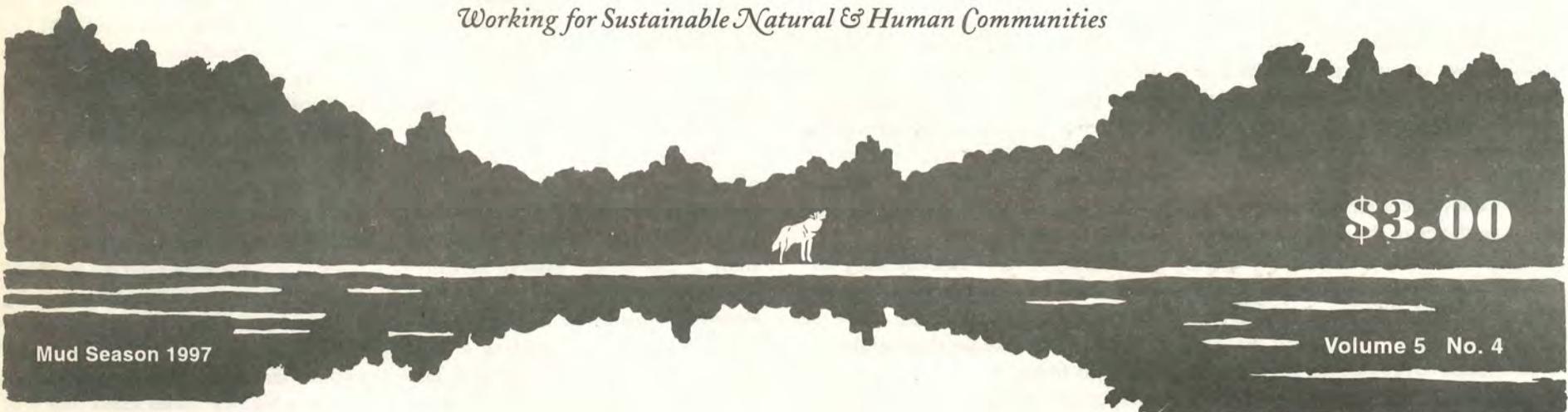


The Northern Forest Forum
POB 6
Lancaster, NH 03584
Address Correction Requested

Nonprofit Organization
U.S. Postage
PAID
Lancaster, NH
Permit No. 6

The Northern Forest Forum

Working for Sustainable Natural & Human Communities



Mud Season 1997

Volume 5 No. 4

Grassroots Activism Produces Impressive Results

↳ Citizen Herbicide Campaign Updates (pages 3-6) ↳ Boundary Mountains Saved from Windpower Development (page 23)

Also Inside

↳ Acid Rain Still Threatens Northern Forests (page 7)

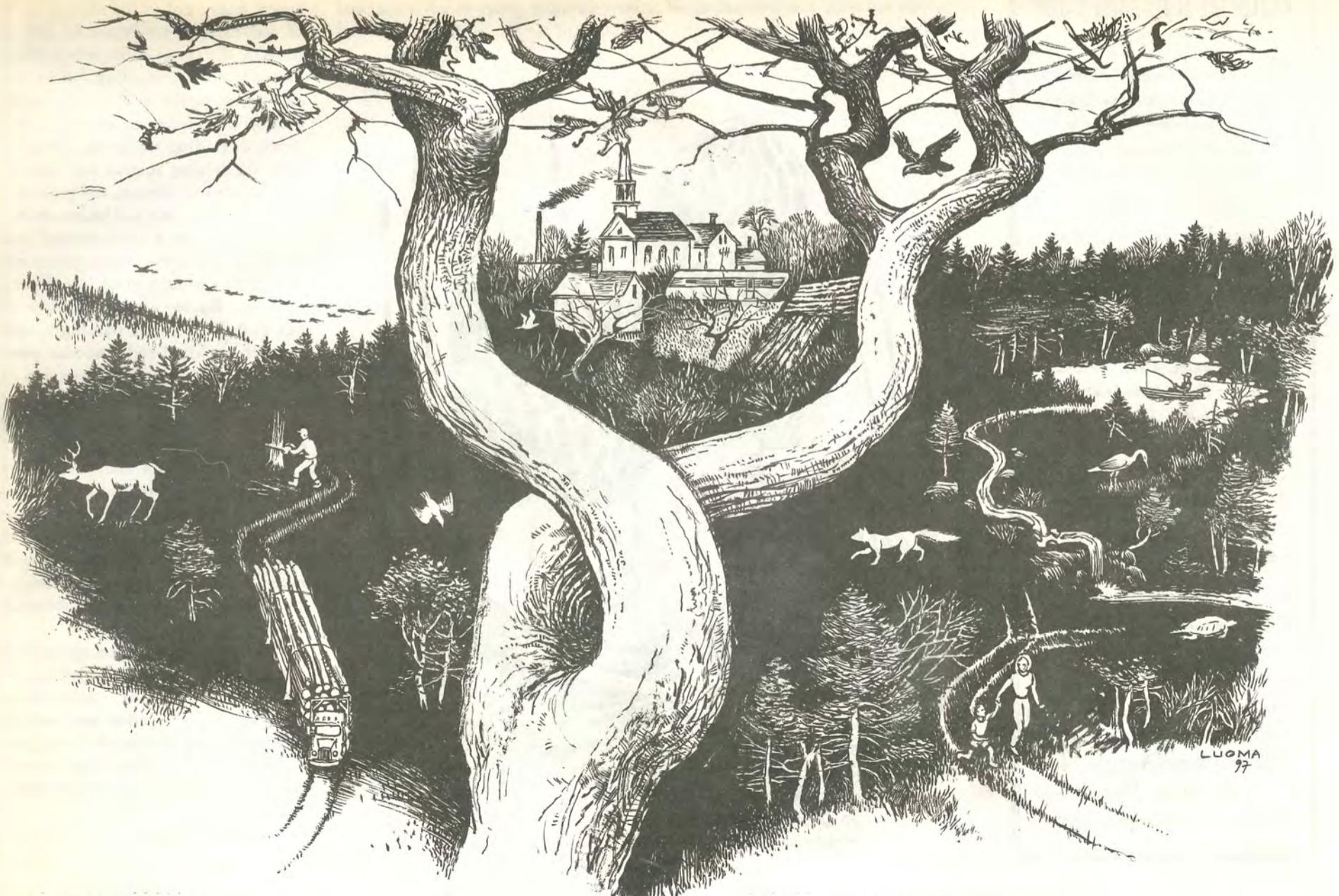
↳ Northern Forest Alliance Proposes Land Protection Strategy (page 8)

↳ Public Land Acquisition Necessary for Northern Forests (page 9) ↳ Adirondack Wildlands For Sale (page 12)

↳ Potential Wolf Habitat Identified (page 14) ↳ Public Supports Wolves in Northern Forest Region (page 15)

↳ Natural Gas Pipelines Not Safe (page 26) ↳ Labrador Threatened by Mining (page 28)

↳ Special Report: Low Impact Forestry Study Reveals Long-Term Economic Benefits (page 17)



Campaigns of Conviction or Circular Firing Squads?

The Forum is published by a network of Northern Forest community-based activists. We believe that the natural and human communities of our region will only be protected if we—the locals—act in concert. However, it is simply wrong to delude ourselves into thinking we locals can work wonders all by ourselves. In this crazy-quilt global economy, we are up against forces and institutions more powerful than any yet conceived by power-hungry, earth-stranged mortals. We need help, and lots of it.

Forum readers are well aware of a recurring theme of the difficulties grassroots activists and established environmental organizations encounter when trying to address the same issue from quite different perspectives. The rupture in the Maine environmental community in 1996 between citizen proponents of the Ban Clearcutting Referendum and mainstream deal-makers who concocted the "Compact for Maine's Forests" with industry is but one of too many sorry examples of the frequently dysfunctional relationship between the two camps.

The purpose of this editorial is emphatically not to belabor this truism. Rather, I hope to outline a means by which we can work together productively, respectfully, creatively.

In March I was invited to discuss forest policy with many of the leaders of the Northern Appalachian environmental community. I devoted much of my allotted ten minutes to the serious rift between the community and mainstream camps. After my talk, one individual for whom I have enormous respect challenged me. "I agree with

almost everything you said," he responded, "but grassroots activists can be wrong too." I agreed, recalling the brochure accusing herbicide sprayers with wanting to establish oak and pine plantations in the Northeast Kingdom of Vermont—a blunder guaranteed to alienate our neighbors who know what will and will not grow in these northern soils. Grassroots activists must take extra precautions to assure that their statements are accurate; our critics love it when we are sloppy with information. As we like to say at the Forum, the ecological truth is on our side; all we have to do is spread the word.

There are some fundamental problems between grassroots activists and mainstream groups that must be resolved. (My take on these problems, clearly, is from a community organizer's perspective; perhaps a member of the mainstream community will respond with a constructive critique of community activists.)

I fear mainstreamers too often view community activists as a reproach. Our very existence implies to them that they aren't doing their jobs adequately. There are times when grassroots groups must spring into action to counter wrong-headed mainstream campaigns. The successful campaign to block wind power development in Western Maine's Boundary Mountains is a case in point. (See pages 23-25)

But this should be the exception. It is far more productive to view the dynamic tension between grassroots and mainstreamers ecologically—we all have our niches. Community-based groups are essential; only members of a community can truly know that community. On the other hand, community groups rarely have the resources and expertise to sustain research, and political campaigns and lobbying at the state and

federal levels. They need allies who can—the established groups. As the Vermont herbicide campaign eloquently testifies, our diversity is our strength. Mainstream groups are no longer dismissed as meddling outsiders by the locals, and grassroots groups are no longer swallowed up in the maze of the political bureaucracy and power.

We must be clear about what we want for Northern Forest communities. Do our communities exist merely to feed the global economy? Can anyone offer any evidence that industrial forestry is compatible with ecosystem integrity? Mitch Lansky's important study in this issue, "Patient Money—The Economics of Low Impact Forestry", elegantly contrasts the opportunities opened by building a local economy in greater harmony with natural systems with the consequences of feeding the global economy.

Too often, mainstream groups are conflicted. On the one hand, they understand the negative impacts of the global economy; on the other, they are part of that system's power structure. They fear a loss of access to powerful politicians if they challenge the underlying assumptions of the global economic paradigm. To paraphrase Lois Marie Gibbs, community activists want to prevent the global economy from damaging our natural and human communities; the mainstreamers want to control those abuses through reform of the system.

Some board members of many mainstream groups work for paper corporations, the timber industry, banks and the like. They will not tolerate challenges to the assumptions of the global economy. Thus, you have the unseemly spectacle of timber industry moguls—with a clear conflict of interest—dictating policy to environmental groups. Industry understands divide and

conquer politics. Enviro too often seem intent on forming circular firing squads. It's not hard to understand why, after all these years, there are still not meaningful regulations governing clearcutting, liquidation, and high-grading, despite overwhelming evidence of a crisis in the forests and strong public support for ending these practices.

We must re-evaluate the all-too-political approach to ecology policy. This is the really tough one. Do we address biological and ecological problems through the lens of conventional political pragmatism and compromise? I think not for a couple of reasons:

(1) Ecosystems operate by their own set of natural and physical laws, independent of the values and institutions of human society. Political compromise may work when negotiating tax policy or highway speed limits, but it is a calamity when imposed on ecosystems. Politically motivated compromises that ignore ecological imperatives are doomed. As Rachel Carson observed, "You might just as well assume that you could repeal the law of gravity!"

(2) I'll never convince you to adopt my political ideology, and you're not likely to get me to adopt yours. Political values are not absolute, and there is no way of proving one is right, the other is wrong. Mainstream groups headquartered in state capitals, with relatively large endowments and boards composed of politically and economically well-connected individuals see things differently from community groups that are usually poorly funded and poorly connected. We just aren't going to converge around a political philosophy.

Both these reasons argue convincingly for mainstream and grassroots groups to find common ground in ecological reality, not in the shifting sands of *realpolitik*. We may not be able to convince the public of the virtues of our particular political ideology, but we sure can point to the ecological consequences of clearcutting, spraying pesticides, degrading wetlands, dumping dioxins, driving species and natural communities to oblivion, and poisoning the air with acid rain and hydrocarbons.

To save the world's natural and human communities, citizen groups and established groups must join forces, challenge the suicidal assumptions of our global economic paradigm, and resist the political and economic pressures to trade thorough protection of ecosystem integrity for a place at the banquet table of the despoilers and their political servants.

Mainstreamers and community groups that collaborate on those terms will have support in Northern Forest communities because they are taking an uncompromising stand in defense of ecosystem integrity, instead of striking a political compromise with biological reality.

Adopting an ecological approach to ecology policy marks the beginning of a true campaign of conviction. Campaigns of conviction can never be defeated. Ask Frederick Douglass, Gandhi, Martin Luther King, and the citizens of Vermont who fought herbicide spraying.

—Jamie Sayen



Editorial Staff This Issue

Jamie Sayen—Editor
Andrew Whittaker—Editor
Mitch Lansky—Assistant Editor
Daisy Goodman—Office Staff
Kit Kuntze—Hericum ramosum
Mary Stinehour—Circulation
Jim Hourdequin—Intern

Contributing Writers

Emily Bateson, Peter Bauer,
Michael Bender, John Clark,
Kathleen Fitzgerald, Daisy Goodman,
Ron Huber, Kathy Fallon Lambert,
Mitch Lansky, Alexis Lathem,
Nancy Oden, David Orton,
Michael Phillips, Pamela Prodan,
Rebecca Ramos, Jym St. Pierre,
George Wuerthner

Photographers

Nancie Battaglia, Joyce Harrison,
Alex Maclean, Gustav Verderber

Artists

Jon Luoma, Rachel O'Meara,
Vince Packard, Pamela Prodan,
Jym St. Pierre, Sue Szwed

The *Northern Forest Forum* is published six times a year by The Northern Appalachian Restoration Project A Non-Profit Organization

Vermont Legislature Addresses Herbicides & Liquidation

Dramatic Floor Fight on S28 Amendment

by Andrew Whittaker

As we head to press, it would seem that Vermont forest policy is in the hands of the gods and laps of the legislature. A bill establishing a moratorium on the application of herbicides to release softwood has been passed by the Senate. S28 and a (unnumbered) liquidation cutting bill will have worked their way out of the House Natural Resources Committee by press time. An early vote is expected on the cutting bill, while S28 should hit the floor by mid-April.

After that, the bills go to the Senate, where the upper chamber will get its first look at the heavy cutting bill, which is largely the result of shuttle diplomacy by Forest Resource Advisory Council chair, Darby Bradley. The proposed legislation attempts to target large, hillside clearcuts such as now dominate views of both northern Vermont and New Hampshire as well as massive liquidation highgrades occurring in central Vermont. (See page 10 of the Forum v.5, #3 for a review of the cutting proposal.)

A forty acre ceiling and "C line" stocking standards (minimal acceptable stocking according to the US Forest Service) will trigger review; the Department of Forests and Parks will enter into a rulemaking process to establish minimum conservation standards. Conservationists who engaged in discussions leading to the bill articulated the need for minimum standards to be developed for all commercial harvests of wood. They view the rulemaking process that is proposed as a forum for a full debate of the merits of clearcutting as a valid silvicultural tool. Most view the exemptions and loopholes in the bill with some chagrin.

Vermont's Commissioner of Forests and Parks, Conrad Motyka, has also proposed that the rulemaking process occur in conjunction with a state forest roundtable, as envisioned by the Northern Forest Lands Council. Such a roundtable would replace FRAC, which expires this summer after several tempestuous years dealing with public calls for forest policy.

Herbicide Victory

Although a Supreme Court decision establishing a constitutional right to equal educational opportunity has dominated Montpelier politicking this year, a battle over herbicide legislation afforded Senate observers a view of the first floor fight of the season. Testimony taken by the Senate Natural Resources Committee convinced four of six members to support extending a proposed moratorium on aerial spraying to ground spraying as well. Republican Helen Riehle of Chittenden County offered the amendment, and countered an effort by fellow Republicans from the Northeast Kingdom to remove the ground moratorium. Northeast Kingdom residents felt it was possible Champion International would respond to an aerial proscription by equipping ground equipment with spray rigs.



Vermont's political process retains an informality conducive to citizen involvement. Here, people attending the evening hearing of March 27 occupy seats in the House chamber, while members of the House Natural Resources and Fish & Wildlife committees take testimony. Barbara Alexander of the Vermont Citizens' Forest Roundtable sits in the right foreground. Photo © Gustav W. Verderber

An intense debate was witnessed by a chamber full of citizens opposed to spraying, who occupied the downstairs and upstairs galleries as well as Senate floor couches and windows. Welcomed by Lieutenant Governor Douglas Racine, the crowd recalled a controversial demonstration which disrupted a FRAC meeting in August, 1996. The protest was organized by the Native Forest Network and followed pageantry on the statehouse lawn by the Bread and Puppet Theatre. Three Republicans broke ranks to vote with 17 Democrats in defeating the amendment offered by Senator Vincent Illuzzi of Essex/Orleans. During debate and after, Illuzzi sarcastically noted that Chittenden County was deciding for the Northeast Kingdom what its own interests were. Illuzzi was joined by the three other Northeast Kingdom senators, who protested that the ground moratorium was never suggested by FRAC.

Numerous phone-ins by Northeast Kingdom residents helped defeat the Illuzzi amendment. So many calls were received by the time of the floor debate that the Sergeant-at-Arms office simply noted names and provided senators with copies, which helped defuse Illuzzi's allegations of carpet-bagging. (The senator himself has reported in conversation that 80% of his constituents oppose spraying.) Onlookers cheered at the announcement of the 20-10 vote while the lieutenant-governor gavelled for order.

It was a jubilant moment for herbicide opponents, many of whom felt the arguments raised by pro-spray senators

had been refuted many times over in earlier forums. "How do we elevate political debate to citizen-level discourse?" mused one activist. "This was moronic." During the debate, one senator asserted that Champion, which proposes to spray clearcuts with herbicide as it does in Maine and New Hampshire, "does not clearcut." Another senator asserted that Vermont's "junk" forest requires intense cutting and spraying to restore "productivity."

House Debates Logging Bill

House members subsequently received a dose of the forest debate, in two grueling evening hearings addressing cutting and spraying. Bi-partisan support exists for the pending forest bills; this is the third year the House Natural Resources committee has found itself at the center of forestry debate and familiarity seems to have enhanced the committee's willingness to act.

In remarks addressed to the committee, David Briars of Craftsbury noted key differences between the herbicide and cutting bills. "These are two bills with tremendously different backgrounds," he said. The herbicide bill emerged from a process which educated both public and FRAC members, and resulted in a "cross fertilization of ideas." "What concerns me is this [cutting] bill had no such background, it was done in back-room deals, the public was not involved, and had no time to think about it."

Testimony taken by Natural Resources from two foresters gave a foretaste, however, of what may transpire in rulemaking. David Guenther, a state forester, testifying as a private citi-

zen, said he has crossed the line in the past year from opposing to supporting cutting regulation. His view of the current bill: its residual stand criteria may be too lenient a measure for determining review.

Private consulting forester Lynn Levine of Dummerston also advocated a different approach to regulation. Her proposal is that all operators be required to check their harvest sites against maps of the state Natural Heritage program, available for all towns, through the town clerk. These maps locate a variety of resources, including unique habitats, wetlands and rare plants. Overlaps would require appropriate measures.

The committee, however, has witnessed a shift within industry that will make opposition to the bill difficult to sustain. While some in industry insist that forest liquidation remains the landowners' right, and that, implicitly, there is no public interest involved in forest matters, others have come forward to support the bill. While cynics suggest that it is because of loopholes, others suggest the rulemaking process is a strong alternative to building a case for regulation from scratch. Defeat of the cutting bill this year would preclude another such effort until the next biennium.

Governor Howard Dean is expected to sign forestry legislation passed by the Legislature. In his January address to the joint assembly, Governor Dean drew his first applause when he said he supported and expected to sign into law the Forest Resource Advisory Council's recommendations on clearcutting and herbicides.

Herbicides on the Move - The Saga of Spray Drift

by Daisy Goodman

During the Herbicide Project appeal of Boise Cascade's 1996 aerial spray permit, Boise Silvicultural Administrator Ernest Von Tobel implied that the use of the Global Positioning navigational system guaranteed the elimination of positioning errors by enabling aerial applicators to spray "on a dotted line". According to Von Tobel, use of the Microfoil™ boom ensures that large, heavy droplets of 600 microns diameter drop directly to the ground, intact. Once the herbicide mixture reaches the ground, what is not absorbed by target species is adsorbed immediately to soil particles, where it remains immobile until biodegradation into harmless compounds occurs through action by sunlight and soil microbes. In this corporate fantasy world, water contamination by runoff, drift, and other hydrologic and aerodynamic forces can be overcome by technology. Is it possible that industry's earnestly felt commitment to aerial herbicide applications is interfering with the quality of its scientific reasoning?

In a recent interview with the *Boston Globe's* Bob Braile, New Hampshire Pesticide Control Division Director Murray McKay stated that the debate over herbicide applications in forestry and right of way management must "return to science" rather than being influenced by "emotion" (on the part of opponents)¹. On the contrary, science casts serious doubts on claims by Boise Cascade (now the Mead Corporation) and Champion International that technology can eliminate off-target movement of herbicides after the spray leaves the nozzles attached to the aircraft.

Off target movement of herbicides significantly extends the range of herbicide effects outside of the target area, including compromising water quality and potentially affecting areas not on industry lands. Rationalizing that technology can overcome natural forces is a politically rather than a scientifically based strategy. Unfortunately, it is one to which the New Hampshire Division of Pesticide Control appears susceptible.

Initially, off target movement of herbicides occurs as a result of spray drift. It is universally accepted that fine droplets, which occur from both aerial and ground applications, drift farther because they are lighter. However, large droplets break easily into smaller droplets when falling through air. During helicopter applications, the force of turbulent air created by the aircraft itself breaks larger droplets into smaller "fines", a process called "shearing".

According to the Spray Drift Task Force of the North American Agricultural Chemical Association (an industry research group now known as the American Crop Protection Association), droplets of less than 150 microns were produced from the majority of nozzles manufactured.²

An additional concern is loss of a percentage of the volume applied into the atmosphere. The sulfonylureas (for

example, Oust™) are particularly prone to this because they are volatile compounds, capable of becoming gaseous and entering the atmosphere,³ to be transported a significant distance until brought back to earth in precipitation or wind currents.⁴ The Ecological Effects Branch of the US EPA's Environmental Fate and Effects Division predicts that a percentage of any application will transport "potentially as far as two or more miles from the treatment site".⁵

Highly potent herbicides such as sulfometuron methyl and imazapyr will cause significant damage in drift concentrations. In gauging the potential environmental effects of off-target movement occurring in aerial applications, the EPA uses a 40% efficiency loss (volume loss) as a figure. This figure refers to off-target movement that is undetectable, or "lost". EPA also estimates that an additional 5% of the applied volume will move off-target as detectable ("visible") drift. This means that a total 45% of the volume applied is expected to move off-target through the combination of drift and surface movement.⁶ I choose these estimates because they are conservative in comparison to other research.⁷

Once the spray hits the ground, whether on-target or off, it continues to distribute throughout the affected ecosystem through a number of pathways. Obviously, movement from pesticide drift into water is a serious concern, as are residues on temporarily "dry" drainage areas. Additional movement potential includes leaching of herbicides through soil into ground water, and movement of herbicides, adsorbed to soil particles, through erosion.

Turner reports detection of sulfometuron methyl (Oust) at 600 feet from the treatment site as a result of movement in wind-blown soil particles.⁸ In a study of the leachability of Imazapyr (Arsenal™), Vizantinopolous concludes that "registration of imazapyr should be re-examined in some cases of its application on light soils or in regions with annual rain fall over 500 millimeters and high level of ground water".⁹ Ground application of glyphosate was shown in a Canadian study to contaminate ground water.¹⁰

According to a study completed for the Washington State Department of Ecology by Ed Rashin and Craig Gruber in 1993, the majority of pesticides introduced into water by aerial spraying could be attributed to drift and swath displacement (the technical term for the fact that droplets do not fall straight down from the nozzle, but rather at an angle due to the movement of the aircraft).¹¹ These factors reduced the effectiveness of buffered areas. In addition, small streams which were not marked with buffer zones were sprayed, contributing to residues in larger waterways downstream. Spraying of runoff and drainage areas which became wet during the next precipitation was found to cause higher level concentrations in water downstream than if that water had been directly sprayed.¹²

An elementary hydrologic principle, explained in my children's "Magic Schoolbus" science series, but apparently unaccepted by the architects of the Mead aerial spray program, is that water is always on the move, and in the liquid state carries dissolved substances with it.¹³

Movement of herbicides in water is a serious concern in the wet, headwaters area of northern Coos County where heavy rainfall is usual and wetlands are ubiquitous. Since Accord, Arsenal, Sulfometuron Methyl and POEA are all water soluble compounds, movement in water will carry drifting residues much farther. The proposed 1997 application by Mead Corporation (see map) shows typical industry concern for proximity to water and possible contamination of major waterways with herbicide residues.

Pontook Reservoir and the Androscoggin River above the first paper mill at Berlin, NH are famous fishing areas, widely used by both local people and tourists. Unfortunately, Rainbow trout has an LC50 (lethal dose for 50% of the test group) of 1.3 mg/liter when exposed to the glyphosate/POEA combination (Accord™, Entry II™)¹⁴, and amphibians and invertebrates, a major food source for fish, have even greater sensitivity. According to the EPA, the LD50 of POEA in mammal studies is 630 mg/kg, which places this surfactant close to the limit of what is still considered by the Agency to be a "moderately toxic" substance.¹⁵

Since the public drinking water supply for the City of Berlin is taken from the Androscoggin River directly below the outlet of the Pontook Reservoir (see map), the potential for herbicide residues in city water as a result of water contamination through drift and runoff from sprayed areas is certainly of concern to area residents, if not State officials.

Similar results could be extrapolated for aerial applications, which affect larger areas. Since the sulfonylurea herbicides have been shown to impact plants, particularly plant reproduction, in parts per billion concentrations¹⁶, off target drift from any mode of application is likely to produce significant phytotoxic results in surrounding areas.

NH Government Snubs Public

Unfortunately for the principle stated in the Declaration of Independence that "governments [derive] their just powers from the consent of the governed"¹⁷, the NH House Environment and Agriculture Committee decided in March that public notification and public hearings on applications for aerial spray permits in non-residential areas¹⁸ were unnecessary due to the competent handling of such matters by the Division of Pesticide Control.

