products processing facilities.

as a significant portion of profits is generated through appreciating land values. Conventional wisdom places the time horizon for most institutional timberland investments at 10 to 15 years (Block and Sample 2001). According to Wagner Forest Management's Hank Swann, timber investments are surging in popularity, and new firms without a long-term commitment to forest management may get in and out of the market within three or four years (Swann 2003, personal communication).

Forest investment firms act on behalf of individuals or institutions who ultimately provide the funds for land purchases and determine investment objectives. TIMOs and REITs, like forest industry firms, have a fiduciary responsibility to increase shareholder value and in the case of publicly traded REITs must generate cash to make current distributions to shareholders. The federal Employee Retirement Income Security Act (ERISA) furthermore requires that pension funds be managed for the sole benefit of the retirees, and many TIMO investors are pension funds. TIMOs whose investors support clear conservation goals, however, might operate quite differently. (See Socially Responsible Investment, page 38.)

The institutional investors who provide most of the funds for TIMOs find timberland investments attractive not just for their high returns, but for their relatively low risk, ability to hedge inflation, and tendency to correlate negatively with stock market and bond returns (Hancock Timber Resource Group 2003b). As the stock market slumped over the past five years, many large institutions shifted substantial capital into timberland, fueling the growth in TIMO numbers. Two prominent institutional investors, each with about \$1 billion in timberland, are Harvard University (about 5 percent of its endowment) and CalPERS, the California state employees pension system (about 1 percent of its assets before a 2003 decision to divest some of its timberland assets) (Daly 2003).

In 2003 CalPERS decided to divest some of its timberland, highlighting an institutional investing dilemma explained by Hank Swann of Wagner Forest Management (2003, personal communication). Because land sales often involve conversion of some parcels to "highest and best use" (usually meaning development), forestland protection depends on keeping land under stable long-term ownership. Careful silviculture can maximize timber value and help forested uses compete with development. Yet good forestry also increases the book value of timberland, thereby tipping the portfolio balance and creating incentives to sell land. Permanent easements can protect frequently sold forests from conversion and, in some cases, from ownership fragmentation, but easements are less likely to control the heavy cutting sometimes associated with ownership transfers.

Aside from corporate strategy and investor goals, method of financing might also influence TIMO decisions. Timberland investments may be financed through equity investments by stockholders or venture capital investors (typically high net worth individuals, companies, and venture funds). Or they may be financed through debt or equity-like subordinated debt — debt that in case of bankruptcy would be paid only after primary creditors receive full value for their loans (Best and Jenkins 1999). Leveraging investments through debt financing or high-risk, high-return venture capital might further increase pressure on the timber resource.

### **Timberland Transactions and Prices**

Whether conservation organizations enter the land market to partner with large landowners or to compete with them, participation of conservation interests in the marketplace will influence, and be influenced by, land prices. Making the most efficient use of limited dollars requires understanding how land prices are set by that

market. Many timberland properties are offered at auction, open to competitive bidding. The price offered by a potential timberland buyer relates to expected net returns made up of —

EXPECTED REVENUE:

- ▲ timber income (predicted stumpage price times expected volume)
- ▲ expected appreciation in land and standing timber value
- ▲ potential easement income
- ▲ other nontimber income

MINUS EXPECTED COSTS:

- ▼ cost of capital (debt service or distributions to shareholders)
- ▼ property taxes
- ▼ management costs, etc.

The predicted annual flow of net returns over time is capitalized into a present value, with future returns discounted based on the perceived risk and the return the investor would like to earn on the investment (adapted from presentation by Henry Whittimore 2003).

A change in any of these factors will influence the current price offered. Factors that raise the typical purchase price per acre will make it more difficult for the public or nonprofits to purchase land. For instance, if timber markets anticipate a scarcity of quality wood supply, current timberland prices will be bid upward because expected timber revenue increases.

Likewise, if institutional investors fully recognize the conservation value of a parcel and are confident that they can sell easements for a favorable price, they may be willing to offer more per acre for that parcel. This is an advantage if the conservation-oriented buyer is competing with developers for the land. At the same time, the tendency to capitalize easement income into the land price means higher prices for land of conservation interest, meaning more public dollars must be spent to protect each acre.

Similarly, if nontimber income raises expected returns on forestland, the immediate effect might be to reduce pressure for intensive timber harvests. Yet over time, these supplemental returns will allow timberland buyers to offer higher per-acre prices. As land prices rise, the pressure for higher timber revenue will again increase.

If the cost of capital falls, then net expected returns from a timberland investment rise and the price offered rises as well. In the recent low-interest environment, “liquidators” (who purchase land for short periods, harvest heavily, then subdivide for sale) can readily and cheaply borrow funds, outbid longer-term investors, and cash in before debt payments eat into their profits.

Elements of a land deal that lower expected returns or reduce flexibility, on the other hand, will lower the purchase price. The recent sale of MeadWestvaco lands in Maine and New Hampshire carried a 50-year supply contract that assures raw material for MeadWestvaco’s paper mill in Rumford, Maine. Few buyers were willing to commit to such a rigid requirement, so the final transaction price was lower than it would have been for an unencumbered sale (Swann 2003, personal communication). According to Henry Whittimore of Maine’s Department of Conservation (2004, personal communication), such supply agreements help keep forestland intact, as conversion of acreage would threaten the new owner’s ability to produce sufficient wood flow to meet contract obligations. Others fear that supply commitments will lead to overly intensive harvesting on the most accessible acres.