Simultaneously, the Pesticide Control Board decided to put its proposed rule changes, which include public notification and public hearings, to rest by appointing a committee to study them and make recommendations. This committee, as it currently stands, contains three open proponents of aerial spraying, including Champion administrator Peter Ludwig, two members of the Pesticide Control Board, a representative of the NH House Environment and Agriculture Committee, and Brian Hart of the Northern Forest Alliance,



Mead Corporation Proposed Aerial Spray Sites in Dummer, NH—1997. Mead plans to spray 698 acres in Dummer this year. As the map shows, targeted spray areas are near wetlands, ponds, streams, and the Androscoggin River. Map by Mike Eastman.

an organization which supports public involvement, but has taken no position on herbicide spraying. Expect the Alliance representative to be outnumbered about six to one.

Mead Corp. Granted 1997 Spray Permit

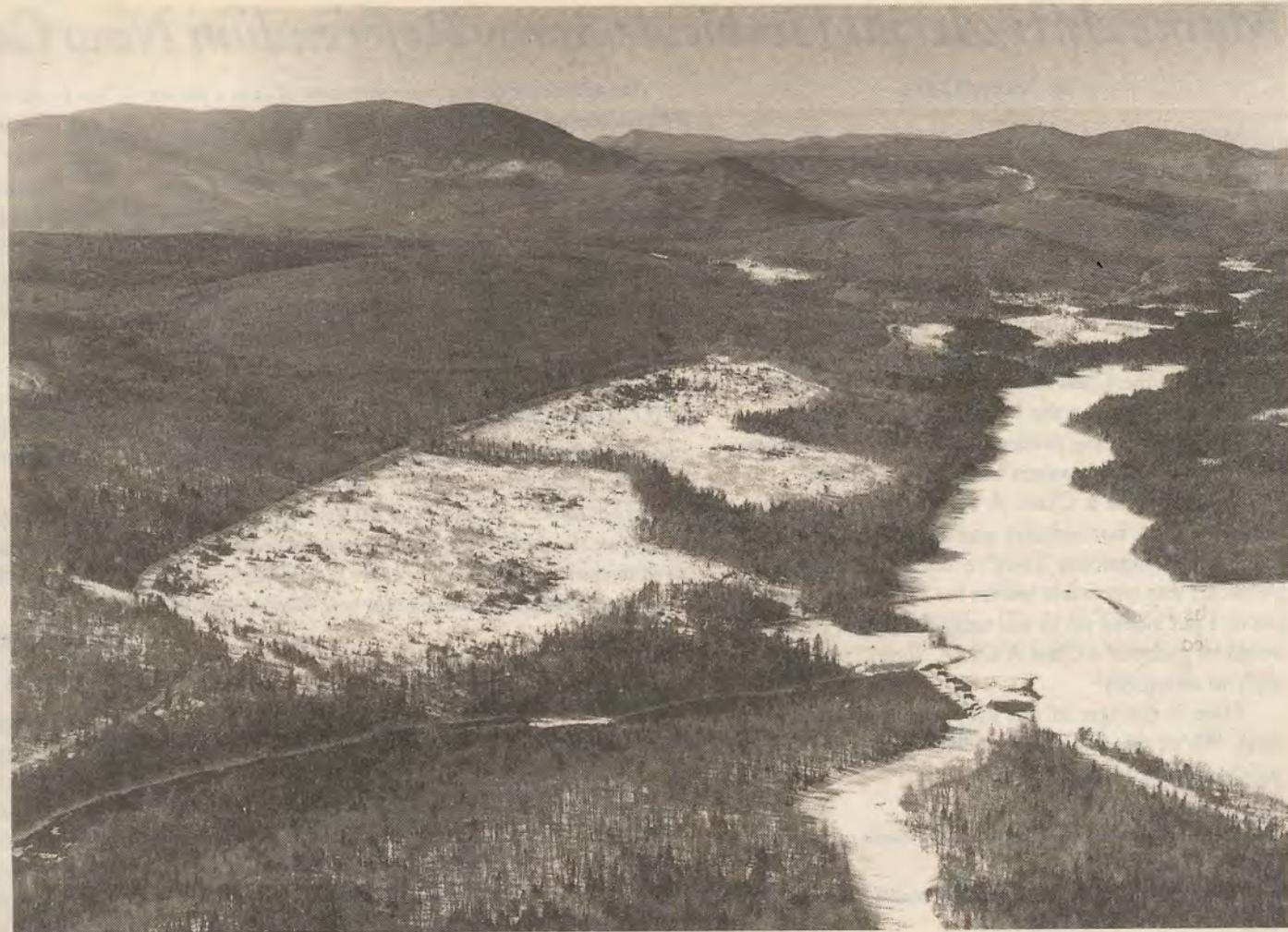
As of today, the public still has no influence over pesticide use in our communities; public opposition to aerial spraying continues to grow exponentially; and the Division of Pesticide Control issued a Special Permit for Aerial Application of Pesticides to Mead Corporation on March 19.

Discouraging as it is to have the door slammed in one's face repeatedly by State government, it appears that the public uproar about broadscale herbicide use *has* positively influenced the Division of Pesticide Control's 1997 aerial spray permit review. The 1996 application review had gone smoothly for Boise Cascade; a bare-bones application with illegible maps and minimal information about the nuts and bolts of the proposed application slid quickly through agency reviews and across Division Director McKay's desk. However, the appeal of that permit by the Herbicide Project apparently inspired a closer look at Mead's application this year. Although the format was essentially identical, this application was far more closely reviewed, leading to two pages of requests for additional information and a challenge to Mead's use of both the Oust™ and Garlon 4™ herbicides, and the use of computer generated maps lacking recognizable topographical features¹⁹.

Special Permit SP-027, a much longer document than last year's permit, contains a number of interesting conditions. Most encouraging of all, a more careful review of this year's application revealed a problem with the registration of the DowElanco product Garlon 4™, leading to withdrawal of the herbicide from the Mead proposal. Local bodies of water will therefore be spared the introduction of triclopyr and one of its associated "inert" ingredients, kerosene, at least for this year.

In contrast to last year, when Mead used Oust™ in all of its applications, the highly potent sulfonylurea is scheduled for spraying on only two sites this year. Due to pressure from two citizen's groups, the Division of Pesticide Control has also appointed a committee to review the New Hampshire registration of this controversial family of herbicides and (coincidentally) asked Mead to justify its use of Oust this year. Not surprisingly, the PCB has registered the herbicide contingent on the committee's investigation and has, of course, issued a permit for its use in the Androscoggin River watershed.

The Special Permit also places parameters on drift, including prohibiting drift contamination of, and requiring buffer zones for, existing bodies of water, springs, and "runoff areas where there is active water flow"²⁰. Prohibiting drift during an aerial application is itself a challenge that neither the EPA nor the industry's American Crop Protection Association has been able to meet. In the words of one community activist from the Dummer area, "that's like emptying my coffee out of



The two clearcuts in the left-center of the picture are targeted for spray by Mead in 1997. The Pontook Reservoir to their right is about a one minute walk from the spray area. An osprey nest, well-known to Dummer residents, is located between the clearcuts and the reservoir. Mead wants us to believe that drift from their herbicides won't enter the Reservoir. Residents of the Berlin, NH area who draw their drinking water from the Androscoggin River which flows out of the Reservoir are, to say the least, skeptical. Photo © Alex S. MacLean—Landslides

my car window while I'm driving and expecting it not to get on my car".²¹

However, by requiring the applicant to buffer runoff and drainage areas, real compliance with the terms of the permit becomes functionally impossible. The areas proposed for spraying are all low-lying or sloping down towards wetlands, streams and open water close by. Finding an area where movement of herbicides in water would *not* occur would be extremely difficult.

In past years, the Division of Pesticide Control has engaged in minimal or no monitoring of aerial spraying, leaving this task to the permit holders themselves. This has proven to be completely ineffective: for example, in 1995 Champion International accidentally sprayed ten acres of International Paper's land while rinsing the helicopter tank after aerial herbicide application; this was not reported to the Division of Pesticide Control until July of the following year, *after* the Division had approved Champion's 1996 special permit. Although Champion representatives assured the press that they had themselves only discovered this significant error in July, and had notified the Pesticide Control Board immediately, one Board member told me privately that he found this "extremely hard to believe". This year the Special Permit requires the condition that the applicant (Mead) provide air transportation for the Division of Pesticide Control to monitor the area "as soon as possible after the effects of the herbicide can be seen".

Local community members are reviewing a number of strategies to stop the spraying this year. For right now, calls to protest the issuance of the Special Permit SP-027 for aerial application of herbicides to Mead Corporation may be placed to Governor Jean Shaheen at (800) 852-3456 or to

the Governor's Environmental Liaison, Susan Arnold at (603) 271-2121. Thanks!

Footnotes

- ¹ Boston Globe, March 3, 1997.
- ² Memo, Anthony Maciorowski, Ecological Effects Branch, US EPA, to Everett Byington, Environmental Fate and Effects Division, March 24, 1994; p. 8.
- ³ "Hypoglycemia by inhalation", *The Lancet*, v. 342, no. 8862, 3 July 1993, p. 47. Also: Carl Whitcomb, personal communication, 1996.
- ⁴ Jeffrey Elliott, personal communication.
- ⁵ Maciorowski, loc. cit.
- ⁶ Maciorowski, loc. cit.
- ⁷ "Indiscriminately from the Skies" Caroline Cox, *Journal of Pesticide Reform*; 15:1.
- ⁸ "Post-Application Movement of Sulfometuron Methyl from treated Right of Way Areas via Wind (Soil) Erosion" Stuart Turner, 4th Symposium on Environmental Concerns in Right of Way Management, Indianapolis, IN. 1993 (Purdue University).
- ⁹ "Persistence and Leaching of the Herbicide Imazapyr in Soil." S. Vizantinopoulos. *Bull. Env. Contam. Toxicol.* 52:404-410 (1994).
- ¹⁰ "Levels of the Herbicide Glyphosate in Well Water" N.J. Smith et al., *Bulletin of Environmental Contam. Toxicol.* (1996) 57:759-765.
- ¹¹ "Effectiveness of Best Management Practices for Aerial Application of Forest Pesticides" Ed Rashin and Craig Gruber. Washington State Dept. of Ecology, October, 1993; p. 78.
- ¹² ibid.
- ¹³ "Magic Schoolbus visits the Waterworks" Scholastic Videos, Scholastic, Inc.
- ¹⁴ "Proposed Surface Water Quality Criteria for Selected Pesticides..." Report to Oregon Department of Forestry and Washington State Dept. of Natural Resources, Logan Norris and Frank Dost, August 20, 1992.
- ¹⁵ Agency Review of 1997 Mead application for special permit for aerial application of pesticides; David Gordon, NH Department of Health, Health Risk Assessment Division.
- ¹⁶ "Potential Environmental Risks Associated with the New Sulfonylurea Herbicides." Thomas Fletcher, et al., *Environmental Science and Technology*, 1993 2250-2252; "Potential Impacts of low levels of Chlorsulfuron and other herbicides on growth and yield of nontarget plants" Thomas Fletcher, et al. *Environmental Toxicology and Chemistry*, 15:7 (1996); Maciorowski, loc. cit.
- ¹⁷ Declaration of Independence of the United States of America, 1776.
- ¹⁸ A "non-residential area" is defined by population density only—the Town of Dummer, therefore, is defined as "non-residential" although people live there.
- ¹⁹ Documents pertaining to agency reviews of 1997 Mead special permit application
- ²⁰ Special Permit #SP-027, March 19, 1997. NH Division of Pesticide Control.
- ²¹ Anonymous Milan resident, regarding 1997 proposed Mead aerial spraying

Maine Legislature Again Protects Pesticide Sprayers

To the editor:

On February 27, the Maine Green Party and Marine Protection Alliance's bid to require the disclosure of chemical use on Blueberry lands for sale was turned down by the state's Committee on Agriculture, Conservation and Forestry. The bill LD447 was introduced by Royce Perkins of Penobscot. According to the Maine Cancer Registry, some of the highest rates in the state are in the blueberry counties of Hancock and Washington Counties.

Although the latest studies were done over 11 years ago and although the Environmental Protection Agency says that more studies need to be done on Velpar and Guthion to determine the toxicity of these dangerous chemicals that are found in the ground water of many down east communities, the committee voted unanimously to keep everyone's head in the sand. David Bell of the Maine Blueberry Commission, the Maine Farm Bureau's John Olson (of "no more people's referendums in Maine"), and Linda Gifford from the Maine Association of Realtors, testified against clean water, and with their combined corporate influence, convinced the committee that although nasty chemicals may be running in the water bubblers of many downeast schools into our children, it's best not to let them know. Farmers of Blueberry lands may go on toxifying their lands and then selling them to unsuspecting buyers with little or no warnings in the name of business as usual.

—Bob LeVangie, RR#1 Box 260, Penobscot, ME 04476

Maine Anti-Aerial Herbicide Spray Referendum Now Gathering Signatures

by Nancy Oden

We've won the first skirmish! Maine's Supreme Court ruled against the Maine Farm Bureau, which had sued the Secretary of State on our Referendum's ballot question, saying it wasn't "clear"—an obvious delaying ruse. Now we can go ahead and print the huge forms and begin organizing signature-gathering.

The question isn't perfect (we would have written it differently, but the Secretary of State has that job), emphasizing the Class A crime the way it does, but it is clear. It will read on the November, 1998 ballot:

"Should spraying pesticides from the air or putting pesticides in Maine's waters be a Class A crime?"

It already is a Class A crime to contaminate Maine's waters, but industry and agriculture have been granted exemptions. They've been dumping toxic chemicals into our waste waters for a very long time. If you or I put a dead rat in our neighbor's duck pond, we would be guilty of a Class A crime. Should not the law apply to all equally?

Here is the text of our proposed Referendum, in total. We've tried to keep it clear and simple. Any questions, give us a call.

Be it enacted by the People of the State of Maine as follows:

SEC. 1 7 MRSAs S606, sub-??? and 4 are enacted to read:

3. *Aerial spraying prohibited. A person may not apply pesticides, or cause pesticides to be applied, by means of aerial spraying.*

4. *Synthetic pesticides may not enter certain waters. A person may not cause, by any means, the introduction of synthetic pesticides into a well that supplies drinking water for a residence or school, ground water, as defined in Title 38, section 361-A subsection 2-A, aquifer, as defined in Title 38, section 361-A, subsection 1-D, fresh surface waters, as defined in Title 12, section 591, subsection 2, of this State.*

Sec. 2. 7 MRSAs S606, as amended by PL 1989, c 878, Pt. E, SS3 and 4, is further amended by adding at the end a new intended paragraph to read:

Notwithstanding any other provision of law, a person who violates subsection 3 or 4 commits a Class A crime,

Sec. 3. 7MRSAs S626 is enacted to read:

S626. Exemption from law or rule regulating pesticides

A state or local agency that receives an application for an exemption or variance from a law or rule regulating pesticides shall give notice to the public of this application and shall hold a public hearing in the municipalities affected by the application. The decision whether to grant the exemption or variance must be made by vote of the citizens in the municipalities affected by the application. Citizens will vote by secret ballot referendum at a municipal election to be held on the same day as the next statewide election in November that is not less than 60 days after the public hearing on the application for the exemption or variance. If the municipality affected or one of the municipalities affected is an unorganized township, the vote must include vot-

ers in the county in which the affected unorganized township is located.

We have until January 1998 to gather about 56,000 signatures, a monumental job for us, since we are located on the Northern Coast, away from population centers. If any of you can help collect signatures to get this Citizen Referendum on the ballot, please call or drop us a card.

And, as with all our projects, we're right out straight on a shoestring. Any monies you send will be spent carefully. Believe me, we know how to be frugal! Thanks for whatever you can do.

To help gather signatures, or to donate to this grassroots campaign, contact: CLEAN: Maine, P.O. Box 186, Jonesboro, Maine 04648, 207-434-6228.

Help Wanted to Stop Spraying

If you'd like to learn how to be an EFFICIENT environmental activist, join us on the northern coast of Maine as we battle the poisoners. Come live on a small, saltwater farm with 2-3 others working on real-life environmental projects, while growing our food and herbs organically.

Current projects include: (1) Citizens Referendum to stop aerial pesticide spraying and keep pesticides out of Maine's waters; (2) intervening in 1400-acre, pesticided cranberry bog proposal, (3) working in state-wide and New England coalition to stop dioxin emissions from paper mills and hospital and other incinerators, and, if we have enough help, (4) fighting the natural gas pipeline which would plow through our woods and waters from Canada.

Would love to pay you for your labor, but cannot. Instead, you can come live with us for \$300/month and share food, work, and play while we try to save what's left of Maine and Earth. Call Nancy Oden at 207-434-6228 or write P.O. Box 186, Jonesboro, Maine 04648.



Update on Proposed Toxic Cranberry Bogs in Washington County, ME

by Nancy Oden

On March 26 the BEP (Board of Environmental Protection) decided it will take jurisdiction on the Canadian company, Cherryfield Foods', monster cranberry bog proposal. Given the Board's anti-environmentalism and canine-baring snarls at citizen activists, why is this semi-good? It gives us all a small chance, for influencing the decision, and a tiny chance for public hearings, always a plus for exposing the truth and gathering support.

Otherwise, this huge project, involving the tearing up and poisoning of 1400 acres (about 2 1/2 square miles) would have been allowed to progress on "permit by rule," a nice way of saying the staff person in the Department of Environmental Protection makes the decision, depending which way the political winds blows.

Gov. King really, really wants this project. He has higher ambitions when his days of being Maine's governor are over. Creating jobs, even at the expense of those of us who live here and our clean water, will look good on his C.V. when he applies for U.S. President.

As stated in the last Forum, the 200 seasonal jobs are intended for Mexican migrant workers, who will be brought in by brokers before Washington County people even get a chance at those jobs (pulling weeds in

pesticided, fake cranberry bogs). This project is not going to help us. The sole beneficiary of Gov. King's support will be Cherryfield Foods' parent corporation, Oxford Frozen Foods of Nova Scotia, Canada.

This is NAFTA at work: a Canadian company destroying Maine woods and waters and bringing in cheap Mexican labor to do the work. This leaves us with poisoned fish and lobsters, destroyed woods and contaminated coastal waters and Atlantic salmon rivers (Machias and Pleasant). What do those of us who live here get out of it, aside from the "benefits" just stated? The "quality" jobs of turning the valves in the fake bogs, putting pesticides into the bogs, and letting those waters loose to harm everything in their path.

More semi-good news is that the LURC (Land Use and Regulation Commission) has decided it does, indeed, have jurisdiction over this 1400 acres of woods, wetlands, and rivers. Please write them (Augusta, Maine 04333) requesting public hearings. This is important.

More—the Atlantic Salmon Authority has expressed concern that all the sites have "the potential to influence salmon in downstream locations." Write urging them to support public hearings at 650 State ST., Bangor 04401.

We also have time (only until about April 25) to urge the Army Corps of

Engineers to have their own public hearings and to do an Environmental Impact Statement, which can take upwards of a year. Their address: Jay Clement, U.S. Army Corps of Engineers, RR 2, Box 1855, Manchester, MAine 04351. This could be crucial.

We're certain Cherryfield Foods is putting forth this proposal now—on a very fast track with King's help—so that they may get grandfathered in before our Pesticide Referendum gets to the voters in November 1998. Their proposal states they intend to use pesticides in these bogs, which would be built over ten years. That pesticide use would be stopped completely by our referendum, which says NO pesticides may be put in Maine's waters. None.

This project would make a huge, poisonous mess and hasten the death knell for our coastal fisheries. Please help us to stop it. We're tiny and unfunded and going up against this Canadian conglomerate, but we have the support of many fishermen and area people and we're not giving up!

Because we'll be going into high gear soon on our pesticide referendum (no aerial spraying, no putting pesticides into Maine's waters), we'll need some help on this one if we are to get any concessions at all. We know most of you are already activists, but we're not a funded group, so please send a few dol-

lars—whatever you can will be well spent and appreciated. Thanks.

To help out with money or volunteer labor, contact: CLEAN: Maine, P.O. Box 186, Jonesboro, Maine 04648, 207-434-6228

Public Meeting on Cranberry Bogs

On Thursday, April 19, Maine's Land Use Regulation Commission (LURC) will hold a public meeting (not as good as an official hearing, but something, anyway) in Cherryfield, Washington County.

Write to Sara Lynn Brusilla, LURC (State House Station, Augusta, ME 04333) requesting an official public hearing. Write to Jay Clement (Army Corps of Engineers, Capitol Park, Augusta, ME 04330) requesting public hearings and that they do an Environmental Impact Statement (this can take a year or more) on the area that would be destroyed by these proposed cranberry "bogs."

Call Nancy Oden at 207-434-6228 for time and place of Cherryfield meeting, and for any other information regarding these "bogs". Any help, volunteer work or financial, is welcome.

Hubbard Brook Studies Raise Troubling Questions About Northern Forest Health

by Emily Bateson &
Kathy Fallon Lambert

When the long battle over the 1990 Clean Air Act amendments was over, everyone breathed a sigh of relief: the acid rain and forest health crisis was over. But is it really? The answer is critical for the future of the Northern Forest and its inhabitants.

North American acid rain was first identified in the Northern Forest, by Dr. Gene Likens and colleagues at the Hubbard Brook Experimental Forest. Owned by the USDA Forest Service, the New Hampshire site has been the home of the Hubbard Brook Ecosystem Study for over 33 years.

The Hubbard Brook Ecosystem Study is a long-term ecological research initiative involving over 40 scientists from universities, research institutions, and federal agencies, working in cooperation with USDA Forest Service. The study has measured stream flow, rainfall, water chemistry, bird populations, forest growth, and other ecological parameters for over 33 years. This investment has yielded an ecosystem assessment model emulated world-wide, and over 1,300 scientific publications and reports, detailing air pollution and forest management effects on clean air, clean water and forest health.

It was only because Hubbard Brook scientists had collected 18 years of water chemistry data that the acid rain trend was both recognizable and fully defensible. In the Clean Air Act amendments of 1990, Congress mandated a 50 percent reduction in 1980 sulfur dioxide levels by the year 2010.

With the air quality improvements mandated by the new Clean Air Act, policy makers and scientists expected our forests, streams and lakes to show a speedy recovery, and many assumed the acid rain problem was solved. Yet many questions remain about forest health in the region.

Stream water in the Hubbard Brook watershed has shown no significant improvement in acid levels since the 1960s; fish consumption advisories still clutter stream banks across the Northeast because of mercury contamination and/or dioxins, and recent research suggests that acid rain effects on forest soils may be contributing to reduced forest biomass accumulation (growth) rates.

Most notably, Drs. Gene Likens,

Charles Driscoll, and Donald Buso examined 30 years of Hubbard Brook data and reported their findings in the April 1996 issue of the journal *Science*. According to the authors, Hubbard Brook data suggest that large quantities of base cations have been lost from the forest soil and carried away by stream water (Likens et al., 1996). Base cations (mainly calcium and magnesium) are essential nutrients for plant growth and also help counteract the effects of acid rain by neutralizing acidic pollutants (Hedin and Likens, 1996).

Losses in base cations have been attributed to the combined effect of long-term exposure to acid rain and declines in atmospheric deposition of base cations. Hubbard Brook data show a 49 percent drop in base cations in precipitation since 1965 (Hedin and Likens, 1996) and a 50 percent reduction in calcium in the soil at Hubbard Brook over the last 45 years (Kaiser, 1996). These losses seem to be aggravating the ecological effects of acid rain. Dr. Likens and colleagues found that annual forest biomass accumulation (growth) at Hubbard Brook Experimental Forest has "declined unexpectedly to a small rate since 1987" (Likens et al., 1986). Limited calcium availability has been cited as a possible cause for this slow-down in growth, but the mechanisms are complex and not

yet well understood. Future Hubbard Brook research will include application of lime to assess what role acid rain and calcium play in forest health.

What does it all mean? Dr. Gene Likens explained in an April 16, 1996 *The New York Times* article: "If indeed the forest has become limited in its growth by the disappearance of these base cations—and I emphasize if—then that's a very serious implication of these results." Because the base cations are leaching from the soils, the forests appear less and less able to neutralize the continuing deposition of acid to the system. "The system is now very sensitive," Dr. Likens reported to the *Times*.

Despite the implications of the Hubbard Brook research, acid rain has faded from the public consciousness. Funding for the National Acid Precipitation Programs been cut by 84 percent over the past decade. Most recently, the United States Geological Survey acid rain program (part of a program that monitored rainfall across the nation for the past 20 years) has been eliminated. President Clinton has promised to balance the budget in part by cutting science funding 35 percent by the year 2002. Although Vice-President Gore has challenged the federal agencies to produce an "environmental report card," the long-term monitoring funds which would make such a report

card possible are drying up.

The health of the northern forest ecosystem is under stress from air-borne pollution. Despite our hopes for recovery from air pollution, some forest ecosystems show lingering effects. It may take decades for some forests to rebuild their pools of essential nutrients, even if air pollution levels continue to drop (Hedin and Likens, 1996). The 1990 Clean Air Act amendments may not be sufficient to protect our forests and streams against further anthropogenic acidification. Those who care about the future of the Northern Forest would do well to give close scrutiny to overall forest health, and to the long-term monitoring and scientific funding necessary to identify and advance the key ecological issues.

Emily Bateson is on the Board of Directors of the Hubbard Brook Research Foundation. Kathy Fallon Lambert is the Director of the Futures Assessment Project, Hubbard Brook Research Foundation.

References

- Likens, G.E., C.T. Driscoll and D.C. Buso. 1996. Long-term Effects of Acid Rain: Response and Recovery of a Forested Ecosystem. *Science*. Vol. 272, pp. 244-45.
Hedin, L.O. and G.E. Likens. 1996. Atmospheric Dust and Acid Rain. *Scientific American*. Vol. 275, no. 6, pp. 88-92.
Kaiser, J. 1996. Acid Rain's Dirty Business: Stealing Minerals from the Soil. *Science*. Vol. 272, p. 198.



Only the tip of this huge clearcut is visible to travellers heading south on Route 3 between Groveton and Lancaster, NH. Even under the best of conditions, clearcuts stress healthy forest ecosystems. Does it make sense to inflict additional stress on forests that are under stress from airborne pollution? Photo© Alex S. MacLean—Landslides

A Call for Action as Mercury Rises in the Northeast

by Michael Bender

"The federal Environmental Protection Agency has sold out the public, bowing to industry pressure in delaying release of a mercury report..." begins a March editorial in the *Burlington Free Press*. And although neither Congress or the White House appears concerned, the mercury is rising in the Northeast as citizens and state officials alike call for action to reduce mercury pollution.

Mercury is not regulated under the Clean Air Act and special interests have worked hard to keep it that way, especially now as utility restructuring begins. The issue was watered down in 1990 when the Clean Air Act amendments only required EPA to provide Congress with a report on mercury by 1994. Although the Mercury Report to Congress was effectively completed in 1995, its release has been continuously delayed ever since by special interests.

Like acid rain, toxic mercury from Midwestern

coal-fired power plants and waste disposal facilities rains down especially hard on the Northeast, threatening forests, water bodies, fish, and people. And like the acid rain debate, some would prefer nothing more than to study mercury to death rather than prevent pollution.

However, even in minute concentrations, mercury can result in reproductive and neurological problems in humans and animals. Because of this, 36 states (including all Northeastern states) have issued advisories warning people, particularly pregnant women and children, about consuming fish due to high levels of mercury. Studies show that high concentrations of mercury in New England bald eagle and loon populations are well above average and may impact reproductive rates. Mercury levels in these populations are closely correlated to EPA-projected amounts of mercury deposited from the air in the Northeast.

In February, the Vermont Senate passed J.R.S.12, a resolution urging EPA to release the Mercury Report

to Congress and to not exempt mercury hazardous waste lamps from regulation. You can help by calling the commissioner of your environmental agency and state representatives to support passage of a similar resolution.

When you call or write, inform them that you support efforts by state environmental commissioners who have urged EPA to release the mercury report. These include the following commissioners: Varney (NH) 603-271-3503, Sullivan (ME) 207-278-7888, Ripley (VT) 802-241-3620, Struhs (MA) 617-292-5500, and Shinns (NJ) 609-292-2885. You can also say that Assemblyman Brodsky, Chair of Environment Committee (NY) 518-455-5753 and 50 U.S. Representatives and Senators, led by Senator Leahy (VT), have also urged the same.

For copies of the state mercury resolution, letters to EPA, or for more information call Michael Bender at (802) 223-9000.

Northern Forest Alliance Proposes Wildlands Protection Strategy

On March 3, 1997, the Northern Forest Alliance released a report defining its proposal for creating a series of Wildlands to help conserve the traditional values of the Northern Forest. "Wildlands: A Conservation Strategy for the Northern Forest" details the Alliance's Wildlands concept, and describes ten places the Alliance believes merit special protection.

Conserving Wildlands is one of the Alliance's three central goals, along with ensuring well managed private forests, and building strong local economies. As outlined in the report, the Alliance's goal is to conserve or restore the wild character and ecological well-being of this vast forest land in a way that meets human and economic needs. Identifying a system of Wildlands is described as key to maintaining the ecological integrity of the Northern Forest while ensuring that it continues to provide high quality recreation opportunities and timber products. The report recognizes that the 26-million-acre Northern Forest has been the cornerstone of a way of life in New England and New York for generations, and it recommends using an array of private and public conservation techniques to protect the forest from fragmentation and unwanted development.

In publishing "Wildlands: A Conservation Strategy for the Northern Forest," one of the Alliance's goals is to encourage serious public discussion across the region about how to protect our most important forest resources. Conservation of these areas can come in many forms—landowner initiatives, public and private purchase, management plans, local regulation, easements, and other methods. As stated in the publication, "the Alliance advocates that each state follow the Northern Forest Lands Council's recommendation to provide citizens with an open public process to identify land conservation priorities." This type of constructive public discussion is already underway in Maine, and will soon begin in Vermont.

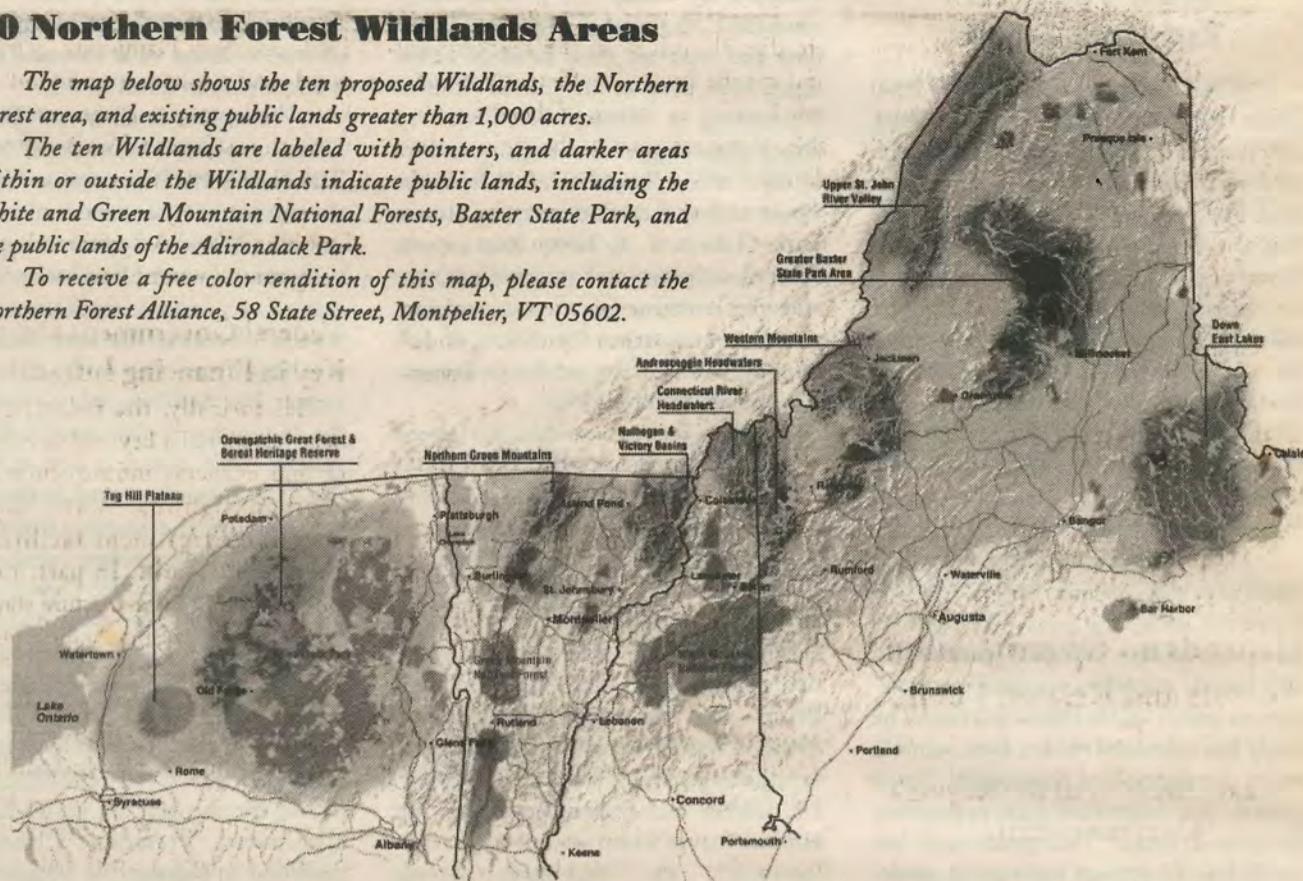
The second goal of the "Wildlands" publication is to offer more information about the ten places the Alliance considers most important to protect because of their ecological and recreational values. The Alliance believes these are places that can help provide sustainable yields of timber, maintain the ecological health of the region, provide wildlife habitat, and

10 Northern Forest Wildlands Areas

The map below shows the ten proposed Wildlands, the Northern Forest area, and existing public lands greater than 1,000 acres.

The ten Wildlands are labeled with pointers, and darker areas within or outside the Wildlands indicate public lands, including the White and Green Mountain National Forests, Baxter State Park, and the public lands of the Adirondack Park.

To receive a free color rendition of this map, please contact the Northern Forest Alliance, 58 State Street, Montpelier, VT 05602.



support traditional recreation such as hunting, snowmobiling, fishing, and hiking.

The Northern Forest Alliance proposes that the public create a system of Wildlands across the Northern Forest to serve the following purposes:

- Continue to provide open access for traditional recreation such as hunting, hiking, fishing, canoeing, camping and other activities.
 - Include permanent protection for ecologically and recreationally important areas within each Wildland to guarantee wildlife habitat and true wilderness experiences for future generations.
 - Support sustainable timber harvesting that meets clear ecological and sustainability guidelines.
 - Remain essentially undeveloped, without new construction that is inconsistent with maintaining the area's wild qualities, ecological integrity, and productive forests.
- The Alliance strongly supports an open, public process that empowers everyone to work together to find cooperative, practical ways to conserve the Northern Forest. The result will offer future generations three ingredients critical to a high quality of life: a

sound environment; healthy forests that can support our forest-based economy; and an inviting natural landscape that provides great recreational opportunities.

The 10 proposed Wildlands, include:

- Greater Baxter State Park Area, surrounding Maine's largest public landholding;
- Upper St. John River Valley along the Canadian border;
- Down East Lakes, including the largest peatland in Maine;
- Western Mountains, including eight of Maine's 12 highest mountains;
- Androscoggin Headwaters, straddling the Maine/New Hampshire border;
- Connecticut River Headwaters, excluding the developed areas downstream from First Connecticut Lake;
- Nulhegan & Victory Basins, in northeastern Vermont;
- Northern Green Mountains, along the northern spine of the Green Mountains;
- Oswegatchie Great Forest & Boreal Heritage Reserve, in the western and northwestern portion of the Adirondack Park;
- Tug Hill Plateau's Forest Core, an extensive, undeveloped system of wetlands and headwaters west of the

Adirondack Park.

The entire Northern Forest, the largest remaining undeveloped forest in the East, comprises 26 million acres of woodlands, mountains, and rivers from Maine's North Woods, New Hampshire's North Country, Vermont's Northeast Kingdom, and New York's Adirondacks and Tug Hill region. The Northern Forest is the economic and environmental backbone of the region, providing jobs in the forest products and tourism industries, and encompassing the limited undeveloped land remaining in the region.

The Northern Forest Alliance, formed in 1990, is a coalition of more than 30 conservation, recreation, and forestry organizations committed to providing permanent protection of wildlands; ensuring well-managed forests that supply wood products, support wildlife, and provide recreation; and building strong, diverse local economies to provide stable jobs and support communities within the Northern Forest. Copies of "Wildlands—A Conservation Strategy for the Northern Forest" are available on request from: Northern Forest Alliance, 58 State Street, Montpelier, VT 05602. Tel. 802-223-5256.

Lost Landscapes and Failed Economies Examines Declines in Resource Extraction Communities

In opening remarks to his new book, Thomas Michael Power writes: "Ideally, science strives to help people see things, and make connections that were not visible before. This book endeavors to do just that."

Lost Landscapes and Failed Economies unquestionably succeeds.

Chair of the Economics Department at the University of Montana, Power draws upon environmental controversies of the American West to illustrate his major premises. He challenges the "common knowledge" that natural resource extraction is the foundation of the region's general and even rural economies.

Arguing that citizens, politicians, resource managers and many environmentalists are out of touch with the economic realities of their backyards, Power suggests that quality of life attributes—not resource extraction—drive most of the West's economic activity. Environmental protection makes not only ecological, but economic sense as well.

While Power's primary focus is on the western United States, his analysis and general principles apply equally to timber towns in Maine and mining towns in Yukon Territory.

Decline of primary industries in the West has represented not so much a disaster as an economic maturity that offers opportunity. Industries that value a mature, well-educated and stable workforce can also offer good wages and economic security. While resource extraction industries decline, most of the West is experiencing just such growth. Power suggests that resource extraction industries almost always create dependent, third-world colonial economies. He also takes on the myth of the low-wage service industry that "everyone will soon be flipping burgers." If Power is correct, there is much to be optimistic about.

In closing, Power argues that we are selling off valuable and rare landscapes for things that are relatively common and easily replaced. A barrel of oil, he notes, is the same whether it comes from Texas, Saudi

Arabia or the Arctic Wildlife Refuge in Alaska—while the Refuge is a global rarity. Yet, the western United States has yet to value its landscape logically. We drain rivers to grow livestock feed, while trout go extinct. We build roads to extract eight-inch trees in the Rockies and doom grizzly bears. We allot the majority of forage on public lands to grow cows instead of bison, elk and bighorn. Power concludes that we can no longer squander the unique to procure the common.

Change the name of the players, and you have much the same arguments and mythology dominating discussions of the Northern Forest region. If Power is correct, protecting landscape quality not only improves the environment of local communities but enriches them economically as well. It's not the only argument to use to promote restoration of the Northern Forest, but Power's book provides many insights into how the economic debate need no longer sidetrack ecological restoration efforts.

—Reviewed by George Wuerthner

Investing in Public Land: A Necessary Foundation for the Northern Forest

*Editor's Note: The following is adapted from a recent report commissioned and prepared by the National Wildlife Federation's Northeast Natural Resource Center based in Montpelier, Vermont. This report, *Investing in Public Land: A Necessary Foundation for the Northern Forest* is must reading for anyone interested in public land acquisition issues. For further information, or to receive a copy of the full report is available from NWF, 58 State Street, Montpelier, VT 05602 Tel. 802-229-0650; FAX 802-229-4532.*

When we see land as a community to which we belong, we may begin to use it with love and respect.

—Aldo Leopold

I: A Region's Well-Being Depends on Investments in Forests and Related Public Goods

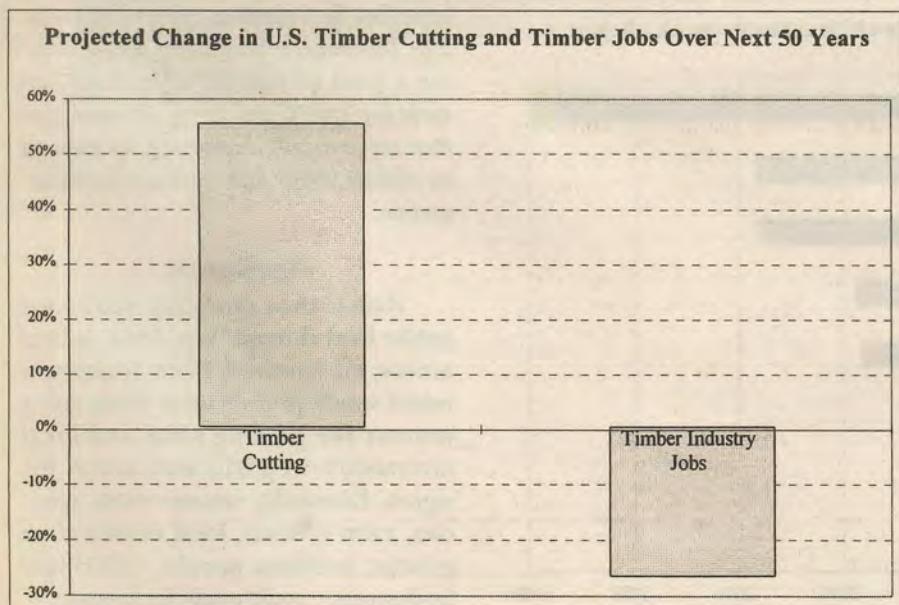
Forests Are Part of the Region's Commonwealth

Over the past several years, residents of the four northern New England States—Maine, New Hampshire, Vermont and New York—have been thinking about the vital importance and uncertain fate of the vast forests in their region. Two things emerged out of the widespread concern for the forests and the conversation that ensued: a view of forests as vital to the region's general well-being—commonwealth—and a sense that residents must take responsibility for protection of forests and other basic resources in order to promote their commonwealth.

Forests are a commonwealth resource because they provide benefits shared in common by the residents of the region. These benefits include life sustaining functions such as oxygen creation, watershed protection, recreation opportunities, and a source of energy and wood products.

According to recent studies, there is widespread public support to protect these public benefits and maintain high environmental quality. Eighty five percent of respondents believe that the federal government has the responsibility of ensuring that most Americans have a clean environment.¹ And most people are willing to pay more to preserve national parks and wildlife refuges through user fees (78%) and taxes (59%).²

Timber Harvesting Increasing, Timber Industry Employment Falling



However, only a few forest benefits are directly priced in the marketplace and can be provided efficiently by private businesses, but all of them are valuable, if not essential to the region's residents. Private business typically lacks the monetary incentive or appropriate market structures to adequately supply clean air, clean water, rare songbirds, wild forests and scenic views. Provision of these and other "public goods" require public action and public investment.

Public Goods Provide Benefits Essential to Economic Well-Being

Clean air is an example of a public good. Everyone would agree that clean air is valuable to all of us, but few would be willing to pay a business to produce it. Why? Because if a business provides clean air to a community, it must provide it for everyone living there. There is no practical and profitable way for businesses to exclude non-paying customers from enjoying clean air, clean water, wildlife, wildlands and other public goods. Public organizations—governmental and non-governmental—must play an active role in delivering public goods, or else they will not be adequately provided.

Infrastructure—Built and Natural—is Needed to Supply Public Goods

When people hear the word "infrastructure" they usually think of roads, transportation systems, water supplies, wastewater treatment plants, and other things built to sustain life and/or support the economy. Few people include in their definitions of infrastructure such things as wildlands, wetlands, parks, scenic views and other natural features; but more should. These elements of our natural infrastructure are essential for sustaining life and/or supporting the economy. And, they too need to be invested in and maintained by the public. Both built infrastructure and natural infrastructure are parts of the system of "public works" needed to promote the commonwealth.

Employers, workers, retirees and children benefit when public investment in infrastructure is adequate. In many cases, existing or restored natural systems can provide public infrastructure services at a fraction of the cost of built

infrastructure. For example, in Littleton, New Hampshire, public land saved local residents over \$3 million as a watershed protection agreement signed with the adjacent White Mountain National Forest will enable the town to comply with requirements of the Safe Drinking Water Act without building a costly central water filtration system.

Federal Government Has Been Key in Financing Infrastructure

Historically, the federal government has played a key role in coordinating and financing infrastructure investments in highways, water supplies, wastewater treatment facilities and other public works. In part, this was done by setting infrastructure standards, and helping to define public purposes (needs) for infrastructure.

Improving the nation's rural highway system illustrates the role the federal government can play in coordinating and financing infrastructure. The 1916 Rural Post Roads Act authorized federal grants to pay for up to half the costs of constructing rural (local) roads used to deliver the nation's mail. This Act set out some broad principles about how federal financing should be apportioned to eligible infrastructure projects.

- Federal government should bear a large share of the development costs, but the ownership, management and maintenance should remain with state and local governments. (Partnerships with private and non-profit organizations would be included today.)
- Federal spending should be authorized for multi-year programs in order to support multi-year construction projects.
- Federal criteria should be established to determine eligibility for federal financial aid.
- Federal financial aid should be apportioned based on need factors such as area, population, relative scarcity, urgency, national interest.

Until 1972, the federal government did not see water quality as an infrastructure issue, and left responsibility for controlling water pollution almost exclusively in the hands of state and local governments. However, in 1972 Congress realized that relying solely on states and localities to set and enforce water quality standards was allowing unacceptable degradation of the nation's

waterways. Recognizing water as a public good, the federal government implemented a broad infrastructure approach to achieve the newly adopted goal of fishable and swimmable waters nationwide.

II. Financing and Coordinating Investments in the Northern Forest: A Proposed Model

The Northern Forest Investment Board

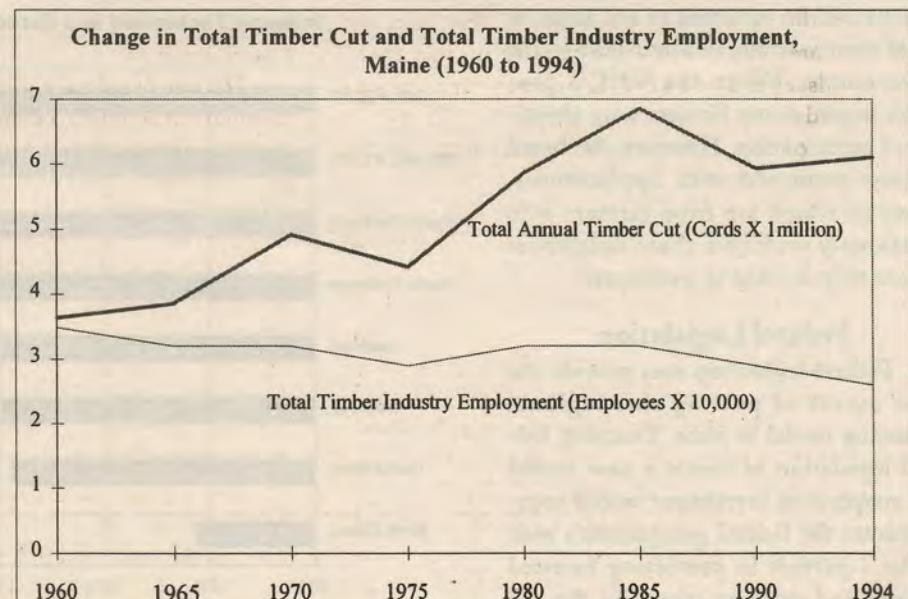
A new, flexible model for financing public land protection and other public works in the Northern Forest is proposed as a means of creating the economic and environmental infrastructure that the region needs to prosper. The Northern Forest regional investment model is based loosely on the Vermont Housing and Conservation Board investment model that has been used with great success in Vermont for a number of years.

In essence, the proposed model would create a public board that would oversee the allocation of public funds. The funds would be used to finance any built and natural infrastructure, on a willing-seller basis, that would further the public goals expressed in the enabling legislation. The infrastructure could range from purchase of easements in one area to public land acquisition and protection in another. It would be up to landowners, citizens, and organizations to demonstrate that their project was a public investment appropriate to the stated public goals.

This model can help inspire, guide and coordinate forest-related public investments across the region for several reasons:

- 1) A regional decision-making body will help move the region closer to achieving some of its generally accepted goals, particularly those expressed in the findings of the NFLC.
- 2) Presumably, project funding would be contingent on consistency with state and local plans so that the funding would serve as an incentive for coordinated planning across the region.
- 3) Land acquisition and conservation methods may become more acceptable if and when they are voluntarily and successfully used in the region.

Maine Timber Harvest Rising, Employment Falling



Over time, public acquisition may not seem as threatening.

4) This model will encourage various interest groups to work together.

Although the Vermont Housing and Conservation Board program has a more limited focus than the proposed Northern Forest Investment Board would have, both involve willing-seller land conservation programs.

The Vermont Housing and Conservation Board Experience

In 1987, the Vermont Legislature established the Vermont Housing and Conservation Board (VHCB) for the purposes of "creating affordable housing for Vermonters, and conserving and protecting Vermont's agricultural land, historic properties, important natural areas and recreation lands."³ The Board's primary responsibility is to provide grants or loans to eligible applicants for projects that will meet these dual purposes.

The Board plays a non-regulatory role, acting as an independent instrument of the state, directly and fully accountable to the legislature and the people of the state. Unlike a typical government agency, the Board can act quickly and creatively, and is relatively free from political pressure. The Board is made up of nine members—four ex-officio heads of state agencies and five citizens appointed by the governor.

The VHCB model creates opportunities and incentives for public agencies, private organizations and private landowners to work as partners on projects that promote the statute's dual public goals. The nonprofit partners greatly expand VHCB's ability to create customized and unique programs for affordable housing and conservation land. The private partners identify worthwhile projects, coordinate directly with landowners and local officials, pull together necessary financing, and provide for management and stewardship of the project in the future. The result is a customized project that has the trust and support of local residents.

The VHCB model takes full advantage of the speed and flexibility possessed by non-profit organizations. This enables Vermont to avoid the delays typically associated with federal and state government land acquisition programs. Speed in processing acquisitions helps to keep costs low and enables the Board to purchase land for conservation before it is sold to another party.

One concern with the proposed public investment model may be that owners will be reluctant to sell some or all of their interests in forest land to the government. When the VHCB program began, many farmers were skeptical of participation. However, the board is now swamped with applications, many of which are from farmers who cautiously watched their neighbors before they decided to participate.

Federal Legislation

Federal legislation may provide the best means of putting this regional financing model in place. Enacting federal legislation to create a new model for cooperative investment would communicate the federal government's wish to be a partner in protecting forested regions and avoiding crises like the one

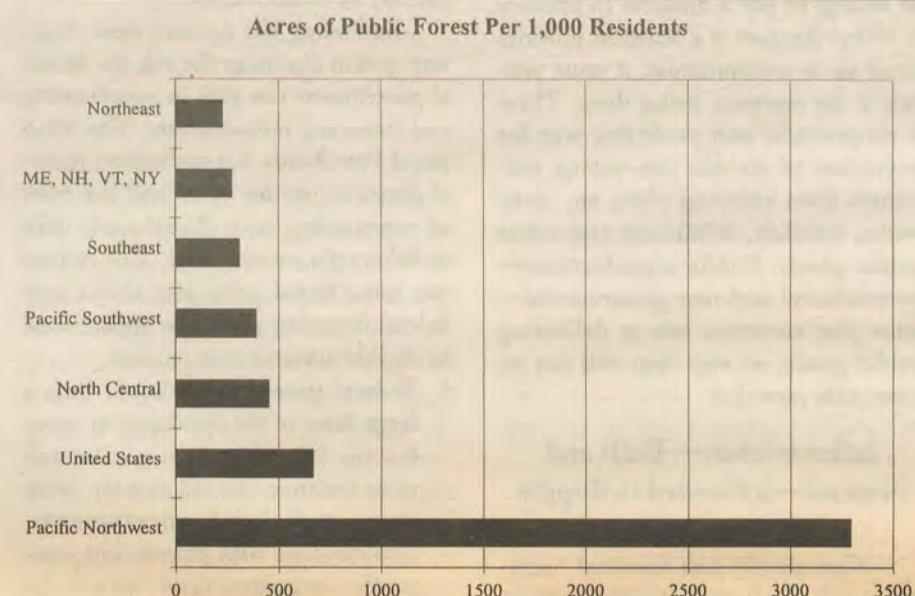
recently experienced in the Pacific Northwest. If successful, the Northern Forest's model could be adapted to fit other regions of the nation.