Heavy cutting in the years leading up to a sale will also reduce expected returns (especially in the early years less influenced by time discounting) and thus lower the purchase price of the land. Far-sighted conservationists can take advantage of this fact by purchasing inexpensive, cut-over acreage (following the example of the federal government for the White Mountain National Forest in New Hampshire and the state government for the Adirondacks in New York State) and watching it regrow. It may take decades or centuries to partially restore these cut-over lands, so this approach will never fully substitute for the protection of intact forest ecosystems. Listed below are some of the major forest investment firms in the United States. Firms are listed by approximate acres owned. Some acreage is double-counted as forestland owned by one investment firm may have management contracted to another.

### Forest Investment and Management Firms

Company	Holdings	Headquarters	Region	Other Information
Plum Creek Timber	8 million acres worth \$3.5 billion	Seattle, WA	19 states	Publicly-traded REIT, also owns medium-density fiberboard and plywood processing facilities, real estate development division
Hancock Timber Resource Group	2.4 million acres worth \$3 billion	Boston, MA	Pacific Northwest, Northwest, Southeast, Northeast in US	Largest and oldest Timber Investment Management Organization (TIMO), often contracts property management to Olympic Resource Management, Resource Management Service, Wagner Forest Management
Rayonier	Nearly 2 million acres in U.S.	Jacksonville, FL	Pacific Northwest U.S., Southeast U.S., and New Zealand	Started as Rayonier Pulp and Paper Company, converted to REIT structure in January 2004. Operates processing facilities as wholly-owned subsidiaries
American Forest Management	Over 1.5 million acres under management	Macon, GA	Southeast, Lake States, international	Formed from merger of Shaw, McLeod et al. and Canal Forest Resources. Investment, real estate sales, and forest management services. Not an ownership entity
The Molpus Woodlands Group	1.2 million acres worth \$1.2 billion	Jackson, MS	Southeast	Manages for high net worth individuals and families
Forest Investment Associates	900,000 acres worth over \$1.3 billion	Atlanta, GA	Southeast to mid-Atlantic, including Pennsylvania	Contracts property management to American Forest Management, Natural Resource Planning, Bennett & Peters, and Forest Resource Consultants
Global Forest Partners	1.4 million acres worth \$1.3 billion	West Lebanon, NH (+Chile, Brazil, NZ)	World-wide	Formerly UBS. Contracts property management in U.S. to American Forest Management, Larson & McGowin. Also manages some property directly
Wachovia Timberland Trust	900,000 acres worth \$1.2 billion	Atlanta, GA	Southeast, Mid-Atlantic and Lake States	Contracts property management to American Forest Management, Milliken Forestry, F&W Forestry Services
Campbell Group	Over 800,000 acres worth \$1.6 billion	Portland, OR	Pacific Northwest	Manages property directly
The Forestland Group	600,000 acres worth \$300 million	Chapel Hill, NC	Northeast, Mid-Atlantic, and Wisconsin), hardwood focus	Contracts property management to LandVest, Forecon, American Forest Management
Prudential Timber	400,000 acres worth \$500 million	Boston, MA	Southeast and Hawaii	Contracts property management to American Forest Management, Forest Resource Consultants
Fountain Forestry	400,000 acres worth \$175 million	Pittsfield, NH	Northeast to Ohio, Tennessee, specializes in hardwood forest	Affiliate of U.K. company. Investment services and contract management for other TIMOs (including timber management for Renewable Resources in Sundquist Wildlife Management Area in Tennessee)

Company	Holdings	Headquarters	Region	Other Information
Forest Systems	300,000 acres worth \$410 million	North Easton, MA	Southeast, Northwest	Manages properties directly
TimberVest, LLC	300,000 acres and \$400 million in timber assets	Atlanta, GA	17 states, concentrated in Southeast	Works through regional foresters. Focus on properties that can be subdivided for sale in smaller tracts
GMO Renewable Resources	\$100 million	Boston, MA	Northeast, Southeast, Northwest	Part of Grantham, Mayo, Van Otterloo ("GMO"), a privately held investment adviser. Contracts property management to Rayonier, LandVest, Fountain Forestry. Cooperated with Conservation Fund to purchase Middle Neches tract in Texas and Sundquist Wildlife Management Area timber rights in Cumberland Plateau of Tennessee. Both from International Paper
Wagner Forest Management		Lyme, NH	Northeast	Invests and manages for institutional and high net worth clients, and manages property for other TIMOs
Resource Management Service, Inc.		Birmingham, AL	South, upper Midwest	Forest management and investment services
Lyme Timber Company	400,000 acres	Lyme, NH	New England, Midwest, Southeast	Specializes in lands of high conservation value. Purchased Connecticut Lakes Headwaters lands in NH
Hancock Land Company	40,000 acres	Casco, Maine	Northern New England	Investment and management services for direct individual ownership of timber tracts. Participated in Tumbledown Mount Blue conservation project in Maine

Source: Block and Sample, 2001; Gilsonam, et al., 2003. (See Appendix B: Helpful Web Sites.)

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COVER PHOTOS:

Left: Tumbledown Mountain, Maine (see p. 37)

Photo © Jerry and Marcy Monkman/EcoPhotography.com

Top: High Falls, Dupont State Forest,  
North Carolina (see p. 7).

Photo by Jeff Jennings,  
Friends of Dupont State Forest,  
[www.dupontforest.com](http://www.dupontforest.com)



**THE WILDERNESS SOCIETY**

**Ann Ingerson**

[ann\\_ingerson@tw.s.org](mailto:ann_ingerson@tw.s.org)  
(802) 586-9625

Vermont Office  
P.O. Box 10  
West Charleston, VT 05872