Public Purposes—Not Lines on a Map—Would Guide Investments

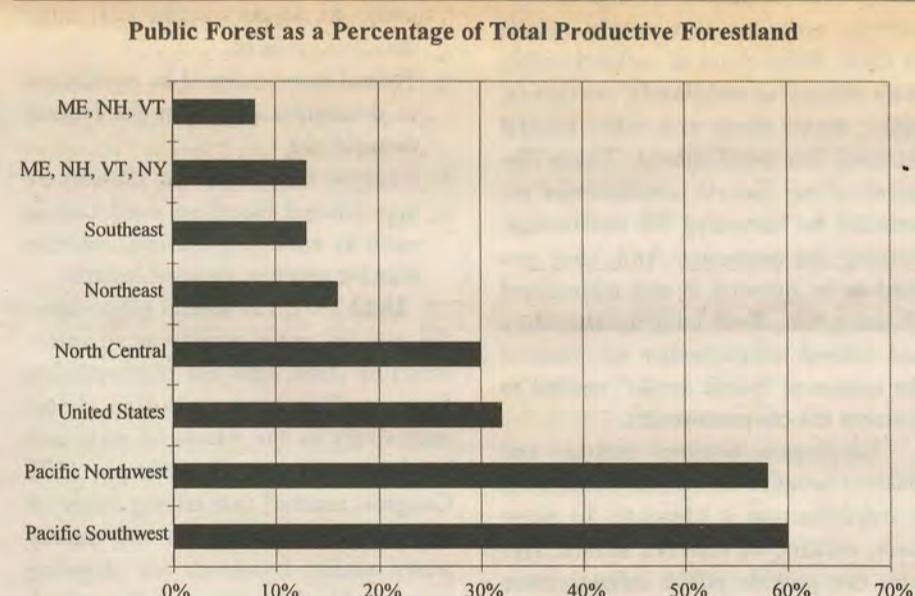
If the legislation clearly describes the public purposes that it aims to achieve, then there would be no need to force the region's public investments into rigid, pre-set molds, green lines, or official National Forest or National Park purchase boundaries. The common public purposes, not lines on a map, would provide the targets. The public purposes might include:

- promoting ecological sustainability and biodiversity;
- promoting locally and regionally owned, value-added manufacturing;

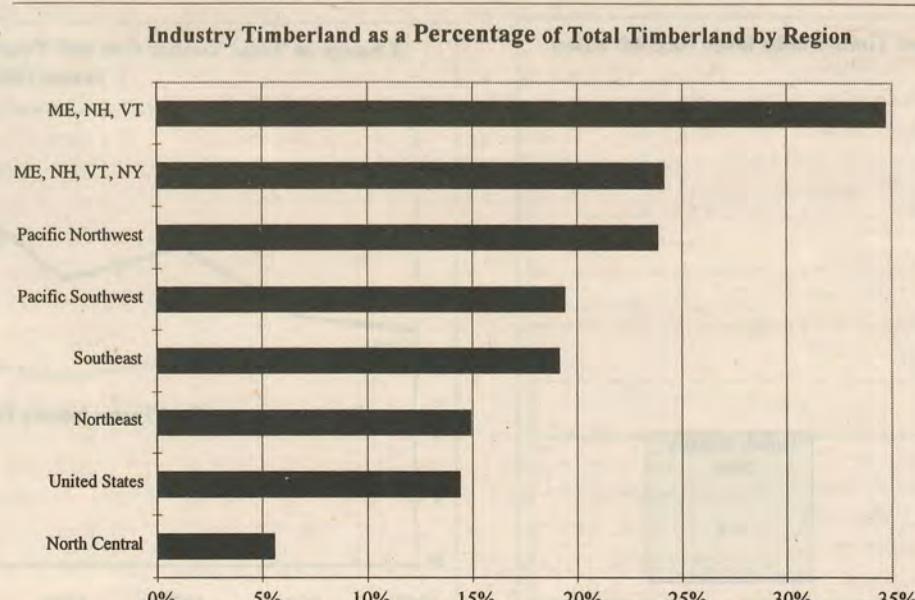
Northeast has Least Public Forest Land Acreage



Share of Publicly Held Forest Land Least in ME, NH, & VT



Share of Timber Land Held by Industry Greatest in ME, NH, & VT



- plugging leaks in local and regional economies;
- promoting local, sustainable forestry and agriculture; and
- restoring human and natural communities.

The flexibility inherent in this approach would allow the region to create a well-balanced mix of public lands owned by local, state and/or federal governments, as well as private, non-profit conservation organizations. The mix in any one area could be adapted to fit the unique circumstances of that area as determined by the area's local governments.

Conserving Large Blocks of Forest Land

A concern with the proposed model is that its voluntary nature would

lead to scattered projects and the cumulative results would not be geographically coherent. Similarly, VHCB members were worried that their farmland program would protect many scattered small farms which would not provide an adequate base within any geographic area for a profitable agricultural industry. However, after almost ten years, because of priorities set by the board and the efforts of nonprofits to achieve the same goals, large areas of contiguous farm lands have been protected. What seemed improbable five years ago has quietly happened, piece by piece, deal by deal.

The VHCB has been able to link individual parcels together by giving greater priority to funding projects that are part of a larger whole, projects that will link or expand on already protected land, and projects located in areas designated for protection by official local or state plans. If a similar investment model were created for the Northern Forest region, it is likely that large blocks of public lands could be pieced together spanning town, county, and state boundaries.

Preserving isolated pockets of wildland is not enough. To gain the full ecological and economic benefits of wildlands, they need to be surrounded by compatible land uses and connected by corridors of undeveloped land. "Working" forest land, managed appropriately for timber production, is one of the most compatible adjacent land uses and can help to connect the separate islands of wildland. For this reason, public investments in working forest land should be part of the region's public land investment strategy.

Regional Citizens' Board Could Administer Funds

The Northern Forest Investment Board could be set up to oversee the administration and distribution of federal funds. The Board's membership could be similar in nature to the Northern Forest Lands Council with representatives from federal and state governments, the scientific community, industry, conservation organizations, municipal officials, and the general public.

A primary responsibility of the Northern Forest Investment Board would be deciding on requests for funding to implement actions aimed at achieving the public purposes set forth in the federal statute. The regional board, like Vermont's Housing and Conservation Board, could establish procedures for applicants and could set priorities for awarding grants and loans. The Investment Board could also oversee a pool of federal/state funds set aside for "quick" purchases of forest land that are critically important, as defined by criteria set by state and local governments.

Applicants

Rather than providing additional public land through top-down federal actions, the Northern Forest Investment model would provide some funds and a process for guiding state and local investments in public land across the region. Essentially anyone—state agencies, town officials, local conservation groups, business people, individual landowners—could apply for funding.

This bottom-up approach builds on the self interest and energy of state and local residents to accomplish the immediate tasks, and strengthens their ability to deal with other problems. Each successful project completed by a local group can provide area residents with new community-building skills, new networks, and greater self-confidence and self-reliance.

Types of Projects and Funding Priorities

Any proposed action that promotes the statutory purposes and meets the Northern Forest Investment Board's rules could be eligible for grants or loans. Examples could include: acquiring public wildland and working forest land, purchasing development rights, purchasing timber cutting rights, and financing "green" wood certification assessments. Priorities could be set based on considerations such as: local support, consistency with state and local plans, integration with other projects, urgency, need, and cost effectiveness. Priority could go to projects that have the dual goals of forest lands conservation and sustainable economic development.

The conservation of a handful of key parcels in a region can help people see and believe that protection of a larger landscape is a possibility. When this happens, planning future land acquisitions becomes more relevant and necessary, and the need to coordinate surrounding private land uses becomes more apparent.

Funding for Projects

The proposed model is a relatively low-cost way for government to leverage funding and support for public land acquisition from other sources. Combining funds from a variety of private and public sources creates a broad base of support for land acquisition projects, and stretches limited public funds. During its first three and a half years the VHCB achieved more than \$125



Aerial view of a frozen Lake Umbagog (top of picture). Here, the Androscoggin River begins its journey to the sea, winding between frozen backwaters that are great places to view birds. The Androscoggin Headwaters is one of ten places identified by the Northern Forest Alliance for Wildlands protection. (See article on page 8) Photo © Alex S. MacLean—Landslides.

million worth of affordable housing and conservation for an investment of only \$35 million—leveraging about three dollars for every one spent by VHCB.

The model enables leveraging of funds through negotiations of bargain sales and land gifts from private landowners, and by soliciting matching contributions from private and public sources. Matching funds could come from state and local governments, individual private donors, private foundations and organizations. This would create an incentive for coordination and consistency among small, local acquisitions.

The initial pool of federal funds would have to be substantial in order to inspire action and make a difference in a large region. New funds could be appropriated from the federal Treasury or through a regional revenue sharing

mechanism such as a percentage of lottery funds raised in each state. Lacking new sources of revenue, however, would put this model into competition with funds that are now going to the Federal Land and Water Conservation Fund, National Forest System, Forest Legacy, and other federal programs. While there is merit to channeling some of these funds into a single regionally managed account, these are also popular and effective funding mechanisms that will be difficult to tamper with.

In addition, a separate Northern Forest Review Board could be established to objectively monitor and evaluate the success of the program, to host public forums, and to prepare annual reports with recommendations to Congress and the Northern Forest Investment Board. Like the Investment Board, the Review Board could have

representatives from federal government and from all four states. However, it may make sense to have a higher proportion of researchers, scientists and local officials on the review board.

Public Involvement

The residents of the Northern Forest region and rest of the nation should be involved every step of the way. If nothing else, the public investment model created for the region must be democratic. It must inspire voluntary local actions that serve the best interests of the local and regional community. Ultimately, all decisions should involve a well-informed citizenry.

Footnotes

¹ Belden and Russonello Research and Communications. 1996.

² Peter D. Hart Research Associates and Research/Strategy/Management Inc. 1996.

³ 10 V.S.A. Section 302.

Wilderness & Jobs

by George Wuerthner

One of the myths cherished throughout the West by folk economists is the notion that protecting landscapes from development comes at a cost to state and regional economies. The perception is that protections reduce extraction, and hence impoverish human societies. Few seem to question this common "wisdom."

Like most western states, California is a public lands state. Nearly 50% of California is managed by one federal agency or another; the state itself controls another 5% of the land base. What is surprising to many is that, despite its having the highest population of the 50 states, California also has more land area protected as national parks, wilderness areas, and state park than all states except Alaska.

The umbrella of wilderness protection, both state and federal, covers nearly 15 million acres of California (Wyoming by comparison has a little over 3 million acres of designated wilderness). Indeed, California has as much designated wilderness as the combined totals of New Mexico, Arizona, Colorado, Oregon, Utah, Montana and Wyoming!

Another 4-5 million acres are currently under study for potential addition to the federal wilderness system, and thus not available for resource extraction. When all is said and done, as much as 20% of California's entire land area is effectively off limits: 20-21 million acres, an area the size of the state of Maine!

With so much designated wilderness, California

ought to be impoverished. But the reality is different. California has one of the largest, most diverse and productive economies in the world. Indeed, the Gross Annual Product of California is said to be larger than all but eight countries in the world. It has one of the best public university systems in the country.

Despite all of its problems, California has the greatest number of new residents added annually of the 50 states. People flock here because of jobs and perceived quality of life. If poverty is what you get as a result of public lands and wilderness, a lot of people in California aren't getting the message.

Maine, by contrast, could be poster child of the Wise Use movement. Maine has almost no public land. Less than 1% of its land area is in public ownership—less than any other state! Those who suggest public ownership hinders resource extraction should love the fact that more than 85% of Maine is used for commercial timber production. With fewer than 9,000 acres of designated wilderness, even New Jersey has more wildlands than Maine.

With so few public lands to hinder resource extraction, Mainers should be among the wealthiest people in the world. Yet Maine has one of the lowest per capita incomes in the nation. The state has one of the lowest percentages of college-bound high school students. The wealth along the coast contrasts with logging-dependent communities, which are among the poorest in the state.

And with all that private land in the tax base, one would expect Maine to have an abundance of excellent schools and other infrastructure, yet, Maine's university system is considered near the bottom of the barrel. Other public services are equally impoverished. Unlike California, people aren't flocking to Maine—indeed, overall, Maine's population is stagnant with many people forced to leave the state to find employment.

The precise cause and effect I've outlined here may be debated, but one thing appears clear—the less logging, grazing, and other resource extraction dominates the economy, the better off that community and state will likely be.

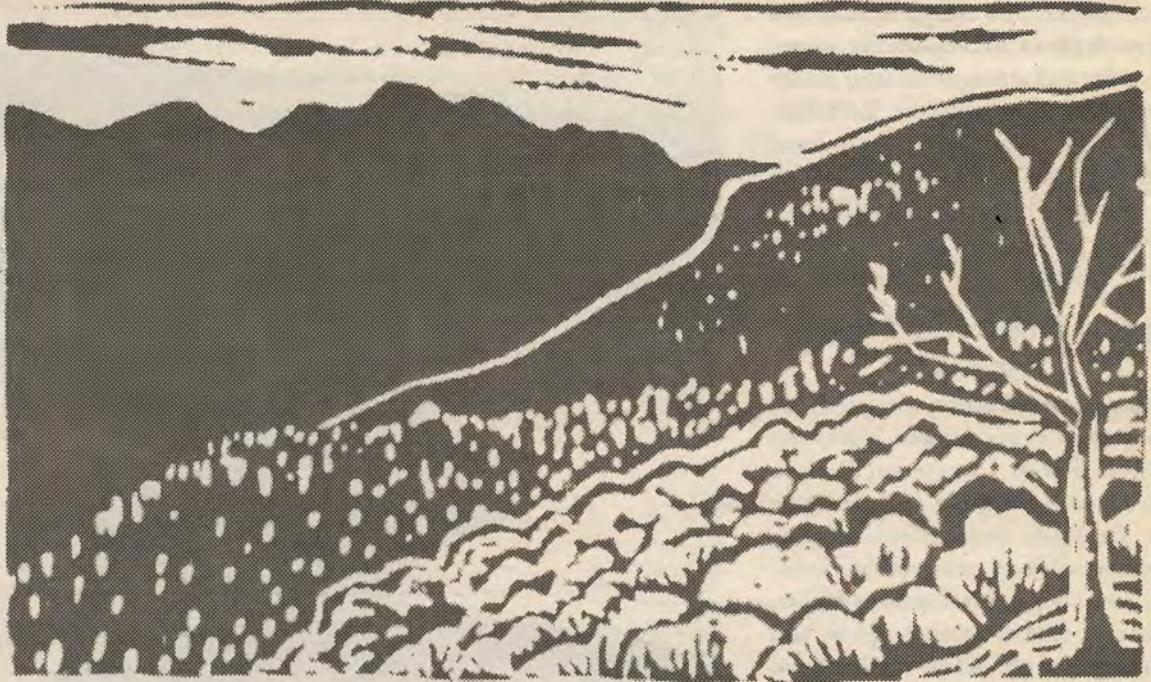
Certainly this trend has been documented in states like Oregon and Washington, where the importance of the timber industry has declined dramatically during a period of unprecedented prosperity and job creation.

Most economic growth incurs environmental and social costs which should be part of any debate. However, the California vs. Maine comparison demonstrates that even by the Wise Use movement's own definition of "good" economic growth, the idea that preservation of natural landscapes results in economic decay and poverty has no merit.

If California is an example of how protected landscapes impoverish a state, then the rest of the nation could stand a little more of the "impoverishment" of wilderness and less of the "wealth" of resource extraction.

Adirondack Park Report

by PETER BAUER



This issue of the *Northern Forest Forum* is focusing on land acquisition across the Northern Forest. This installment of the Adirondack Park Report lists pending and potential land protection projects throughout the 6-million acre Adirondack Park. Protection both through acquisition for the Forest Preserve, where lands are protected by the New York State Constitution as wilderness, and through purchase of conservation easements.

The first thing to point out is that for the first time in a number of years, New York actually has money to buy land. In 1997 alone over \$45 million has been budgeted for land acquisition by the State and many are pushing to see that amount increased to \$60 million. Last November, New Yorkers passed a \$1.75 Billion Clean Water, Clean Air Bond Act, which included \$150 million for land acquisition to support water quality or provide access to water bodies. Governor Pataki has proposed using \$15 million per year for the next ten years; environmentalists have countered with a program for spending \$30 million annually over 5 years. New York also has an Environmental Protection Fund (EPF), which for 1997-1998 includes \$30 million for land acquisition. The total land acquisition budgets for both the EPF and Bond Act will be worked out this spring as part of the State budget. At this time a list of eligible projects will also be established.

The legislative compromise to establish the EPF back in 1993 was the adoption of the "local veto," which is part of New York's Open Space Plan requirements. The Open Space Plan, launched under Governor Cuomo, the most recent version was signed by Governor Pataki in 1996, provides that a local community can deny a landowner the opportunity to sell their land to the State of New York. This would be done by a vote of the town government. No local veto

has yet been enacted against a landowner who desired to sell to the State, and this power has not been legally challenged. The EPF adopted the Open Space Plan language, but listed 75 projects across New York that were exempt from the local veto; in the Adirondacks these include Follensby Pond, the Whitney Estate, the Kronos Tahawus tract, among others.

The Open Space Plan also formed Open Space Advisory Committees in each Department of Environmental Conservation (DEC) region across the state. The two DEC regions (Five for the eastern two-thirds of the Park, Six for the western third) have active committees. Since formation back in 1990, the Region Five Committee has approved just one major project. These committees provide the enemies of land acquisition a forum and process to blunt land acquisition.

One strong selling point for land protection in the Adirondacks is that New York State is a good local tax payer, paying a much greater amount than timber companies on a per-acre basis. In 1995, New York State paid over \$43 million (see chart) in local and school taxes across the Adirondacks. This averages about \$15 per acre. State law requires payment of locally assessed taxes in each town on Forest Preserve and conservation easement lands. In Hamilton County, New York State pays half of all local taxes.

Massawepie Mire: One project that will shortly be completed is the purchase of a 3,600-acre conservation easement over the Massawepie Mire tract currently owned by the Boy Scouts. This tract is the anchor of a larger, discrete 17,000-acre ecological area that is owned by a large private hunting club, the Grasse River Club, Niagara Mohawk Corporation (an energy utility), and International Paper Company.

The conservation easement with the Boy Scouts

will preclude development on the property and allow for extensive recreational access to more than a dozen ponds as well as canoe access to the Massawepie Mire that flows into the Middle Branch of the Grasse River. Part of this easement will also protect a complex, floating bog system of great ecological significance. This project has been approved locally by the Town of Piercefield and was listed as an eligible project for the 1996-1997 EPF. This should be finalized in 1997.

Third party non-profits are also talking with Niagara Mohawk, which owns the 4,500-acre Dead Creek Flow, a 12-mile canoe route that flows into the Raquette River. The Dead Creek tract adjoins the Boy Scout land and also includes important ecological areas. A total price is estimated at about \$3.5 million to purchase conservation easements over the entire 17,000-acre tract.

Upper Raquette River: Niagara Mohawk Company is currently in negotiations with New York State in regards to the Company's desire to dispose of all its non-essential land holdings in the Adirondacks. This process has been going on for much of the 1990s. Niagara Mohawk has already sold lands along the Upper Hudson and Sacandaga Rivers in the southeast Adirondacks. On the Upper Raquette River, the company is looking to sell over 12,000 acres along the Raquette River dams to the State. The State is considering purchase of roughly 10,000 acres in easements and 2,000 acres in fee for the Forest Preserve. A forest land management company is looking to buy the timber rights on the 10,000 acres.

The Upper Raquette flows through a series of dams and reservoirs. The lands in question border the Carry Falls, Stark, Blake, Rainbow and Five Falls reservoirs. As part of the deal, Niagara Mohawk is also looking to sell either outright for the Forest Preserve or a conservation easement, where the timber rights would be transferred to another party, the 4,500-acre Dead Creek Flow in Piercefield mentioned above.

The Upper Raquette projects have local support in the Town of Colton, though the Town of Parishville has not yet stated a position, where the lands are located. A local, ad hoc grassroots group, the Friends of the Raquette River, has formed to work for state protection through purchase of fee title and conservation easements. Niagara Mohawk is currently in FERC relicensing negotiations, which should improve the ecology of the river. The Niagara Mohawk lands total 16,500 acres and have an estimated value of \$4 million. This project is eligible for EPF or Bond Act funding.

Blue Mountain Lake/Utowana Lake: A deal for over 2,000 acres of valuable shoreline lands and islands is currently in the works for Blue Mountain Lake and Utowana Lake (two lakes on the Eckford Chain) in the town of Indian Lake, the hamlet of Blue Mountain Lake. The land is owned by the Hochschild family, family patriarch Harold Hochschild chaired the New York State Temporary Study Commission back in the 1960s, a body which recommended the creation of the

New York State Land Taxes

County Name	1991 State Land Taxes	1992 State Land Taxes	1993 State Land Taxes	1994 State Land Taxes	1995 State Land Taxes	Parcel Count	State Land on Tax Rolls, 1995
Clinton	\$532,726	\$725,490	\$792,548	\$811,121	\$838,797	282	60,090
Essex	8,986,541	9,389,482	9,841,560	10,105,313	10,166,065	2,433	514,752
Franklin	3,596,404	3,989,482	3,878,616	3,925,501	3,920,615	787	263,993
Fulton	1,940,475	1,897,446	1,909,785	1,977,566	1,979,527	1,168	97,118
Hamilton	9,416,739	9,935,011	10,078,757	10,579,013	10,370,571	2,880	774,741
Herkimer	4,202,865	4,596,602	4,658,010	4,639,328	4,473,283	1,315	361,872
Lewis	916,702	999,854	985,950	1,032,918	982,636	973	135,545
Oneida	512,713	489,452	479,227	499,789	519,837	702	51,545
St. Lawrence	2,492,052	2,619,595	2,748,679	3,018,281	3,013,640	641	212,335
Saratoga	975,221	1,145,217	1,176,945	1,307,575	1,234,293	657	26,719
Warren	4,011,712	4,5020,821	4,294,314	4,454,409	4,330,369	1,168	184,865
Washington	1,368,304	1,475,091	1,510,913	1,508,270	1,484,317	204	23,778
Total	\$38,952,454	\$41,783,902	\$42,355,304	\$43,859,084	\$43,313,950	13,210	2,707,359*

Source: Taxable State Land Unit, NYS Office of Real Property Services

Total number of acres

Adirondack Park Agency (APA). Today, the family is looking to sell over 500 acres for Forest Preserve on Blue Mountain Lake. This includes a network of more than a dozen islands and several hundred acres of the north shore of the lake that adjoins the Sargent Ponds Wild Forest. Easements would also be given over several other islands on the western side of the lake.

On Utowana Lake, the family is looking to sell a 1,500- to 2,000-acre conservation easement over much of the lake's watershed. The total sale is a bargain basement price and much of the money from the sale would be used to endow an ecological steward program at Paul Smiths College, a summer position to monitor water quality, the ecology of the lands, and recreational use of the islands, several of which are extremely sensitive. The Hochschild family currently allows public camping on one of the islands, heavy public use of other islands as swimming areas, and have long allowed a public hiking trail to Castle Rock, a peak above Blue Mountain Lake.

This project has been approved by the Indian Lake Town Board and is the first project to be approved by the Region 5 Open Space Advisory Committee. This project would be eligible for either EPF or Bond Act funding.

Little Tupper Lake: As described in the last issue of *The Northern Forest Forum*, the Whitneys, owners of 51,000 acres in the central Adirondacks, have submitted a development application to the APA for a 15,000-acre subdivision surrounding Little Tupper Lake. While the Whitneys are pushing ahead with the subdivision, they're also negotiating with Governor Pataki's staff to sell the property to the State for addition into the Forest Preserve. The two sides are far apart on price; the Whitneys claim the tract is worth \$30 million, many others contend it's worth \$600 per acre, \$9 million. In 1991, an independent appraisal estimated that the entire 51,000-acre Whitney Estate was worth \$25 million, or \$500 per acre. The Whitneys are now claiming Little Tupper Lake is worth \$2,000 per acre.

Little Tupper Lake is an important ecological area with extensive wetlands and nine other lakes on the tract. Many of these lakes are linked by navigable streams. Little Tupper Lake is also an important link in historic canoe routes through the central Adirondacks.

Purchase of Little Tupper Lake would be eligible for the EPF or Bond Act. The Whitney tract is an exempt property under the EPF law, so no local approval (veto) is necessary. The Whitneys are playing a high-stakes game with this land. They're threatening development and taking an aggressive, belligerent approach against the APA, which is reviewing the project. For now, a successful state purchase is squarely in the hands of Governor Pataki.

Domtar Lands: Domtar Specialty Papers, Inc. has long been interested in selling a blanket conservation easement with full recreational access over its property in northern Clinton County. To date, the State has not had the money. Domtar is a Canadian-based company, with several mills just north of the border. Domtar has recently implemented a sustainable forestry program on its New York lands.

The Domtar lands have few special features—no undeveloped shorelines, wild rivers, or rare ecological areas—but they are interested in protecting open space in one of the fastest growing areas in the Adirondacks and providing recreational opportunities in an area where there are limited public lands. The conservation easement project has the support from the towns of Saranac, Dannemora, and Ellenburg, where the property is located, yet do not have support at the Region 5 Open Space Advisory Committee level. At 105,000 acres, this easement would cost somewhere in the neighborhood of \$10-15 million. This project would need EPF and federal funding from the Forest Legacy Program.

International Paper Company Lakes: International Paper Company has announced its intention of selling easements around seven lakes in Hamilton and Essex counties. One of these lakes,



Little Tupper Lake. Photo © Nancie Battaglia

Round Lake, borders the Little Tupper Lake area and, if protected, could help to extend historic canoe routes from Little Tupper Lake up to the Horseshoe Lake and Loews Lake area. The total acreage for these lakes could total up to 25,000 acres. While IP has yet to come forth with any specific proposals for these lakes, negotiations are in process with DEC and other interest groups.

This project would be eligible for either EPF funding under the Working Forest protection list and the Bond Act. No estimates were available on the price.

Kronos Tahawus Tract: The former National Lead mining tract in Newcomb, adjoining the southern High Peaks is for sale. This 13,000-acre tract includes the Preston Ponds, a panhandle tract jutting into the High Peaks, Henderson Lake, and almost 15 miles of the Hudson River. National Lead was bought out by Kronos Corporation several years ago. Kronos uses the Masten House, a great camp on the south shore of Henderson Lake, as a corporate retreat, but is interested in selling the remainder of the tract. The tract is dominated by 13,000 acres of forest land and a 1,000-acre titanium mining site replete with tailing piles, hillsides cut into mining benches, and mining buildings. The Town of Newcomb wants to ensure that the mining site remain viable (in hopes operations may someday resume), but is not opposed to the rest of the tract going into the Forest Preserve or protected with a conservation easement. The problem is that Kronos wants to sell the whole tract and with it the future liability of the mining site, which is already classified a hazardous area. Negotiations between Kronos and a third party failed because no agreement could be reached on the future liability question. The State of New York is the only entity that can resolve the liability question, and protect the remainder of this tract on the southern High Peaks. New York State needs to get directly involved.

Follensby Pond: Negotiations four years ago failed to purchase the 14,000-acre Follensby Pond tract. This is one of the most important parcels in the Park. The Follensby Pond tract borders the Raquette River and the western High Peaks area. The present owner is elderly and the high cost of estate taxes could well force this tract to be subdivided and developed. Negotiations for this property need to begin at the highest levels of New York State government. The 14,000 acres are estimated at \$5 million and would be eligible for either EPF or Bond Act funding.

Other Projects: Champion International owns over 135,000 acres in the Adirondack Park, lands through which various branches of the Grasse and Oswegatchie rivers flow. For years, Champion has been interested in selling some kind of recreational access to these rivers and the river corridors, but nothing has been accomplished. Discussions are beginning again for a purchase of fee and conservation easements over some parts of the Champion holdings.

Other important parcels are up for sale, but are not even on the DEC radar screen. One such parcel is the 5,000-acre Sylvan Falls tract in the northern Adirondacks. The Middle Branch of the St. Regis River flows through this and could be an important access point/camping area on the river. While much of the river corridor is privately owned, recent legal decisions have opened rivers across New York to public use. This tract would be a significant benefit for increasing recreational access to the St. Regis, one of the grandest Adirondack rivers.

Several small projects are also underway with either the DEC or third parties in southern Lake Champlain, including joint work with parties in Vermont on the Poultney River. Several small projects to protect shoreline and watershed are also in the works on Lake George. These would all be eligible for either EPF or Bond Act funding.

Open Space Institute has been working with Niagara Mohawk to protect 2,000 acres along the Sacandaga River as it enters into Hudson at Hadley. OSI is hoping to complete this deal soon. This project has local support. The lands would be transferred to the State of New York.

Lastly, several other conservation easement projects in the western Adirondacks, ranging in size from 4,000 to 19,000 acres, are under discussion with both the DEC and third parties. These projects would all have to be funded either through the Working Forest protection list in the EPF or through Forest Legacy Program funding.

Let it Rain: There has been a drought in the Adirondack Park for land acquisition. Many opportunities have been missed because the State of New York did not have funds for land protection. Now, the State has funding, yet the commitment of the DEC and State leaders to purchase land is uncertain. Clearly, many landowners, as enumerated above, have the desire to sell land to the State so that it will be protected in perpetuity. While the New York environmental community will continue to push for land acquisition, the next few months and years are pivotal times for the Adirondack Park. Opportunities need to be seized and not missed to protect the several hundred thousand acres currently at risk.

In Memoriam: Long time Adirondack Park activist Eleanor Webb of Blue Mountain Lake and Saranac Lake has passed away. Eleanor arrived in the Adirondacks in the early years of this century and was a staunch supporter of the need to protect the Adirondack Park, a prolific letter writer, and a fearless advocate in public forums. She is survived by her husband Monty, her partner in the fight to protect the Adirondacks, who lives in Saranac Lake. Thank you, Eleanor, for a job well done.

Peter Bauer is Executive Director of the Residents' Committee to Protect the Adirondacks. He can be contacted at: RCPA, POB 27, Main St., North Creek, NY 12853. Tel. 518-251-4257.

Study Evaluates Potential Wolf Habitat & Travel Corridors in the Northeastern US

Editor's Note: Below we reprint the complete text of the "Conclusions and Recommendations" section from "An assessment of potential habitat for eastern timber wolves in the northeastern United States and connectivity with occupied habitat in southeastern Canada" prepared by Dr. Daniel J. Harrison and Theodore G. Chapin at the Department of Wildlife Ecology of the University of Maine. The assessment was prepared for the Wildlife Conservation Society. It is preceded by a brief summary, prepared by Kathleen H. Fitzgerald, of the report.

In 1978 a recovery plan for the eastern timber wolf was published by Bailey et al. for Fish and Wildlife Service; it was revised in 1992. The primary goal identified in the revised Eastern Timber Wolf Recovery Plan is "to maintain and reestablish viable populations of the eastern timber wolf in as much of its former range as possible." The recovery plan identified 24,287km² in New York and 33,751km² in Maine as potential habitat for wolves; however, little was known about the potential habitat in the northeastern US or connectivity of habitat with occupied habitat in southeastern Canada. Thus, more research was needed to determine the likelihood of wolves to disperse from extant populations in southeastern Canada to naturally recolonize historically occupied areas in the northeastern US. Wolves are capable of colonizing distant habitats, even hundreds of kilometers from a population source, if the source population is large, suitable habitat remains, and physical or habitat barriers are minimal.

Harrison and Chapin were interested in quantifying and mapping the extent, distribution, and connectivity of habitat in the northeastern US that is in

forested land cover, and below thresholds of .70km roads/km² and 4 humans/km².

The shortest straight-line distance from potential core habitat in Maine to the nearest occupied wolf range in Quebec is approximately 70km; the distance to the long-established wolf population in Laurentides Provincial Park is approximately 140km. The distance from potential core habitat in New York to occupied wolf range in southern Ontario is approximately 230km. Thus, potential habitat for wolves in the northeastern US is well within dispersal capability of extant wolf populations, if suitable dispersal corridors exist. Their analysis found contiguous potential habitat throughout northern, western, and eastern Maine, and extends well into New Hampshire, and could likely support a minimum of 488 wolves. The analysis did not include New Brunswick, which could provide additional contiguous habitat.

The Adirondack Park region is also a potential core habitat for wolves. However, the St. Lawrence River, Lake Champlain and expansive areas not meeting core criteria (too many roads, too little forest), make the potential habitat of the Adirondacks isolated. New York lacks a significant moose population, thus potential population densities of wolves there may be lower than in other regions of eastern North America where populations of moose, white-tailed deer and beaver occur sympatrically.

Due to the north-south orientation of Lake Champlain and Lake George, combined with limited and widely scattered potential core and dispersal habitat, Vermont may neither support significant numbers of resident wolves nor serve as an effective dispersal corridor

linking a potential wolf population in Maine and New Hampshire with a potential population in New York.

Two potential corridors may link wolf populations occurring north of the St. Lawrence River in Quebec with potential habitat in Maine and New Hampshire. One potential corridor occurs upstream from Quebec city and another occurs near the mouth of the St. Lawrence River, downstream from Quebec City. A verified wolf and a second large wolf-like canid recently killed in Maine may have represented natural emigration from the Laurentides region of Quebec. (Please refer to the map.)

For a copy of the full report please contact Wildlife Conservation Society, 2300 Southern Blvd., Bronx, NY 10460. Please see Forum Vol. 5 #2, "A Homecoming for Wolves," for a wolf update.

Conclusions and Recommendations

Wildlife biologists interested in the potential for reestablishing wolves in the northeastern U.S. could benefit from collaboration and exchange of information with scientists conducting ongoing research on wolves in southern Quebec. Information on population density and movement patterns of wolves in southern Quebec may provide information useful for estimating potential numbers of wolves that might disperse to Maine and New Hampshire. Some dispersing coyotes in Maine successfully crossed a large river (Harrison 1992), and one dispersing juvenile swam to a coastal island (S. Glass and D. Harrison, Univ. Maine, unpublished data), suggesting that the St. Lawrence River may serve as a filter rather than a barrier to wolf dispersal. However, the maintenance of a very active shipping

channel and the unconsolidated nature of ice in the St. Lawrence River during most of the winter, coupled with the presence of dense human development and 4-lane highways parallel to the river, may preclude successful dispersal of a significant number of wolves from Quebec to Maine and New Hampshire.

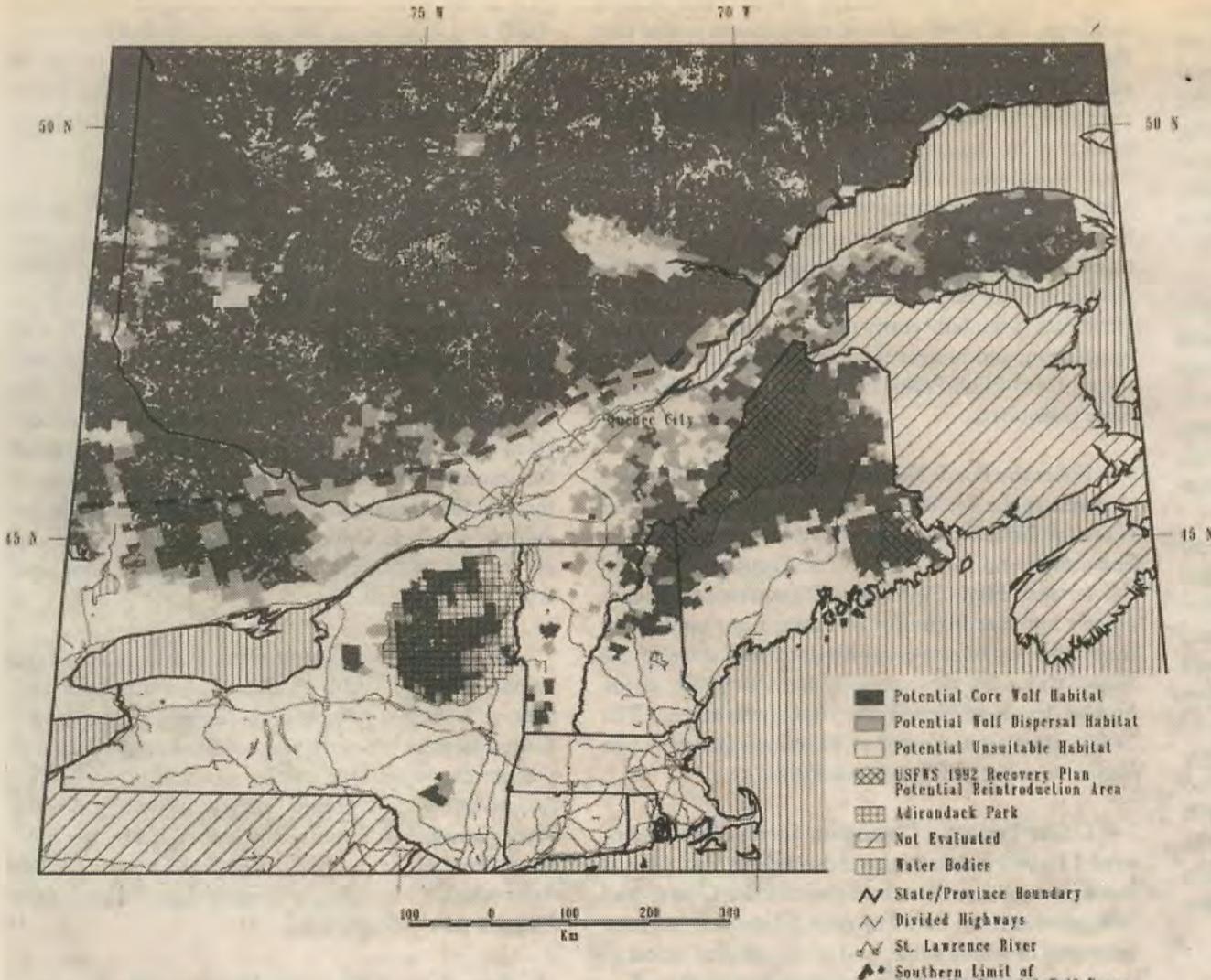
Given the relative isolation of potential wolf habitat in New York, natural recolonization of potential habitat is unlikely. Further, the success of potential reintroduction efforts for wolves in the Adirondack region of New York would be uncertain because the estimated suitable habitat is less than the area officially considered to be required to sustain an isolated population of wolves (USFWS 1992).

If numbers of dispersing wolves moving from extant populations to potential habitats are insufficient to provide opportunities for dispersers to pair with conspecifics of the opposite sex, then substantial hybridization between dispersing wolves and resident coyotes may occur. Roy et al. (1994) present compelling genetic evidence suggesting that substantial hybridization occurs between coyotes and wolves along the southern edge of wolf range in southeastern Canada. Thus, strategies for promoting slow natural recolonization of wolves to the northeastern U.S. should consider potential genetic consequences of hybridization with coyotes.

Although large contiguous areas in Maine and New Hampshire meet the criteria established in the eastern timber wolf recovery plan (USFWS 1992) to define potentially suitable habitat, information on public attitudes towards wolves in the northeastern U.S. are anecdotal. Our habitat criteria are based on factors that influence the extent of human contact with wolves, and presumably, the potential for human induced mortality of wolves (Fuller et al. 1992). Thus, our analyses assume that human attitudes towards wolves in the northeastern U.S. are similar to attitudes of humans towards wolves in the Lake Superior basin. Wolves are not intolerant of humans; however, some humans are intolerant of wolves. For example, wolves persist despite high human populations in some regions of Europe and Asia where human attitudes and cultures differ significantly from the U.S. (McNamee 1997). Thus, prior to establishing specific management objectives for wolf restoration, significant public education (Mech 1995) and involvement would be required.

References

- Bailey, R., L.D. Mech, W.C. Hickling, R. Nicotera, L. Rutske, and R.M. Linn. 1978. Recovery plan for the eastern timber wolf. Minnesota Division of Fish and Wildlife. 102pp.
- Fuller, T.K., W.E. Berg, G.L. Radde, M.S. Lenarz, and G.B. Joselyn. 1992. A history and current estimate of wolf distribution and numbers in Minnesota. Wildlife Society Bulletin 20:42-55.
- Harrison, D.J. 1992. Dispersal characteristics of juvenile coyotes in Maine. Journal of Wildlife Management 56:128-138.
- McNamee, T. 1977. The return of Il Lupo. Natural History 105(12): 50-59.
- Mech, L.D., 1995. The challenge and opportunity of recovering wolf populations. Conservation Biology 9:270-278.
- Roy, M.S., E. Geffan, D. Smith, E. Ostrander, and R.K. Wayne. 1994. Patterns of differentiation and hybridization in North American wolf-like canids, revealed by analysis of microsatellite loci. Molecular Biology and Evolution 11:553-570.
- U.S. Fish and Wildlife Service. 1992. Recovery plan for the eastern timber wolf. Twin Cities, Minnesota. 73pp.



Distribution of occupied and potential habitat for eastern timber wolves in northeastern North America. Reprinted with permission of Department of Wildlife, University of Maine, Orono.

Public Survey Reveals Support for Wolves & Need for Education

Responsive Management, a survey research firm specializing in natural resource issues, conducted a survey from October 19—November 11, 1996 for Defenders of Wildlife on public opinion and attitudes toward Eastern Timber Wolf reintroduction in New York's Adirondack State Park. As with any survey, those who are opposed to the issue of focus claim the survey was rigged or biased. Yet Responsive Management is an independent firm and the survey questions were designed by four focus groups, three of them composed of Adirondack residents. Residents of New York, the Adirondacks and New England were asked over 80 questions relating to wildlife, wolves, and habitat over the phone.

Following are some highlights of the survey:

Question: How many people are seriously injured or killed by wolves each year in North America?

Response: Adirondack respondents: 50% did not know, 23% none, 13% said 1 to five people

New York respondents: 52% did not know, 18% none, 13% over ten people

New England respondents: 41% did not know, 31% none, 16% 1 to 5 people

Question: Is wilderness where wolves live inherently better than wilderness without wolves living there?

Response: Adirondack respondents: 30% strongly agreed, 28% moderately agreed, 20% neither agreed nor disagreed or did not know, 13% moderately disagrees, 9% strongly disagreed

New York respondents: 40% strongly agreed, 30% moderately agreed, 14% neither agreed nor disagreed or did not know, 9% moderately disagreed, 7% strongly disagreed

New England respondents: 38% strongly agreed, 25% moderately agreed, 22% neither agreed nor disagreed or did not know, 9% moderately disagreed, 6% strongly disagreed

Question: Do you support or oppose the "forever wild" clause in the Constitution?

Response: Adirondack respondents: 51% strongly supported, 25% moderately supported, 8% neither supported nor opposed or did not know, 7% moderately opposed, 9% strongly opposed

New York respondents: 65% strongly supported, 27% moderately supported, 4% neither supported nor opposed or did not know, 7% moderately opposed, 9% strongly opposed

New England respondents: 65% strongly supported, 24% moderately supported, 8% neither supported nor opposed or did not know, 2% moderately opposed, 1% strongly opposed

Question: Would you support or oppose reintroducing the wolf to Adirondack Park?

Response: Adirondack respondents: 34% strongly supported, 42% moderately supported, 5% neither supported nor opposed or did not know, 8% moderately opposed, 11% strongly opposed

New York respondents: 38% strongly supported, 42% moderately supported, 10% neither supported nor opposed or did not know, 6% moderately opposed, 4% strongly opposed



Wolf. Photo © Joyce Harrison

New England respondents: 43%

strongly supported, 42% moderately supported, 10% neither supported nor opposed or did not know, 2% moderately opposed, 5% strongly opposed

Questions: (For people who support wolf reintroduction) Why do you support wolf reintroduction?

Response: Adirondack respondents: 41% because wolves are part of the ecosystem, 21% because wolves were here before us, 16% to save wolves from extinction

New York respondents: 36% because wolves are part of the ecosystem, 26% to save the wolf from extinction, 21% because wolves were here before us

New England respondents: 38% because wolves are part of the ecosystem, 24% to save the wolf from extinction, 20% because wolves were here before us

Question: (For people who oppose wolf reintroduction) Why do you oppose wolf reintroduction?

Response: Adirondack respondents: 36% wolves are dangerous to humans, 16% wolves are dangerous to livestock, 7% there is no need for wolves

New York respondents: 51% wolves are dangerous to humans, 8% there is no need for wolves, 8% did not know

New England respondents: 25% wolves are dangerous to humans, 17% wolves would kill other wildlife, 17% the Park has changed too much

Question: If wolves would be introduced after careful study by biologists, would this make you more supportive, the same, or less supportive of reintroduction?

Response: Adirondack respondents: 57% would be more supportive, 36% would remain the same, 3% would be less supportive, 4% did not know.

New York respondents: 62% would be more supportive, 29% would remain the same, 3% would be less supportive, 6% did not know

New England respondents: 65% would be more supportive, 28% would remain the same, 3% would be less supportive, 5% did not know

Participants who thought wolf

a New York Department of Environmental Conservation's staff member, the DEC has received many more letters in opposition to wolves than in support of them.

The lack of knowledge surrounding wolves, their behavior, and status is apparent throughout the survey. For example, 17% of Adirondack respondents believe the wolf population in the Adirondacks is stable; 20% of Park respondents, 25% of New York respondents, and 19% New England respondents believe wolf reintroduction is a major concern because they think it is likely that wolves will harm adults or children; 13% of Park respondents, 58% of New York respondents, and 72% of New England respondents did not know about deer population numbers or prey base for wolves. Conservationists have a lot of work to do to get the facts out to the general public.

57—93% of the respondents said they would be more supportive of wolf reintroduction if a careful study was done by biologists. Gaining support for and implementation of a wolf habitat study is critical.

Among all of the respondents, more people strongly supported wolf reintroduction at the end of the survey than at the beginning of the survey, and the percent of moderate and strong opposition decreased from the beginning to the end of the survey by 1-2%. The change in opinions illustrates that once people begin to learn the facts, their inclination to support the return of the wolf will increase. A large percentage of people ethically and ideally want wolves back where they belong—including the Adirondacks. Conservationists need to seize the opportunity to strengthen this support, galvanize the public, and do what is best for wolves and Nature.

For a copy of the survey please contact Defenders of Wildlife, 1101 Fourteenth Street, NW, Suite 1400, Washington, DC 20005, 202-682-9400

by Kathleen H. Fitzgerald,
Coordinator of the Greater Laurentian
Wildlands Project, POB 457, Richmond,
VT 05477, 802-434-3279 with the assistance
of John Davis, Editor of Wild Earth, POB 455, Richmond, VT 05477

Wolves to Litter Says SAM

George Smith of the Sportsman's Alliance of Maine, interviewed in a recent Associated Press article on Maine wolf recovery, stated his concern that wolves may litter in the forest. The article states that Smith sees wolf restoration as misguided and romantic. Moreover, said Smith, "Wolves eat five to ten pounds of meat every day. That's 20 to 40 quarter pounders at McDonalds. The impact on moose and deer would be enormous."

Some biologists agree that wrappers and packaging from the quarter pounders could indeed interfere with ungulate habitat. One also noted that the McDonalds franchise is largely limited to central Maine. "We're not sure the wolves could make it that far into civilization without being shot at or whether the King administration would support picking up their tab."

—Andrew Whittaker

Conservationists Protect Lynx in Court

Politics of Endangered Species at Issue

Thirteen conservation group plaintiffs and two individuals—headed by Defenders of Wildlife, Biodiversity Legal Foundation, and Northwest Ecosystem Alliance, and including RESTORE: The North Woods—learned on March 28 that a federal district court judge has ruled against the Department of the Interior (DOI) and the U.S. Fish and Wildlife Service (FWS) for failing to adequately consider all evidence indicating that the lynx should be listed under the Endangered Species Act (ESA).

In the 38-page opinion by Judge Gladys Kessler, the failure to list the lynx was found inconsistent with scientific findings made by the FWS' own field biologists. The lynx, a brownish-gray cat usually weighing less than 30 pounds and distinguished by its long black ear tufts, once ranged throughout much of the Northeast and Northwest, but its numbers have dwindled to only

several hundred scattered individuals, mostly in Maine, Montana, Idaho, and Washington.

One of the biggest threats to the lynx comes from unsustainable logging and road building in Northern Forests. The lynx, a predator high in the food chain, needs undisturbed forest habitat in order to survive. Conservationists have argued for several years that habitat destruction, trapping, hounding, and loss of prey base could soon drive the lynx to extinction.

FWS biologists have spent years researching the lynx and its habitat. Their research indicates that the U.S. lynx population is on the brink of extinction and is being splintered into smaller, isolated populations that cannot connect with each other due to continued clearcutting and road building through forest lands. Despite the recommendation of its own field offices that the lynx be listed, the FWS Washington, D.C. office decided not to list the species in December 1994. The court noted many legal and factual inconsistencies made by the D.C. office



in ruling against the federal government. The FWS now has 60 days to reevaluate its decision not to list the lynx based upon an administrative record demonstrating the many threats to the species.

Several states have recognized that the lynx needs protection, including Maine, New Hampshire, Vermont, Massachusetts, Pennsylvania, New

York, Michigan, Wisconsin, Minnesota, Colorado, Wyoming, Washington and Oregon. However, none of these states ensure the level of protection provided by the federal ESA.

For further information, contact:
RESTORE: The North Woods, POB
1099, Concord, MA 01742. Tel. 508-
287-0320.

Wolf At The Door

An Ecological Musical Comedy

The creators of a completely unique, powerful and humor-filled brand of theater are bringing to the Northeast this Spring a two-person version of their latest ecological musical comedy, *The Wolf at the Door*. The show composed of a series of vignettes, comments not only on the human-wolf relationship, but also on society's struggle to make peace with the wild. Such a heady task is rarely the subject of comedy, but in the hands of producers, Jane Lapiner and David Simpson, *The Wolf at the Door* manages to confront some of the thorniest dilemmas of our times without sacrificing a sense of irony and humor.

Lapiner and Simpson have been taking risks together since meeting in the San Francisco Mime Troupe in the mid-1960's and helping to launch the seminal social movement known as the Diggers. They have lived and worked in a remote river valley in Northwestern California since 1970 and have been part of one of the West's leading efforts to restore the health and productivity of an entire watershed community. Their musical comedy, *Queen Salmon* toured throughout the Northwest to great audience and critical acclaim.

Lapiner and Simpson have turned to wolves and the highly visible wolf recovery movement as potent symbols for this moment in history—when it is increasingly urgent that humans reintegrate their culture and their economies with the realities of the natural world. The use of comedy and song to delineate this task makes it seem not only possible but fun. At a time when wolves are knocking at the door of the Northeast, this riveting show promises to inspire the people of this region to welcome wolves home.

The Wolf at the Door Performance Schedule co-sponsored by Patagonia & RESTORE: The North Woods

- ↳ Sunday, April 27, 5 PM—Oak Street Theater, Portland, Maine
 - ↳ Saturday, May 3, 7:30 PM—Emerson Umbrella Theater, Concord, Mass., also sponsored by Musketquid Earth Day
 - ↳ Wednesday, May 7, 8 PM—Context Theater, New York City
- Tickets—\$8 in advance; \$10 at the door
For information or advance tickets call: RESTORE at 508-287-0320
or Patagonia (MA) 617-424-1776, (ME) 207-865-0506, (NY) 212-343-1756

The Native Forest Network Takes the Show on the Road

The Native Forest Network (NFN) is bringing its roadshow "Vermont's Forests: Past, Present & A Vision for the Future" to town, alternatively featuring music by three different musicians and bands and feature presentations by local forest activists and historians and video and slide presentations on the history of logging in Vermont and New England.

All shows are free and open to the public. Each roadshow engagement will be accompanied by an organizational meeting to bring together local people who wish to organize their community. For further info on the roadshow, please contact Anne or Phil at (802) 863-0571.

The locations are:

- ↳ April 11: Lyndonville, Lyndon State Coll., Student Center, 11 AM-1 PM. Contact Trish Seadale, 626-6344
- ↳ April 12: Island Pond, VT Leadership Center, 6:30-8:30 PM. 1 mi. south of East Charleston on Ten Mile Square Rd. Contact: VT Leadership Ctr, 723-6551.
- ↳ April 13: Glover, Glover Town Hall. 6:30 PM. Contact: Alexis Smith, 454-1758
- ↳ April 19: Hanover, NH, Dartmouth College, 11 AM-12:30 PM. Contact: Jim Hourdequin, (603) 643-0188.
- ↳ April 21: Stowe, Food for Thought, Rte 100, 7 PM. Contact: Stacey Heuer, 888-2369
- ↳ April 22: Johnson, Johnson State College, 7 PM. Contact: Phet, 635-1044
- ↳ April 23: Morrisville, Apple Tree Health Food Store (next to House of Pizza), 7 PM. Contact: Stacey Heuer, 888-2369
- ↳ April 26: Middlebury, Middlebury College, Dana Auditorium, 1:30 PM. Contact: Dave Sterrett, 443-3806
- ↳ April 29: Burlington, UVM, Billings CC Theater, 7:30 PM.

Native Forest Network Presents 4th Annual Forest Activist Training Week

The Native Forest Network continues its yearly spring tradition this year by hosting the fourth annual Forest Activist Training Week. Join us in the beautiful Green Mountains of Vermont's rural Northeast Kingdom for this exciting event to be held June 8th-15th at the Wheelock Farm in Greensboro Bend.

For more information and a registration packet call the NFN at (802) 863-0571 or write NFN, PO Box 57, Burlington, VT 05402.



Patient Money: The Economics of Low-Impact Forestry

by Mitch Lansky

I am going to make an economic case for investing in low-impact forestry. I suspect, however, that my "proof" of the benefits of low-impact forestry (LIF) will not be so compelling as to cause all engaged in conventional forest practices to immediately switch over. The reason is not that my analysis is wildly wrong, but that landowners and contractors do not calculate their costs and benefits within the same perspective as LIF.

Low-Impact Forestry Economic Perspective

The LIF economic perspective tries to:

- **Incorporate long-term, rather than just short-term costs and benefits.** LIF looks at costs and benefits for generations. What maximizes returns in the short term may do so at the expense of the long term.

- **Differentiate between what is true income (interest on an investment) and what is merely biological or social capital depletion.** Maximizing returns in ways that deplete residual volume and quality, nutrient capital or biological diversity today, for example, can compromise the ability of future generations to get similar returns later.

- **Be holistic in outlook rather than focus narrowly on a single interest.** LIF looks at costs and benefits for whole systems that include the forest, the local communities, the loggers, and the landowners. Maximizing benefits to one of the parts might be done at the expense of the whole.

- **Internalize, rather than externalize, costs and benefits to the extent possible.** Damage to water quality, soils, residual trees, aesthetics, wildlife habitat, or property values should be considered as costs—even if an exact dollar value can not easily be attributed to them and even if "someone else" pays the costs.

My analysis is in two parts. Part I hints at some of the complexities that create huge variability in possible economic outcomes. Part II gives a hypothetical example, ignoring all the complexities mentioned in Part I.

Part I: Economic Complexities

Landowner Objectives

Foresters tend to meet landowner objectives as a first priority, even if these objectives conflict with sound silviculture or sound ecology. Not all landowners share the LIF goals as their prime objectives. Landowner objectives and landowner economic perspectives vary widely due to such factors as:

- **Type of landowner:** Public ownerships may have requirements for "multiple use." Contractor-owners may be more concerned with supplying wood to meet payments on equipment than for managing for the long term. Some small woodlot owners may value the

land more highly as an aesthetic neighborhood buffer than as a major source of income.

- **Size of ownership:** Small landowners who want a steady income, for example, will not clearcut their property. They can neither justify the expense of investing in early-stand management (without subsidies) nor of waiting more than a lifetime for returns while paying taxes. Large landowners, in contrast can manage in blocks and balance early-stand expenses with income from final cuts elsewhere.

- **Degree of vertical integration:** Industrial landowners can justify "selling" wood, which could have become sawlogs, as pulpwood to their own mills. This is done to help keep purchase prices for the mill low. Maximizing income for the woods division may not be as important as assuring a cheap, stable wood supply for the mill.

- **Location of headquarters:** It makes a difference if the landowner is absentee or lives on the land. Resident landowners are more apt to be more concerned over community costs that they will have to live with.

- **Location of timberlands in relation to markets and labor:** Distance from markets can affect stumpage, mill-delivered prices, and trucking by large factors. It also makes a difference if the labor is migratory or lives in the same community as the land.

- **Presence and availability of loans, subsidies, taxes, or tax breaks:** When land is purchased with large short-term loans, the perspective of the landowner on management is different from those whose land was bought generations ago. Clearcuts become much more viable if someone else pays for the required early-stand management expenses. When taxes are low enough, holding heavily-cut land that has low productivity becomes less of a burden.

Logging Economics

Even when landowner objectives are similar, logging economics can vary widely due to the following factors:

- **Type of loggers:** It makes a difference whether the loggers are large contractors, small contractors (who do the cutting themselves), employees of the landowner, or the landowners themselves. These differences will be reflected in differences in both costs (such as workers compensation) and benefits. Larger contractors, for example, may be able to secure higher wood prices, but they may also have heavy debts for equipment, compelling heavy cutting. Owner-cutters can get a higher proportion of mill-delivered prices and may be able to justify more careful practices.

- **Type of forest:** The stand type, soil type, stocking, tree size and quality, scale of cut, slope, season, and presence of sensitive areas (such as water bodies or deer yards) can all have major impacts on costs and benefits from a logging operation or a series of logging operations. Some stands are not worth cutting...more than once.

Low Impact Forestry Conference

May 3 in Ellsworth, Maine

"Exploring Opportunities for Low Impact Forestry in Hancock County", will seek to address the needs of small woodlot owners and to find ways to create more jobs while maintaining and improving the quality of the forest environment of Hancock County. There will be panel discussions and small workshops.

This daylong conference is sponsored by Hancock County Planning Commission, Maine Low Impact Forestry Project, Hancock County Soil & Water Conservation District, Maine Forest Service, University of Maine Cooperative Extension, Downeast RC&D, and Ellsworth Adult Education.

Registration is \$20 (includes lunch). To register, or to receive more information, contact: Hancock County Planning Commission, RR4, Box 22, Ellsworth, ME 04605. Tel. 207-667-7131.

- **Type of equipment:** Equipment for cutting and delimiting trees include: chainsaws, feller bunchers, delimiters, slashers, processors, and single-grip harvesters. Equipment to take the wood to the yard include: horses, 4-wheeled ATVs, tractors with winches, cable-winches, skidders, grapple skidders, and a wide range of forwarders. The economics of the equipment depend on whether it is used or new, who operates it, the terrain and yarding distances, and the type of cut.

- **Type of cut:** The intensity of the cut can range from: a whole-tree silvicultural clearcut, a commercial clearcut, an overstory removal, a patch cut, a heavy diameter-limit cut, a shelterwood thinning, or a selection cut. Thinnings can be from above, below, across all diameter classes, or by the Q-line (which produces a "reverse J" curve in diameter classes). The same machine might be cost effective on one type of cut, but inappropriate on another. Horses may be good for light selection cuts, for example, but not so good for a whole-tree chipping operation.

- **Market fluctuations:** Market prices can vary widely over the years, and even within one year. Shortfalls, oversupplies, and events far away can all cause dramatic swings in prices.

Each one of these factors can vary so widely, that combining them makes a mockery of any economic analysis done to three decimal points.

Such variability defies an economist's ability to do comparisons with exact numbers. Multiply the range of variability and the analysis qualifies as an example of chaos. Such realities, however, have never stopped economists from doing their economic comparisons—so why should it stop me?

Part II: A Hypothetical Example

I am now going to illustrate the long-term economic impacts of two different strategies—one that tries to maximize short-term benefits for the landowner or contractor, and the other that tries to optimize



long-term benefits for the landowner, logger, and community. To be a fair comparison, there can only be few variables, and all else must be equal. Since such situations are hard to find in reality, I'm going to make it all up (or, to be more respectable, "model" it).¹

The Model

For my example, I look at a hardwood stand (not particularly well stocked) managed under two methods—highgrade harvest (HGH) and low-impact harvest (LIH).² The low-impact harvest had to be delayed until the stand was better stocked, but the high-grade harvest could be done at once. Also, the bulk of the early LIH cuts consisted of hardwood pulp. The economics of cutting hardwood pulp are marginal, or worse, for any method. My model is thus a poor case (though not a worst case).

The HGH strategy is to cut the best now and leave the rest for later. This maximizes short-term returns. The cut is done by the method that large contractors see as most cost effective—a mechanized whole-tree operation using feller bunchers, grapple skidders, and delimiters. The next cut is done when there is enough wood—in this case, 30 years after the first cut.

The LIH uses a chainsaw to cut, limb, and buck the trees, and a small forwarder equipped with a radio-controlled winch to get the wood out. The LIH system starts with the opposite strategy as the highgrade method. It cuts the slowest-growing, poorest-quality, lowest-value wood and leaves the best to put on more volume for the future. Cutting cycles can range from 10 to 20 years, averaging around 15 years.

The central question of an economist to the low-impact landowner might be, "How can you justify the cost of removing small quantities of low-value wood for decades? Can the present value of the higher-value cuts 40 or 50 years from now justify poor early returns?" The central question from someone who lives in the community to the highgrader might be, "How can you justify taking the value from your land now, at the expense of the community and future generations?"

Simplistic Assumptions

To keep my analysis simple, I operate under assumptions that are somewhat absurd. I assume, for example that over the decades:

- ownership will not change;
- technology will not change;
- markets trends will not shift dramatically;
- regulations and forest policy will continue to allow high grading and stand damage;
- insect, disease, fire, wind, or air pollution will have no serious impact on yields;
- all the things that happened in the last 80 years (depression, wars, social strife, etc.) will somehow not happen in the next 80 years; and
- the only variables that differ are the type of cut and the type of equipment.

Time & Discounting

Eighty years should be a minimum

time for analysis because that is how long it would take an intensively-managed hardwood trees on a good site to reach more valuable sizes. On less-favorable sites it can take more than 120 years. It might take a hundred years more than that for the stand to have the full array of habitats to support old-growth characteristics.

I stopped my analysis after 30 years, however, because the residual highgraded stand was no longer worth managing. A computer might simulate cutting it, but it would be a long time before a contractor would want to cut it. Cutting small diameter, low-value wood is not financially rewarding.

For investments that pay back over time, economists discount future costs and benefits to calculate what they are worth today. Discounting has a certain logic to it when one considers interest on loans, the degree of risk (remember junk bonds?) or the opportunity cost of not putting the same money into an alternative investment, such as a Certificate of Deposit. For long-term investments that span generations, especially investments in essential natural resources such as water, air, soil, forests, or fisheries, discounting at short-term rates leads to absurdities, if not tragedies.

Thus, a well stocked forest valued at \$1000 to a future generation is worth only \$.07 now. The higher the discount rate, the lower the present value of a future forest. This leads to a more short term perspective because there is an even lower opportunity cost in liquidating the forest and forgoing a future generation's access to a well stocked forest.

Even when they use a lower discount rate, foresters, if they plant at all, plant fast-growing trees because the discounted value of slow-growing trees is close to zero. Indeed, even fast growing tree plantations generally need some form of subsidy.

Those who plant the trees do not harvest them. Future generations might not appreciate the plantations because of their impacts on soil, the water table, or biodiversity. An alternative to this line of thinking is that an investment that spans generations should be of benefit to future generations, not to some greedy investor now. If a landowner is concerned over future generations, he will not plant even-aged monocultures to follow his clearcuts. Rather, he will avoid clearcutting in the first place.

When the discount rate is high enough, the perverse logic of economics dictates that the forest must be cut, because the value of cutting is greater than the discounted value of any possible future forest. At a high discount rate, even the high yields obtained from low-impact forestry decades into the future are not sufficient to beat the benefits of cutting heavily over the short term. Trees just don't grow fast enough.

These types of calculations do not send a very pleasant message to our children or grandchildren. We are saying, in effect that consumption of aquifers, old-growth, fisheries, or topsoil now is better than availability of these resources to future generations. This is economics without a sense of cultural continuity.

How can one determine present value of future forests? It depends on what type of investment, for how long,

and for whose benefit. Investments for the short-term for a single interest might get a standard high rate. Investments with long-term social benefits deserve a lower discount rate. In some cases, the appropriate discount might be the growth rate of the stand plus a risk factor. In other cases, the discount might be zero. These discount rates are, after all, rates above inflation. Not all investments over a century can beat the inflation rate. If the forest is to be sustainable, then it should be just as valuable to the next generation as it is to this generation, which means a zero discount rate.

Income or Capital Depletion?

Over the first 30 years of my model the highgrade option removes more wood than the low-impact option. A proper evaluation, however, looks not at just the value of what is cut, but also at the value of what is retained. Without such an accounting, one runs the risk of calling capital depletion "income." Removing more than what can be sustained over time becomes a *cost*, because it harms present and reduces future yields and values.

The value of a property should reflect a bare-land value and a timber value. If the property is undervalued, this is an invitation for speculators to buy the land, cut the wood, and sell what is left at a profit. Such actions are not uncommon in the Maine woods.

For the first 30 or more years, the low-impact approach is building value into the residual stand. It is letting the trees grow to reach their highest-paying markets. This is why it is so essential to avoid practices that lead to lower grades

and lower productivity. The landowner might not have money in the bank, but she does have real value on the stump. She can cash in her (wood) chips later by selling the land or the wood.

Difference in Yield

Extending the exercise out over many decades, the forest cut by the lower-impact system would have a higher total volume (removal + residual) yield for the following reasons:

- better stocking of healthy trees;
- more windfirmness;
- less damage from insect or disease;
- less land area in trails and landings (mechanical operations might have 25%, low-impact might have around 10%);
- less damage to soil and residual trees (sloppy conventional logging can lead to more than 15% of residual trees being damaged enough to slow growth or kill the trees with an additional 30% damaged enough to lower future timber values);
- less damage to regeneration;
- less loss to mortality due to shorter cut cycles.

Difference in Value

The difference in value will be more profound than the difference in yield for the following reasons:

• *Sawlog/pulpwood mix:* The LIH puts more growth on sawlogs than pulpwood. Stumpage values for hardwood sawlogs can be a multiple of that for pulpwood. A survey done by the Maine Forest Service in 1994 documented the large shift towards low-value trees that can happen in just one cut from contractor highgrading operations (Lansky 1996).

Table 1.—Typical* hardwood stumpage prices in ME, 1994 (MFS)

Product	White ash	Hard maple	Yellow birch	White birch	Red oak	mixed
Veneer (MBF)	205	409	212	197	575	206
Sawlogs	18	103	96	95	263	90
Palletwood						39
Boltwood (cord)	42	39	45	48	33	23
Firewood						11
Pulpwood						8
Biomass						4

*Note—these are averages, the range can be great. For example, the high for hard maple sawlogs is \$600, the low is \$20.

Table 2.—Assumed percentages of sawtimber volume

Product	Product Distribution			
	A	B	C	D
Veneer	2	4	6	8
Sawlogs				
• High quality	3	6	9	12
• Medium quality	40	45	50	55
• Low quality	15	15	15	15
Pallet stock	40	30	20	10

Table 3.—Typical sawtimber stumpage prices from NH, 1984

Product class	White ash	Hard maple	Yellow birch	White birch	Red oak	Other
Veneer	135	90	115	110	170	45
Sawtimber						
• High quality	120	90	105	85	135	40
• Medium quality	90	65	80	65	100	30
• Low quality	70	50	65	55	75	25
Pallet stock	25	25	25	25	25	25

• **Species mix:** Low-impact forestry would put more growth on the highest valued species. For sawlogs, this can make a major difference in value. (See Table 1) A sugar maple sawlog, for example, can be worth more than 2 times as much as a red maple sawlog.

• **Sawlog product mix:** Within the sawlog class and within the same species, stumpage values can vary widely depending on the grade. Well-managed forests can have mixes of log grades (given the same volume) that are much more valuable than poorly-managed forests. The most valuable grades have been increasing in real terms (above inflation) much faster than the lower grades, so this difference will increase over time. (See Tables 2 & 3)

Difference in Cost

Using standard accounting formulae I have concluded that it is more expensive to do a low-impact cut than a mechanized highgrade cut. I calculated that the cost for the contractor of owning, operating, and maintaining one feller buncher, two grapple skidders, a crane, and a delimber (at half time), plus labor to cut 350 cords a week for 42 weeks is around \$38 per cord. The cost per cord for using a chainsaw and small forwarder with a radio-controlled winch plus labor to cut 22.5 cords per week for 42 weeks is around \$45. The major factor for higher costs of the low-impact system is labor, which is 60% of the cost, versus 25% of the cost of the mechanized system.

These costs would change over time. As the low-impact managed stand increases in average diameter and after the permanent-trail system is established, both the productivity of the logger and the value of the wood increases. As the average diameters decrease for the highgraded stand, productivity and value decrease.

These numbers also do not reflect full cost accounting. The highgrading operation causes substantial damage to tree trunks and roots, but this damage is not contained in the cost per cord calculated by equipment manufacturers. The highgrade operation also can remove 25% of potential crop trees just to make trails and yards, not to mention cutting trees way before their prime. This, plus

reduction in growth, means loss of future values and is a *cost*. By adding up the present value of future losses, it is possible to calculate the cost per cord of highgrading.³

Because of the greater conventionally calculated operating cost of the LIH system, landowners might take a lower stumpage rate to ensure the logger is adequately compensated. This analysis shows that such a reduction in stumpage is justified, even if one ignores all other forest values and concentrates only on timber values.

Community Values

But the forest has more values than just timber. It has values to the community as a source of jobs, recreation, aesthetics, clean water, pure air, wildlife, and more. For these other values, which may be greater than the timber values, the competition between the two systems is not even close.

Jobs: While labor, to a logging contractor, might appear as an unwanted cost, to a community it is a benefit. Money paid to local labor multiplies in the community more than money paid for machinery or the fuel to run it. Much of the money for machinery goes to out-of-state equipment manufacturers, banks, and oil companies. Money paid to labor leads to more family spending on food, entertainment, and other goods and services within the community, supporting more jobs.

Over time, low-impact approaches would create many more jobs than mechanized highgrade operations:

- For the same amount of wood cut, the low-impact system would employ around three times as many loggers as the mechanized system.
- The low-impact system would cut more wood of higher value. This would, over time, lead to higher stumpage returns for landowners, even factoring in the lower stumpage due to higher logging costs.
- Local landowners would spend some of this extra money locally leading to even more community income multipliers.
- The greater volume of lumber versus pulp could be a significant factor in increasing local value-added processing. Making pulp is very capital

intensive and creates fewer jobs per cord of wood than making lumber or making furniture.

Property values: Highgrading operations not only lower the value of the property on which it occurs, but can also have a shadow effect on abutting properties, and on the community as a whole. Highgraded stands are visually distressing for many people. Such sights send a message that the neighborhood doesn't matter and that the future doesn't matter. It is ironic that the most vocal defenders of liquidation cutting do so invoking the sanctity of "property rights." Their lack of concern for the rights of other property owners and the rights of the community has not helped endear more people to that cause.

Recreation values: The visual appearance of a low-impact harvest is a plus. The trails are dispersed and narrow enough to be ideal for hiking, hunting, cross-country skiing or snowmobiling. These activities can lead to supplemental incomes to the landowner and others in the community.

Biological values: Low-impact forestry is not a substitute for wilderness, but it can help maintain many important habitats that would be lost due to heavier cutting practices:

- **canopy closure:** Low-impact forestry can help maintain the presence of relatively-closed canopy mature forests. Highgraded, understocked forests have lost that value. The yards and trails of mechanized operations create gaps in the forest canopy. Low-impact trails are often narrow enough for canopy closure, and they are dispersed much further apart than possible for mechanical harvesters.
- **tree size:** Big trees, both alive and dead, are important habitat to many species. Big trees are key to high values for sawlogs and veneer. Those operating from the short-term perspective that leads to high-grading can hardly afford to wait for trees to grow from five inches to two feet in diameter.
- **water quality:** The larger roads, trails, and yards plus the more open canopies and greater rutting of forest soils from the mechanized HGH can lead to more sedimentation of streams and lower water quality.

• **soil productivity:** On just the trails and yards, mechanized operations can cause rutting and compaction on more than 25% of the soil. Whole-tree harvesting on short cycles causes nutrient and organic matter capital depletion.

Conclusion

If an economist crunched a series of numbers and concluded that we must starve our children, would you follow that advice? But that is metaphorically what we are instructed to do with our natural resources all the time. What we have is not a problem of economics, but a problem of culture. Economy should be embedded in culture, and not the other way around. For the final word on culture, I will turn to Wendell Berry from his essay on "Conserving Forest Communities":

The ideal of the industrial economy is to shorten as much as possible the interval separating investment and payoff; it wants to make things fast, especially money. But even the slightest acquaintance with the vital statistics of trees places us in another kind of world. A forest makes things slowly; a good forest economy would therefore be a patient economy. It would be an unselfish one, for good foresters must always look toward harvests that they will not live to reap.

Footnotes

¹ Numbers and references will be available on request in May.

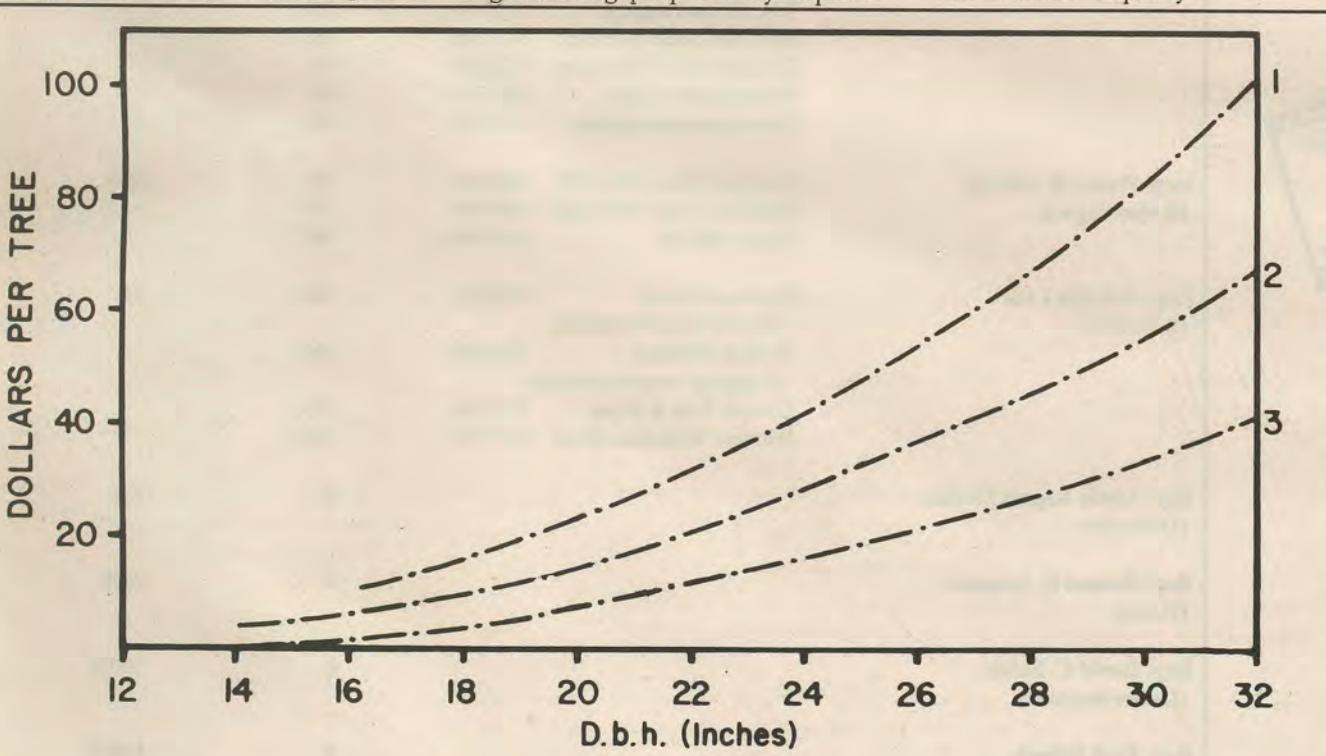
² Had I chosen a stand well-stocked with spruce, pine, or hardwood sawlogs my task would have been far easier. I could have had an immediate harvest of some valuable wood.

³ To calculate the cost of highgrading, I subtracted the stumpage values of combined removals plus residuals of the highgrade system from the stumpage values of the low-impact system after just 30 years (the difference would have been more profound over a longer period). I used the same stumpage values for each system. I used a variety of discount rates to determine present values. I divided the difference by the number of cords cut by the HGH to determine the cost per cord. Adding these costs to the more conventional calculation of logging costs makes the HGH more expensive per cord than lower-impact methods at discount rates of less than 3% above inflation. The average growth rate of the forest in my model is around 2.4%.

USGS Plans to Cut Critical Funding For Acid Rain Monitoring Stations

The US Geological Survey (USGS) announced on March 18 that it would cut funding for acid rain research stations in New York and Vermont. The funding cuts are likely to result in the closing of five of New York's eight monitoring stations and both of Vermont's monitoring stations. These stations are part of a 200 station network of acid rain testing facilities run by the National Acid Deposition Program/National Trends Network (NADP). The stations provide critical information on the link between pollution and acid rain. The funding cuts would eliminate monitoring programs in areas that are suffering the worst acid rain damage in the nation. Proposed cuts of more than \$1.6 million would leave \$63,000 for the 10 or so USGS-funded stations that would remain open.

For more information, contact John Sheehan at the Adirondack Council (518) 432-1770.



Relative Values of two-log hard maple trees, by butt-log grade.

From Leak, Solomon, & DeBald, "Silvicultural Guide for Northern Hardwood Types in the Northeast" (revised) 1987.

Investing in Maine Politics

by Jym St. Pierre

"In few American states are the reins of government more openly or completely in the hands of a few leaders of economic interest groups than in Maine.... Thus the abundance of timber and water power in Maine has indirectly created Maine's Number One Political Problem: the manipulation of government by the overlords of the companies based on these resources."

—Duane Lockard, New England State Politics, 1959

Last year, throughout the country, the forest industry dumped a cornucopia of rich, fruity plums into state and national politics. Bushels of forestry money were lavished on presidential, congressional and legislative races. In Maine, top priority was uprooting the home grown Ban Clearcutting referendum. To achieve that the industry pulled out all the stops, breaking past referendum spending records.

The forest industry has always been politically influential in Maine. However, an analysis of recent campaign finance reports shows how the industry has been using big money to shape politics and affect policy in the pine tree state.

Banishing Ban Clearcutting

"...the Compact for Maine's Forests fell excruciatingly short of outright victory, but...beating the [Ban Clearcutting referendum] was Job One, and we got it done. That was victory enough for this round in the forest debate."

—George Smith, SAM News, December, 1996

Maine has seen some mammoth referenda fights in recent years, including two over the returnable bottle bill, three on whether to shut down Maine Yankee nuclear power plant. But for sheer throw weight the state had never experienced a campaign as extensive or as expensive as the fight by the forest industry to stop the Ban Clearcutting referendum in 1996.

The campaign to defoliate Ban Clearcutting began a year before the referendum actually came to a vote. In fact, it began even before the citizens' petitions were submitted to the state. The industry sensed very early major trouble was looming and vowed to spend whatever it took to stop the Ban Clearcutting movement. It took a lot, nearly \$6,000,000 in direct outlays. It is stunning to read through the campaign finance reports and see the lists of five and six figure contributions from individual paper companies. There are no legal limits on contributions or expenditures in referendum campaigns in Maine.

Of course, the actual bottom line was far larger than \$6 million. What does not show up in the campaign reports are the in-kind contributions of Gov.

Angus King, Conservation Commissioner Ron Lovaglio, Forest Service Director Chuck Gadzik and numerous other state officials who labored against the referendum. Since they did not report the value of their time, no one knows how many tens or hundreds of thousands of dollars should be added to the total.

What we do know is that, despite the record breaking expenditures by the industry through their political action committee, Citizens for a Healthy Forest & Economy, against the citizens' Ban Clearcutting initiative, they did not let the flow of money to other political contests in Maine dry up. On top of the millions spent to stop Ban Clearcutting, campaign reports document that thousands were also spent on legislative candidates. Plus the Maine Forest Products Council and the Maine Pulp & Paper

Association spent tens of thousands more directly on legislative lobbying.

In the end, the Ban Clearcutting referendum did not pass, but neither did the Forest Compact, the alternative fashioned by the industry as a "moderate" decoy to deflect votes from the referendum. There will be a second vote on the Compact in November 1997. Nor have the backers of the Ban Clearcutting movement skulked back into the woods. They have reinvented themselves as the Forest Ecology Network, are pushing several forestry bills in the legislature this spring and are contemplating another referendum for next year.

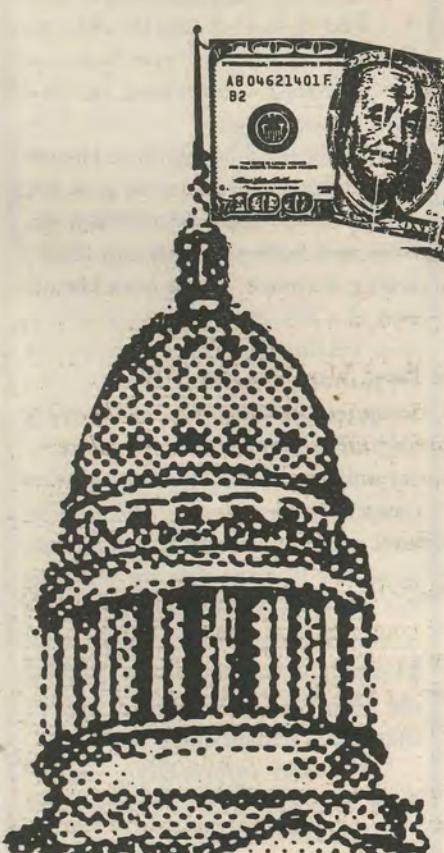
Lubricating Legislative Races

"[Paper] industry lobbyists and officials ply the hallways of

FOREST PRODUCTS INDUSTRY POLITICAL CONTRIBUTIONS TO MAINE LEGISLATORS ON THE AGRICULTURE, CONSERVATION AND FORESTRY COMMITTEE, 1996

Candidate	Contributor	Date	Amount (\$)	MLCV (95-96)
Sen. Marge L. Kilkelly (D-Lincoln County) Committee Co-Chair	Bowater (Great Northern) Retail Lumber Dealers Georgia-Pacific	10/5/96 10/26/96 11/6/96	100 60 100	20%
Sen. R. Leo Kieffer (R-Aroostook County)	Thomas Howard (G-P) Champion International Georgia-Pacific Maine Business PAC	3/12/96 4/26/96 10/21/96 10/28/96	100 100 200 250	0%
Sen. Judy Paradis (D-Aroostook County)	Champion International Maine Business PAC	10/20/96 10/24/96	400 250	44%
Rep. George H. Bunker (D-Kossuth Twp) Committee Co-Chair	Curtis Rushton (G-P) Georgia-Pacific	5/27/96 11/2/96	100 100	30%
Rep. John L. Baker (D-Dixfield)			0	NA
Rep. Ruel P. Cross (R-Dover-Foxcroft)	Joseph Cartwright (Hardwood mill owner) Stanley Pride (Pride Mfg) Vol Cont Better Gov (IP) Bowater (Great Northern) Richard Thomas (Plywood dealer)	8/23/96 8/26/96 9/28/96 10/1/96 10/3/96	50 100 250 150 50	0%
Rep. Edward L. Dexter (R-Kingfield)	Vol Cont Better Gov (IP) Stratton Lumber A&A Brochu Georgia-Pacific Robbins Lumber Madison Paper Earle Bessey Champion International T.R. Dillon Logging Vol Cont Better Gov (IP) Bowater (Great Northern) Retail Lumber Assn Champion International	2/12/96 4/15/96 4/25/96 5/5/96 5/6/96 5/12/96 5/15/96 7/5/96 7/29/96 9/23/96 9/26/96 10/27/96 11/1/96	250 100 200 150 100 200 50 300 200 250 50 50 200	0%
Rep. Walter R. Gooley (R-Farmington)	Vol Cont Better Gov (IP) Bowater (Great Northern) Boise Cascade	10/4/96 10/4/96 10/18/96	250 150 200	30%
Rep. Priscilla Lane (R-Enfield)	Raymond Emery (Emery Forest Products) William Gardner (Logging company owner) Lincoln Pulp & Paper Johnson Wilderness Prod	7/22/96 7/22/96 7/31/96 7/31/96	100 100 150 150	0%
Rep. Linda Rogers McKee (D-Wayne)			0	NA
Rep. Roland B. Samson (D-Jay)			0	90%
Rep. David C. Shiah (D-Bowdoinham)			0	100%
Rep. Paul Volenik (D-Brooklin)			0	100%

Source: Maine Commission on Governmental Ethics & Election Practices, campaign finance reports, 1996;
Maine League of Conservation Voters, Environmental Voting Record of the 117th Maine Legislature, 1996.



the legislature....Over the years they have carefully cultivated state politicians....The purpose of such activity is to manipulate the processes of state government to the advantage of the large outsider corporations controlling Maine's paper industry."

—William Osborn, *The Paper Plantation*, 1974

The money spent by forest products interests to help elect and re-elect a hefty crop of lawmakers last year in Maine is an interesting case study in industrial politics. A number of unusual factors made it tricky for forestry folks who were trying to invest efficiently in the Maine Legislature.

For one thing, the competition for money with other races, including the anti-Ban Clearcutting effort, was intense. Still, most of the pulp and paper corporations came up with some legal tender to grease legislative races. International Paper and Champion International, for instance, each gave about \$16,000.

And that's not all. Because 1996 was the first year for legislative term limits in Maine, crop rotation of legislators was high. As a result, it was difficult to figure out which incumbents to support. Only four legislators who were on the principal forestry committee last year are back on the committee this year. One member critical to the industry, Rep. Richard Gould (D-Greenville), who was term limited out of his

House seat, lost a difficult race for the state Senate. Gould's downfall occurred largely because he was identified as a major supporter of the Forest Compact, which many voters in northern Maine liked even less than the Ban Clearcutting referendum. He is still haunting the State House this year, but as a lobbyist for Bowater/Great Northern Paper.

Another complication was the shifting of majority parties once again. Both houses were returned to the control of the Democrats when that party garnered decisive majorities. That left uprooted key Republicans, such as state Senator Vinton Cassidy (R-Washington County), former chair of the Agriculture, Conservation & Forestry Committee. He finally set some tendrils into the Transportation Committee, but he serves there without committee seniority. The forest industry has to be somewhat disappointed.

Cassidy received more than \$3,100 from forest landowners and mills, including contributions from Bowater, Boise Cascade, Champion International, Georgia-Pacific, International Paper, Madison Paper, David Carlisle of Prentiss & Carlisle, Seven Islands' president Stephen Schley, Madawaska lumber mill Ed Pelletier & Sons, and paper industry lobbyist John Delahanty. He spent over \$19,500 to win a second term. His Democratic opponent spent one-quarter as much and came within 1,295 votes in a close race.

Cassidy earned a perfect zero from the Maine League of Conservation Voters (MLCV) for his 1995-96 legislative service. So conservationists are pleased to see him on the sidelines and out of the center of debate on conservation issues this year.

The forest industry suffered a setback but got a spending break when another of its star performers withered on the vine prematurely. Willis Lord (R), former Senator from York County, had a seat last year on both the Ag/Conservation/Forestry and Natural Resources Committees. His lifetime MLCV rating of under 20% indicates the level of his environmental sympathies. Lord lost his primary race in June by fewer than 100 votes. He had collected and spent over \$9,500 for the primary, including at least \$1,100 from forestry interests. Obviously he should have solicited even more greenery. At least the money folks only had to invest in Lord for the preliminaries rather than watching more of their cash get washed away if he had gone on to lose in the general election.

One sure vote the forest industry desperately did not want to loose was Rep. Edward Dexter. A retired logger and eighteen year legislative veteran, Dexter may have received more forestry money than any legislative candidate in 1996. A third of his \$6,700 came from forestry interests and it made a big difference. He outspent his opponent two to one, but won by less than 200 votes. An outspoken critic of environmental programs, Dexter earned a zero rating from the Maine League of Conservation Voters in 1995-96.

PACing the Deck

"A major reminder to candidates of the importance of [forestry] issues are the large donations they receive from paper companies through Political Action Committees."

—Mitch Lansky, *Beyond the Beauty Strip*, 1992

The forest industry financially irrigates legislative politics in Maine through a number of approaches. First, many of the companies give directly to candidates. Second, they give through political action committees (PACs). Champion International and Madison Paper, for instance, each put \$1,000 into the Maine Business PAC in 1996, which in turn gave to candidates. Third, lobbyists and employees of forest products companies make contributions themselves to gain political access; the same folks also help organize fundraising events for key legislators. Finally, they can make money available to the parties.

The parties, of course, help their candidates. Six PACs run by the legislative leadership in 1995-96, four controlled by the Democrats and two by the Republicans, spent more than \$500,000 on their candidates. Campaign reports show that the forest industry gave more than \$10,000 directly to those PACs. The Democrat PACs attracted over \$5,800 and the Republican PACs nearly \$4,200 from forestry givers. Again, the actual amount was higher, because some contributions are funneled through lobbyists and company employees. Since, many lobbyists have numerous clients, it is often impossible to identify on behalf of which client a lobbyist is contributing.

By the way, the files for the Citizens for a Healthy Forest and Economy PAC contains an amusing Freudian slip-up that was not reported in the mainstream media. In a letter submitted a year ago CHFE mistakenly filed under the name Citizens for a Healthy Forest and Environment.

The Best Money Can Buy

"It is vain to say that enlightened statesmen will be able to adjust these clashing interests and render them all subservient to the public good. Enlightened statesmen will not always be at the helm."

—James Madison, *The Federalist*, 1787

Forest and wildlife issues are dealt with by a variety of legislative committees in Maine. However, current members of the three of the most important committees are listed in the accompanying tables. There has been tremendous turnover in the makeup and leadership of these committees. The Ag/Conservation/Forestry and Natural Resources Committees are a strange mix of conservative extremists and environmental moderates. The Fish and Wildlife Committee tends to be uniformly sympathetic to environmental causes.

FOREST PRODUCTS INDUSTRY POLITICAL CONTRIBUTIONS TO MAINE LEGISLATORS ON THE NATURAL RESOURCES COMMITTEE, 1996

<u>Candidate</u>	<u>Contributor</u>	<u>Date</u>	<u>Amount (\$)</u>	<u>MLCV (95-96)</u>
Sen. Sharon Anglin Treat (D-Kennebec County) Committee Co-Chair			0	100%
Sen. Jeffrey H. Butland (R-Cumberland County)	International Paper Bowater (Great Northern) Georgia-Pacific Vol Cont Better Gov (IP) Maine Business PAC	9/5/96 10/3/96 10/15/96 10/26/96 10/28/96	66 300 200 500 250	22%
Sen. John M. Nutting (D-Androscoggin County)			0	NA
Rep. G. Steven Rowe (D-Portland) Committee Co-Chair			0	90%
Rep. Thomas Bull (D-Freeport)			0	NA
Rep. Scott W. Cowger (D-Hallowell)			0	NA
Rep. Edward L. Dexter (R-Kingfield)	Vol Cont Better Gov (IP) Stratton Lumber A&A Brochu Georgia-Pacific Robbins Lumber Madison Paper Earle Bessey Champion International T.R. Dillon Logging Vol Cont Better Gov (IP) Bowater (Great Northern) Retail Lumber Assn Champion International	2/12/96 4/15/96 4/25/96 5/5/96 5/6/96 5/12/96 5/15/96 7/5/96 7/29/96 9/23/96 9/26/96 10/27/96 11/1/96	250 100 200 150 100 200 50 300 200 250 50 300 200 50 200	0%
Rep. Clifton Foster (R-Gray)			0	NA
Rep. Sharon Libby Jones (D-Greenville)			0	NA
Rep. Linda Rogers McKee (D-Wayne)			0	NA
Rep. June C. Meres (R-Norridgewock)	Boise Cascade	10/23/96	200	80%
Rep. Roy I. Nickerson (R-Turner)			0	10%
Rep. David C. Shiah (D-Bowdoinham)			0	100%

Source: Maine Commission on Governmental Ethics & Election Practices, campaign finance reports, 1996;
Maine League of Conservation Voters, *Environmental Voting Record of the 117th Maine Legislature*, 1996.

ic to hook and bullet issues and unfriendly toward nongame and endangered species concerns.

A couple of disclaimers are in order about the tables. Some candidates did not fully complete the reporting forms, so there may be individuals from the forest industry who gave in their own names who are not easily identifiable. Also, only contributions over \$50 are listed; under that amount contributors do not have to be itemized. Other committees also deal with forest issues. The Senate chair of the powerful Appropriations Committee, for example, is a forest industry employee. But the three committees listed here handle most forest and wildlife issues on a policy level.

We Can Afford to Do Better

"If Maine is going to hell anyway, it may as well go on its own terms. And if it is not, it will be because Mainers themselves took events in hand, did what was necessary to turn them to their advantage, and somehow built a high-road for others to emulate...."

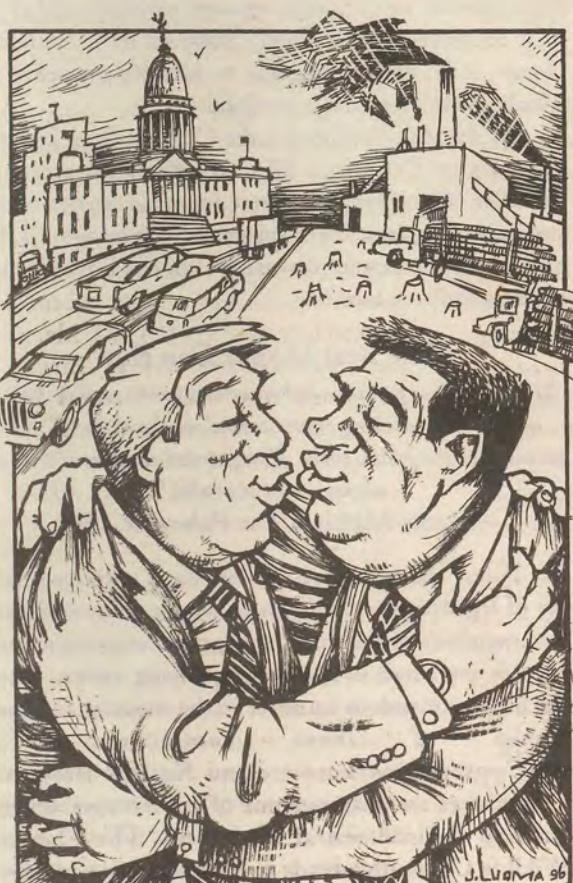
—Richard Barringer, *A Maine Manifest*, 1972

There was more money spent to influence elections in the United States in 1996 than ever, \$2 billion. The Center for Responsible Politics estimates that \$800 million was spent on the presidential campaign, three times as much as in 1992. An equal amount was spent on congressional campaigns, up from \$660 four years earlier. And nationally more money was spent on electoral politics than previously by green groups, such as the League of Conservation Voters and Sierra Club. The results were mixed.

In Maine, U.S. Rep. James Longley (R-First District), widely considered one of the most extreme anti-environmental leaders in Congress, was defeated by an intensive voter education campaign. On the other hand, Susan Collins was elected to fill Bill Cohen's U.S. Senate vacancy. Collins comes from a family which has run a lumber business in Aroostook County for 150 years and is not much interested in progressive environmentalism. She received well over \$80,000 from individuals and groups associated with timber and paper industries for her Senate run. Contributors included Champion International \$5,000, Lumber Dealers Association \$4,000, Hancock Lumber \$2,000, and Boise Cascade \$2,000.

As is true across the country, there is too much money in Maine politics. According to an analysis by the *Maine Sunday Telegram*, in 1996, \$3.4 million was given to legislative candidates and political action committees controlled by legislative leaders. Over half a million dollars of that was contributed by more than 100 lobbyists and their clients, many of them from the forest industry. Of the 377 legislative candidates last year, 280 received cash from special interests.

In 1994 the cost of a state Senate seat in Maine



averaged over \$24,000, a House seat over \$4,000. Figures have not been compiled for 1996 yet, but some legislative candidates spent upwards of \$60,000 last year. Including salary, meals, lodging and travel allowances, the average annual compensation for Maine legislators is only \$14,250.

As successively outrageous campaign fundraising scandals by both major parties at the national level come to light weekly, sometimes daily, the public desire for fundamental reform grows. After watching nearly five dozen reform proposals go nowhere in the Maine Legislature over the previous decade, citizens rose up. Volunteers collected more than 65,000 signatures from Mainers in one day to put a comprehensive campaign finance reform question on the November 1996 ballot. Voters approved the Clean Election Act. The new law will reduce maximum contributions by PACs and corporations from \$5,000 to \$500 for governor and to \$250 for legislative candidates. Starting at the end of the decade the new law will also provide limited public financing for candidates who do not accept outside donations or put their own money into a race. Already the Clean Election Act is being challenged in court. If upheld, it could be an important step in campaign finance reform in Maine. It is also being eyed by several dozen other states as a model.

Nevertheless, more is needed. There are a number

of proposals in the Maine Legislature this spring, including "An Act to Prohibit Political Action Committee and Corporate Contributions in State Elections" (LD 501), "An Act to Limit Corporate Contributions and to Establish Voluntary Spending Limits for Citizen-Initiated Campaigns" (LD 646), "An Act Relating to the Use of Public Offices or Agency Facilities in Campaigns and Ballot Questions" (LD 817), and several bills to ban campaign contributions during a legislative session.

At the national level, Ralph Nader's Public Citizen group is supporting the McCain-Feingold Campaign Finance Reform Act (S.25 and HR.493). That legislation would limit PAC contributions, outlaw unlimited so-called soft money gifts to political parties, and set voluntary spending limits for congressional candidates.

We will only get meaningful campaign reform if enough voters learn about the issue and act. Suggested reading for the big picture is Peter Brown's book *Restoring the Public Trust*. Remember, politics is a contact sport. In Maine, contact Maine Citizens for Clean Elections, 1 Pleasant Street, Portland, ME 04101, phone 207-780-8657.

Jym St. Pierre was a founder and has served since 1976 on the board of the Maine League of Conservation Voters.

FOREST PRODUCTS INDUSTRY POLITICAL CONTRIBUTIONS TO MAINE LEGISLATORS ON THE INLAND FISHERIES & WILDLIFE COMMITTEE, 1996

<u>Candidate</u>	<u>Contributor</u>	<u>Date</u>	<u>Amount (\$)</u>	<u>MLCV (95-96)</u>
Sen. Marge L. Kilkelly (D-Lincoln County) Committee Co-Chair	Bowater (Great Northern) Retail Lumber Dealers Georgia-Pacific	10/5/96 10/26/96 11/6/96	100 60 100	20%
Sen. Stephen E. Hall (R-Piscataquis County)	Georgia-Pacific Stan & Lisa Pride Bowater (Great Northern) Maine Business PAC	3/22/96 9/19/96 10/2/96 10/29/96	100 100 100 250	0%
Sen. Richard P. Ruhlin (D-Penobscot County)	Bowater (Great Northern) Mfg Housing Assn Boise Cascade Georgia-Pacific Eastern Fine Paper Champion International	9/29/96 9/29/96 10/15/96 10/19/96 10/30/96 10/31/96	100 100 300 100 450 400	56%
Rep. Norman R. Paul (D-Sanford) Committee Co-Chair			0	30%
Rep. Howard A. Chick (R-Lebanon)			0	20%
Rep. Joseph E. Clark (D-Millinocket)	Bowater (Great Northern) Champion International	10/12/96 10/31/96	100 200	NA
Rep. Ruel P. Cross (R-Dover-Foxcroft)	Rodney Kennedy (Forester) Joseph Cartwright (Hardwood mill owner) Stanley Pride (Pride Mfg) Vol Cont Better Gov (IP) Bowater (Great Northern) Richard Thomas (Plywood dealer)	8/14/96 8/23/96 8/26/96 9/28/96 10/1/96 10/3/96	30 50 100 250 150 50	0%
Rep. Matthew Dunlap (D-Old Town)			0	NA
Rep. Albion D. Goodwin (D-Pembroke)	Champion International Georgia-Pacific	10/25/96 11/4/96	200 100	NA
Rep. Royce W. Perkins (R-Penobscot)	Champion International	10/31/96	200	50%
Rep. Harry G. True (R-Fryeburg)			0	10%
Rep. John H. Underwood (R-Oxford)			0	10%
Rep. Ronald E. Usher (D-Westbrook)	Bowater (Great Northern) Mfg Housing Assn International Paper Boise Cascade	9/17/96 9/17/96 10/8/96 10/14/96	50 50 250 200	NA

Source: Maine Commission on Governmental Ethics & Election Practices, campaign finance reports, 1996;
Maine League of Conservation Voters, *Environmental Voting Record of the 117th Maine Legislature*, 1996.

Boundary Mountains Saved from Kenetech Wind Energy Development

by Pamela Prodan

It took eighteen months of legal wrangling over the massive windpower project planned for the high mountain region of Maine near the Quebec border, but finally, the Kenetech Windpower project is dead. On February 27, the Maine Land Use Regulation Commission (LURC), planning board for Maine's wildlands, voted unanimously not to give Kenetech a six month extension on its development permit. The corporation, now bankrupt, but at one time a leader in the wind power industry, requested the extension so it can liquidate the project assets. Harley Lee of New Gloucester, Maine, an aspiring wind farm developer, told LURC that he had bid on the project, but had not finalized a deal with Kenetech. He did not pressure LURC for the extension, admitting that six months probably would not give him enough time to put together a final development plan anyway.

The day before the LURC decision, the Maine Board of Environmental Protection upheld a year-old appeal brought to contest a time extension of a permit issued by the Department of Environmental

Protection. Staff for both agencies recommended denying the time extensions, saying Kenetech did not have the financial capacity to hold the permits under Maine law. On March 14, 1997, wildland areas that had been rezoned by LURC for the development reverted to their previous zoning designations. Any

new developer with designs on the Boundary Mountains will have to start from scratch, and face an opposition that is better organized this time.

Editor's Note: Much of the credit for saving the Boundary Mountains from the Kenetech windmills goes to the grassroots

group Friends of the Boundary Mountains. Kenetech had the Maine government and the large state and regional conservation groups squarely in its corner. Despite the odds, a dedicated, informed citizens' group has once again rescued Maine from ecological and economic foolishness.



PRODAN 97

Low Points of The Kenetech Project

by Pamela Prodan

In spite of the fact that Kenetech Windpower, Inc., received a LURC permit, now expired, it is doubtful whether the Boundary Mountains is a legally permittable site for a wind farm. Much of the land Kenetech planned to develop as a wind farm is in protected mountain zones, with steep slopes and soils not suitable for roads and development. The Boundary Mountains had been designated by the Northern Forest Alliance as one of the ten conservation priority areas of the Northern Forest. Nonetheless, four mainstream environmental groups, members of the Alliance, were persuaded to endorse the project. While the application was pending, unresolved issues included soils, avian impacts, destruction of high mountain and remoteness values, and need for the project. In a last ditch attempt to get the project permitted despite LURC staff's belief it could not be legally permitted, Governor Angus King's administration interfered with and manipulated the permitting process. As a result, in August 1995, LURC rezoned 864 acres in the Boundary Mountains to allow for construction of the project.

In the end, the company's bankruptcy was its downfall, but only after grassroots activists exerted pressure on state agencies to revoke the permits and litigation brought by several environmental groups threatened to force the King administration to revisit the whole embarrassing affair in court. The Kenetech experience was truly a case where grassroots activists made the difference by taking a principled stand for the environment and for upholding environmental laws. Grassroots activists organized and put together a credible opposition effort. Below are some of the defining moments at LURC in the life of this controversial and divisive project. Written documentation exists for all events described below, much of it obtained by me

pursuant to Freedom of Access Law requests to LURC and Department of Conservation Commissioner Ronald Lovaglio in 1995. Sources include transcripts, memos, letters, e-mail, and notes of meetings and conversations. This is by no means a complete chronology.

April 15, 1992—Initial meeting between LURC staff and representatives of U.S. Windpower, which subsequently became Kenetech Windpower.

October 20, 1992—Preapplication meeting; outline of proposed application presented by U.S. Windpower.

December 1, 1992—LURC Director David Boulter writes to U.S. Windpower consultant John Devine to warn that the project's "maximum opportunity design" may pose some difficulties and the design may conflict with the Commission's strategy for protecting high mountain areas.

December 14, 1992—LURC staff meets with U.S. Windpower. Chris Herter of U.S. Windpower says he is surprised at the staff's concern about siting. He says that U.S. Windpower chose the location due to its potential to have the least visual impact.

June 3, 1993—LURC staff highlights numerous planning issues, and notes that the soils and other information submitted suggest that most of the turbine areas would not meet the criteria for exemption from the Protection Mountain Area (P-MA) subdistrict to a development district.

October 8, 1993—LURC staff writes to Kenetech to request additional information and responses to various issues of concern.

January 10, 1994—Kenetech admits in its response to LURC staff's October 8, 1993 letter that areas in the project's turbine strings do not meet

LURC regulations' soil depth and slope requirements for rezoning from the P-MA designation.

July 25, 1994—Close of Hearing Record. LURC analyst Fred Griffith and his supervisor, David Allender, continue to analyze the Kenetech application and prepare a staff recommendation as required by LURC regulations.

July 26, 1994—LURC receives a copy of the four mainstream intervening environmental groups' binding agreement with Kenetech. It requires Kenetech to establish a land protection fund of \$300,000 if it ever receives approval for a minimum of 100 wind turbines; contribute \$50,000 toward a wind siting study for the rest of the state; and perform avian studies. The agreement contains a "gag" provision that requires the intervenor groups to support LURC's granting of all necessary approvals and not communicate to any person or agency anything inconsistent with that support.

November 2, 1994—William Galbraith, Acting LURC Director, meets with Kenetech's attorney, Philip Ahrens ("Chip"), to discuss where the Kenetech project is headed.

November 9, 1994—The morning after Angus King's election as governor, Bill Whalen, Vice President of Kenetech Windpower, Inc., telephones LURC from San Francisco and leaves a message for Bill Galbraith, Acting Director of LURC; Dave Allender, Supervisor of Development Review; and Fred Griffith, Senior Staff Analyst on the Kenetech project. Whalen indicates that he wants to meet with LURC staff the next day about "making a deal."

November 17, 1994—The full

Commission discusses general wind-power issues and policy questions at its regular monthly meeting.

November 23, 1994—Kenetech's attorney, Chip Ahrens, telephones Acting LURC Director William Galbraith to say that Kenetech believes the Commissioners think the application could be approved, that Kenetech does not want a denial and that he and Kenetech want an opportunity to meet with the staff to assess where the project stands. Galbraith sends a memo to LURC staff members Dave Allender and Fred Griffith, outlining the conversation, and suggests a meeting. Galbraith does not want to run afoul of ex parte rules and calls Jeff Pidot of the Attorney General's office who advises him (incorrectly) there is no legal impediment to talking with Kenetech's representatives. Pidot further advises Galbraith to give "forthright comprehensible answers to reasonable questions." A meeting is set up for December 1, 1994, which Pidot will attend.

December 1, 1994—LURC staff meet with Kenetech to discuss outstanding issues. The meeting is attended by Kenetech representative Chris Herter, Kenetech counsel Chip Ahrens, Assistant Attorney General Jeff Pidot, Bill Galbraith, Acting LURC Director, Dave Allender, LURC supervisor, and Fred Griffith, LURC analyst. Kenetech representatives say they think that the Commission is satisfied with the record. They ask what the staff concerns are so they have an opportunity to respond. A pilot project that would demonstrate techniques is suggested by Dave Allender. The possibility of reopening the record is discussed. The staff goes over its remaining concerns, including the size of the project and the miles of roads, and outlines the criteria for

approval. At the close of meeting Kenetech asks the staff to put its application on hold.

December 6, 1994—Acting LURC Director Galbraith and Kenetech attorney Chip Ahrens speak by phone about what, if anything, Kenetech wants to do with respect to their application in light of the Commission's discussion of windpower issues in November. Ahrens states that Kenetech does not want to proceed with bringing the matter before the Commission, if the staff is not fully comfortable with the project as proposed, and the staff would be hearing from Kenetech a soon as they have determined what they want to do.

December 22, 1994—LURC's Acting Director Bill Galbraith speaks with Chris Herter of Kenetech about discussions that Kenetech has had regarding what Kenetech should do in light of the recent issues discussion with the staff. Kenetech is debating whether it would want to reopen the record and risk the submission of further negative information/testimony in addition to the information that Kenetech wants to submit, and will let Galbraith know by early January. Galbraith advises LURC staff members David Allender and Fred Griffith of this conversation and directs Fred Griffith to complete a draft recommendation for presentation at the Commission's monthly meeting in January 1995.

January 10, 1995—Kenetech attorney Chip Ahrens calls Acting LURC Director Bill Galbraith to say Chris Herter of Kenetech wants additional time to evaluate other turbine configurations and numbers and will send a letter requesting more time.

January 25, 1995—After not presenting the staff's draft recommendation at the Commission's January meeting, Acting LURC Director William Galbraith writes to Chris Herter to request that Kenetech submit in writing its request to place the application on hold.

February 14, 1995—Kenetech's representative Chris Herter sends a letter to Acting LURC Director William Galbraith stating that they appreciate the Commission's willingness to suspend the permitting process and that the delay in processing the application since the November meeting has been at Kenetech's request.

March 10, 1995—Acting LURC Director William Galbraith puts together a summary of the process and issues regarding Kenetech's application for Department of Conservation Commissioner Ronald Lovaglio to refer to during his meeting with Governor King the next Monday. Lovaglio requested the information to use in briefing the Governor and his Chief Operating Officer, Charles Hewitt.

March 27, 1995—At Department of Conservation Commissioner Ronald Lovaglio's request, Kenetech's attorney, Chip Ahrens, writes to Lovaglio outlining "issues that should be addressed in the course of meeting with staff as we go forward with the permitting of the Kenetech Windpower project by LURC." Ahrens states that Kenetech believes that the best way to proceed would be for the staff to draft a recommendation for approval that incorporates

conditions which call for any further information the staff believes is important.

March 31, 1995—At the direction of Department of Conservation Commissioner Ronald Lovaglio, a meeting takes place, attended by Lovaglio; Evan Richert, Director, State Planning Office; David Allender, Project Supervisor, LURC; William Galbraith, Acting LURC Director; Chris Herter, Kenetech; Chip Ahrens, Kenetech Attorney; John Devine, Kenetech consultant. Topics discussed include phasing of the project with a first phase of 100 turbines and 10 miles of access roads. Lovaglio states that the staff looks foolish by raising technical questions beyond their authority or expertise. Evan Richert states that the record

suggests that Bill Galbraith outline a scenario wherein the staff puts forth an analytical presentation for the Commission's consideration, making findings, but no recommendation.

April 18, 1995—LURC receives a letter from Kenetech's Chris Herter stating that Kenetech now would like the application to be processed without reopening the record.

April 20, 1995—At its regular monthly meeting, after a discussion of what approach to take, the Commission tells LURC staff to bring back an analysis paper, with no recommendation, to LURC.

May 18, 1995—At the Commission's monthly meeting, LURC staff presents an analysis and is told to redraft it due to its negative aspects.

June 4, 1995—Department of

and Jim Jacobsen. Lovaglio states that the LURC staff is off track on denial of the Kenetech application and directs Mercier and Jacobsen, who he has newly assigned to the project, to draft an approval for the proposal. Lovaglio directs that the document be reviewed by himself, Jeff Pidot of the Attorney General's office, Charles Gadzik, Director of the Maine Forest Service, and incoming LURC Director John Williams, rather than following the regular review process within the development review division of LURC. David Mercier asks for a written assignment. Lovaglio directs Jacobsen to draft a "mission statement" for Lovaglio's review and distribution to the Commission.

June 6, 1995—LURC Commissioner James Sherburne sends to Governor King a letter stating that he is resigning from LURC. In the letter, Sherburne states that he finds unacceptable Department of Conservation Commissioner Lovaglio's invasive behavior which he feels violates the integrity of LURC's permitting process. He is seriously concerned about Lovaglio's "continuing interactions with, pressure exerted on, and directions given to staff which go beyond his role."

June 7, 1995—LURC analyst Jacobsen produces a draft mission statement for Lovaglio that criticizes the earlier staff analysis paper as making no leeway for LURC members to interpret the application in a positive manner. The goal of the mission is to rewrite the present draft in a manner that it presents more of a balance between the negative and positive aspects of the application, such that LURC members can review the draft in a more favorable light.

June 8, 1995—Commissioner Ron Lovaglio meets with all of the LURC staff. Lovaglio states his position on accountability at LURC: LURC is not an independent body that has its own staff; the LURC staff technically works for the Department of Conservation, of which he is Commissioner; and the LURC director has two bosses: the Commission and the Commissioner.

June 12, 1995—Philip Ahrens, Kenetech's attorney, calls James Jacobsen to introduce himself. According to Jacobsen, Ahrens states that at some point he'd like a chance to meet and review the conditions of approval for the rewrite.

June 16, 1995—A "Draft Kenetech Assignment" memorandum from LURC Acting Director Galbraith states that the staff have been directed to produce a working paper that "elaborates on the positive aspects in the record that would support an approval of Kenetech Windpower, Inc.'s application for Zoning Petition ZP 536."

June 19, 1995—LURC Director designate John Williams calls Acting Director Bill Galbraith and says he does not think they should state in writing that the goal is approval.

July 20, 1995—LURC staff presents a draft recommendation for approval of the Kenetech project to the Commission at its monthly meeting.

August 17, 1995—LURC approves the Kenetech application for rezoning and preliminary development plan.

September 1, 1995—Fred Griffith, LURC analyst, resigns.



shows that need for the project has been substantiated. (Richert testified as a paid expert witness for Kenetech at the public hearing.)

April 10, 1995—The same group of people attend a second meeting, again facilitated by Commissioner Lovaglio and State Planning Office Director Evan Richert. William Galbraith and David Allender of LURC are informed that the Administration is in favor of the project and wants it approved. Chip Ahrens states that he sees nothing on the record that says the project shouldn't be approved due to the roads because it can be done. Evan Richert suggests that the LURC staff do a pro-con analysis, let Kenetech review it and then bring it to the Commission. Ron Lovaglio

Conservation Commissioner Ronald Lovaglio removes LURC analyst Fred Griffith and his supervisor, David Allender from the Kenetech project and assigns David Mercier and James Jacobsen.

June 5, 1995—LURC supervisor David Allender resigns, stating that he has been pushed to the limits for his personal professional ethics and that the King Administration's trend appears to be toward an increasing disregard for the Commission's regulations, policies and past practices.

June 6, 1995—Department of Conservation Commissioner Lovaglio meets with LURC Acting Director Bill Galbraith, incoming LURC Director John Williams and LURC staff members David Mercier

September 18, 1995—National Audubon Society and three of its Maine chapters (Western Maine, Mid-Coast and York County), RESTORE: The North Woods, Sam Hands and Duluth Wing, represented by attorney Pamela Prodan, petition the Maine Superior Court to reverse LURC's decision.

May 22, 1996—Kenetech's attorney, Philip Ahrens, withdraws from representation of Kenetech.

May 29, 1996—Kenetech declares bankruptcy.

Summer of 1996—The Superior Court case is put on hold because Kenetech's bankruptcy makes it questionable whether the project will ever go forward. Subsequently, Kenetech decides to liquidate the wind power assets.

February 4, 1997—Facing the 18-month deadline for filing its final development plan by February 28, Kenetech requests a six month extension in accordance with LURC regulations.

February 27, 1997—LURC Commissioners vote unanimously to refuse Kenetech's request for a six month extension of time on its permit.

The Future—A number of possible buyers have inquired at LURC about acquiring the Boundary Mountains project, but at this writing, there is no indication of a sale. Interested parties have included wind power developers and a company that is interested in obtaining the wind data collected by Kenetech. Over the past two winters, meteorological equipment has collapsed on the mountains and Kenetech is in violation of expired permits.

Activists continue to oppose development of the Boundary Mountains.



In Memoriam

Chris Niederer

The Northern Forest town of Fairfield, Vermont lost a great friend when Chris Niederer died in a freak cross-country skiing accident on March 22, 1997 at the age of 48.

Chris was the sort of person who is essential to healthy Northern Forest communities—a dedicated steward of his land who loved wilderness. He generously gave his time to the community, especially to the Fairfield School where, among other services, he taught an elective course in cross-country skiing. He was happiest outside, skiing in the woods, sailing, hiking, fishing, or rowing his Adirondack Guide Boat.

When Northern Forest communities become truly self-sustaining economically, socially, and culturally, it will be because quiet, resolute, caring people like Chris place friends, neighbors, and the welfare of their fellow non-humans above ego and personal aggrandizement.

Chris is survived by his wife, Lori, and two sons, Kit and Ethan, who were his pride and joy.

Commercial Wind Power Siting Factors

Most people agree that not all exploitable sites should be developed for windpower, just as not all mineral resources should be mined. For example, sand dunes, the most lucrative sand resource, are entirely off-limits to extraction because of natural resource protection values. Arguably, the highest and best use of remote mountain areas also may be to leave them alone. However, several factors currently drive wind farms to Maine's wildland mountains, some more obvious and direct than others:

- Exposed and windy sites yield the most consistent energy resource and are therefore the most lucrative. This includes high mountains, plains and coastal areas. Therefore: profit margins that make investment attractive drive wind farms to these sites; and current low prices for energy and need to operate economically also drive wind farms to these sites.

- Dealing with one or two large corporate landowners, as is the pattern in Maine unorganized townships, means easier negotiations than with multiple owners as well as the possibility of a project of much larger scale than in other windy areas;

- The geographic isolation of the wildlands areas means that a project's visual and environmental impacts would be "out of sight and out of mind" to most people.

- The path of least resistance legitimizes siting undesirable land uses in unorganized jurisdictions of low-income and sparse populations.

- The current infrastructure for financing energy projects favors single-point lending and investment in large-scale multimillion dollar power installations, rather than the purchase of small, inexpensive systems by many widely dispersed households, businesses and industries.

A German environmental and planning firm has argued that producing electricity is a commercial activity and should be sited in areas designed for industrial development, according to an article in the March 1997 issue of *Windpower Monthly*, a Danish trade publication. Examples of suitable sites for wind farms identified by the Institut fur Umweltmessungen and Planung in Hannover include land around warehouses in port cities, where buildings are often no higher than 12 meters. Advantages include ready road and grid access, easier planning and licensing, proximity to support infrastructure and better public acceptance. Maintenance of turbines and safety precautions must be taken seriously in these areas because of the presence of people, especially when ice builds up on the blades. However, control systems can stop turbines if ice builds up.

—Pamela Prodan

Vermont's Proposed Pollution & Energy Tax: Step Toward Sustainability

by Rebecca Ramos

Earlier this winter, the Vermont Supreme Court ruled that the state owes its children equal opportunity in education. The Court's decision has dwarfed all other political events of the current legislative session, as legislators grapple with the implication that the inequities inherent in the local property tax (which funds education) are unconstitutional. Essentially, Vermont must raise \$650 million for education and distribute it equitably.

Vermont's conservation community, led by Friends of the Earth's Environmental Tax Project and the state chapter of the Sierra Club, proposes that a pollution and energy tax become part of both the property tax reform package and electric utility restructuring.

A broad-based tax on fuels that emit carbon dioxide and on electricity generated by nuclear and large hydro power, the tax is a critical step toward a more sustainable economy. "A tax that raises revenue to fund education for children while it protects the environment for future generations makes sense," said Brian Dunkiel, director of tax policy at Friends of the Earth.

Vermont conservationists are urging the legislature to replace a sixth percentage point on the state sales tax, recently passed by the state House of Representatives, with a pollution and energy tax. The tax would stimulate Vermont's economic competitiveness by encouraging energy efficiency.

A pollution and energy tax could also enter into electric utility restructuring, with which Vermont is now flirting. Such a tax could keep electricity generated by dirty Midwest coal out of Vermont's energy mix. Dirty Midwest power contributes significantly to air pollution problems that damage Vermont forests, waters and soils.

Adam Necrason, legislative counsel for the Vermont Sierra Club, notes that regressivity of a pollution tax can be balanced by low income initiatives. For example, a basic block of energy can be provided to low income households free; a portion of revenues can also fund weatherization and energy efficiency programs. According to research, effective efficiency programs can reduce energy demand by over 20 percent. With a tax that increased energy prices by less than five percent, most households and businesses could still see a reduced energy bill.

"Politically we have advanced the pollution and energy tax quite far. We feel the climate in Montpelier is very open to this idea so we plan to keep the environmental tax proposal on our top priority list through the '98 session," Necrason said.

Stress Corrosion Cracking & Other Pipeline Worries

By David Orton

Editor's Note: The previous two issues of the Forum have carried articles on the proposed Sable Island Natural Gas Project. The following article by David Orton of the Green Web addresses some of the safety hazards associated with natural gas pipelines.

Opposing the Project

Those who oppose the Sable gas project and its proposed network of pipelines are in a crash learning course about all aspects of this project. One focus is the alleged safety of gas pipelines; the alleged regulatory role of federal and provincial governments; and the role of agencies such as the National Energy Board (NEB), the main federal regulatory agency, in looking after citizens' health and safety and the public interest. One fundamental question seems to be, is the NEB a watch dog for the public interest or a lap dog for the oil and gas industry? Who sets the "standards", the government or the pipeline industry? What are these standards?

The following analysis is mainly based on studying the National Energy Board's "Report of the Public Inquiry into Stress Corrosion Cracking on Canadian Oil and Gas Pipelines", November 1996, 158 pages. (Hereafter called the Report.) The analysis is also based on concerns which the Nova Scotia Anti-Pipeline Group, community anti-pipeline activists and the Green Web have been addressing. The safety of natural gas and gas-liquids lines, and the personal stress arising from living besides a gas line, are major issues for rural residents facing the imposition of the Sable gas project upon the region.

Regulatory Capture

The NEB Report (p. 14), delicately mentions its relationship to the trade organization of the pipeline industry: "CEPA, which is made up of thirteen of the larger pipeline operators in Canada, played a major role in the Inquiry on behalf of its members."

Deeper environmentalists who have been involved with the oil and gas industry in Alberta and British Columbia, point to the National Energy Board as an example of what can be called "regulatory capture". That is, the NEB comes to reflect the point of view and priorities of the industry that it is supposed to be regulating in the public interest. In the Public Inquiry, as revealed in the Report, there was an overwhelming reliance on data and analysis supplied by the Canadian Energy Pipeline Association. CEPA is treated with kid gloves in this Report. For example, in the list of recommendations from the Board arising out of the Public Inquiry, about half were "requests" to CEPA and other industry organizations, not requirements. There was little public input. Of the three members from the NEB who carried out the Inquiry, K. Vollman and A. Côté-Verhaaf are also two of the three NEB representatives on the five-person Joint Public Review Panel for the Sable Gas Project.

Stress Corrosion Cracking

"The products transported through pipelines are hazardous substances." (Report, p. 3)

The oil and gas industry seems to assume the arrogant right to put their pipelines wherever they want, irrespective of the people and other plant and animal life forms directly impacted. This "right" is being totally challenged by many rural Nova Scotians. "Market" considerations become the justifying legitimacy for the pipeline companies.

We are told that there are more than 340,000 miles of buried oil and gas pipelines in Canada, varying in size from one inch diameter to 48 inch diameter pipe. (Report, p. 1) Typically, large diameter pipelines operate at up to a maximum pressure of 1,260 lbs per square inch (PSI). (Report, p. 36) The Maritimes & Northeast Pipeline Project says that the designed operating pressure for the natural gas pipeline will be 1,440 lbs PSI. (See 1996 Corridor Selection—Environmental And Socio-Economic Impact Assessment, Section 3, p. 1)

Sable Offshore Energy Project companies and Maritimes & Northeast Pipeline Project companies have a history of stress corrosion cracking (SCC). Despite opposing claims made in Nova Scotia, Westcoast Energy Inc. (through Pacific Northern Gas Ltd.), Mobil Oil (through Rainbow Pipe Lines Co. Ltd.), Imperial Oil Resources Limited, and TransCanada Pipelines Ltd., HAVE experienced pipeline breaks through stress corrosion cracking. They have a documented history of SCC pipeline ruptures. (See Report, pp. 102-103, Table 6.1 "History of SCC failures in Canada")

In addition, Westcoast Energy Inc., along with TransCanada pipelines, both member companies of the Canadian Energy Pipeline Association (CEPA), acknowledge they have found "significant" stress corrosion cracking in their lines. (See Table 6.2 on p. 107 of the Report.) Significant SCC is in part defined as "deeper than 10 per cent of the pipe wall thickness."

The following is the Report definition of stress corrosion cracking: "SCC is a form of 'environmentally assisted cracking' or EAC. This is the generic term that describes all types of cracking

in pipelines where the surrounding environment, the pipe material and stress act together to reduce the strength or load-carrying capacity of a pipe." (P. 15)

Note here the three factors of "surrounding environment", "pipe material" and "stress". Industry representatives seem to focus on replacing pipe polyethylene wrapping as if this is the main problem. The implied message is 'Replace the wrapping by a different pipe coating, e.g. fusion bonded epoxy, or urethanes, and there will be no more problem.' Stress associated with pressure in the pipe is downplayed. Pressure has to do with how much gas or gas liquids are being sent through the pipeline. This has a direct effect on corporate profitability. Gas and oil pipeline companies do not want to have to operate their pipes at reduced pressures.

Primary Safety with Industry not Government

For the NEB, "The pipeline industry has primary responsibility for pipeline safety." (Report, p. 3) Therefore the oil and gas pipeline companies, not the federal government have primary responsibility for pipeline safety.

The NEB Report says that since 1977, SCC has caused 22 pipeline failures in Canada. (SCC is a world-wide problem.) The failures "include 12 ruptures and 10 leaks on both natural gas and liquids pipeline systems". (Report, p. 102)

The NEB Report categorically states that SCC is a serious problem and will be the cause of future pipeline failures: "Based on the evidence presented in the Inquiry, we believe that SCC remains a serious concern for the pipeline industry. Without proper attention, it will inevitably be the cause of more pipeline failures." (Report, p. 106)

The NEB Report also goes on to state, "Many of the basic questions about SCC have not yet been answered." (P.117) This is quite a position for the NEB to put forth. In the past, as the result of a public Inquiry held in 1993, the NEB had concluded that SCC was not a problem. However, more SCC failures forced the holding of another Inquiry with very different rec-

ommendations arising from it. (Report p. 105)

In Perspective

We must however keep SCC in perspective, as it is only one cause of gas pipeline failures. According to data supplied by the oil and gas industry, e.g. CEPA membership, to the NEB Inquiry, SCC only made up 17% of "service ruptures" during 1985-1995. Additional causes of "ruptures" were "geotechnical"—meaning landslides, etc. (19%); "contact damage"—meaning earth moving equipment, etc. (23%); "general corrosion" (25%); and "other" (16%). (Report, p. 101) While the oil and gas industry seeks to downplay SCC, what we can see from their data, is that there are many other ruptures of gas pipelines with different causes!

The NEB Report states that each year there are typically 30 to 40 failures on pipelines regulated by this agency, although most are leaks rather than ruptures. (Report, p. 3) However, this figure would not take account of pipeline systems which are regulated by provincial regulatory bodies. Therefore the number of leaks and ruptures must be much higher than the NEB numbers.

The nuclear reactor at Lepreau in N.B. has recently been identified as having a SCC problem. The NEB 1996 Report states that "Nuclear reactor carbon steel coolant piping systems have developed stress corrosion cracking." (Report, p. 15)

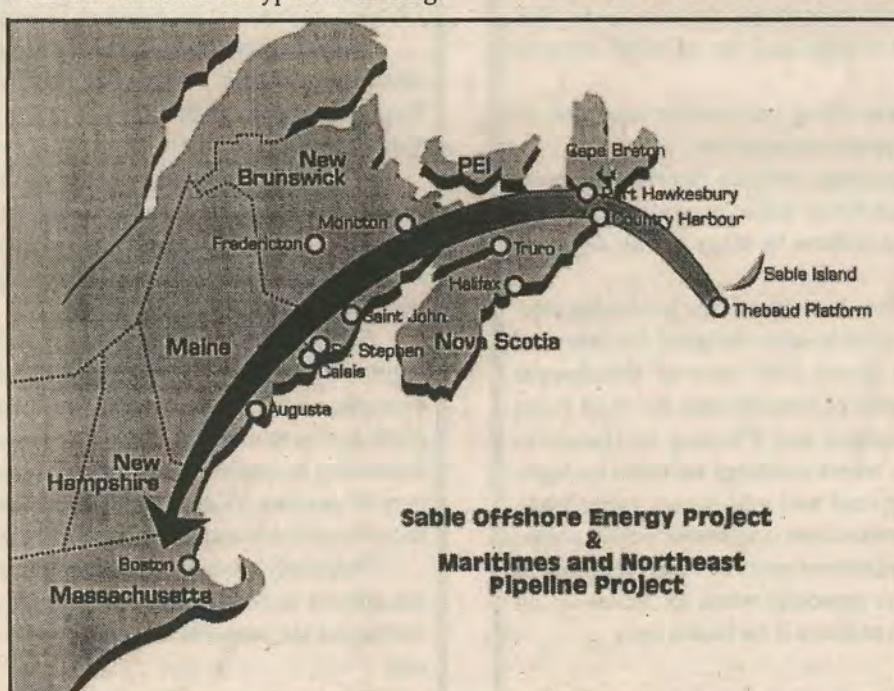
There have been two TV investigative reports on SCC and gas pipeline explosions. On both these programs, Dr. Wayne Tennessey, a metallurgist working for the company Test Labs International and stated to be an authority on gas pipelines, predicted many more problems with SCC. Tennessey also said on Country Canada that, because of the 'sucking into' effect of an exploding gas pipeline, any human dwellings should be at least 1000 feet away from a pipeline.

At a Stellarton public meeting held on February 19, 1997, Bill Ostifiluck, an official with the NEB stated that, "the National Energy Board has no restrictions where a pipeline can be built. It can be five feet away from a home."

CEPA, the oil and gas pipeline industry trade association, is against any kind of safety buffer zone. In the NEB Report (p. 96) they noted the following: "The establishment of buffer zones for new pipelines would, in all probability, make land acquisition impracticable."

Pipeline Wall Thickness

Rural residents living near pipelines which have exploded or leaked clearly believe that having thinner walled oil or gas pipelines in rural areas as opposed to thicker walled pipelines in urban or more built up areas, is discriminatory. Also, the fact that there is no required buffer zone which pipeline companies must adhere to, shows a contemptible disregard for human life and well being. The NEB Report notes the following about how maximum stress levels in a natural gas pipeline are set (p. 95):



These levels are based on the class location of a pipeline, which is generally a measure of the population density in the immediate vicinity of the pipeline. As the population density increases, the maximum allowable stress level of the pipeline is reduced.

In order to lower the stress on a pipeline, a company may lower the operating pressure, use higher strength pipe or use thicker wall pipe. The company will generally choose the latter.

In Canada the maximum allowable operating stress in a natural gas pipeline is determined by the number of buildings within an area 200 meters on both sides of the center line of a pipeline. There are four "class locations". Class 1 is less than 10 dwellings and the maximum operating stress is 80% of the specified minimum yield strength of the pipe. Class 4 are buildings four stories or more and the maximum operating stress is 44% of the specified minimum yield strength of the pipe. (See Report, p. 37 and for how class 2 and class 3 are designated.)

Landowners' and Residents' Rights & Informed Consent

The situating of gas and gas liquids pipelines immediately impacts what are referred to as "property rights". We have to realize that we are all just residents, very temporary residents, on the Earth. Whatever our understanding of property rights, which can be variable and specific to a particular human society, two ends must be served. Property rights must protect Nature and all the non-human living creatures, and they must protect social justice within a society. The Maritimes & Northeast Pipeline Project and the Sable Offshore Energy Project violates both these two essential property rights considerations. Neither Nature nor social justice are protected.

From the examples taken out of the NEB's own publication, we see that the National Energy Board is essentially an oil and gas industry lap dog, not a watch dog for the public's interest. What the NEB offers landowners and residents faced with a pipeline on their doorstep, is a convoluted ensnarement in a bureaucratic process. This process, enshrined in the National Energy Board Act, eventually results in the expropriation of land in the interests of the pipeline companies. The NEB process, over which the Joint Public Review Panel is now presiding, and applying it to the Sable gas project, has served the oil and gas industry well.

The Green Web is totally against the Maritimes & Northeast Pipeline Project. There are many important ecological, social and economic reasons to reject the project. As a minimum however, we believe any landowner (or long-term resident) faced with the prospect of a natural gas or gas liquids pipeline in her/his backyard must have the right to refuse, and to have the pipeline rerouted. We call this informed consent. It is an evolving concept.

- To give informed consent means being aware of critical information about the dangers of existing pipeline systems and not just receiving promotional material from the companies.
- It means that rural residents have a say as to pipeline thickness and location. Rural pipelines should have the same thickness of pipe as urban pipes. No natural gas pipeline should be allowed



Sea raven

within 1000 feet of any home.

- Informed consent would include landowners along the pipeline route being in contact with each other and exchanging information. The pipeline companies must be required by the NEB to divulge this list of names to all directly concerned.
- Informed consent would mean landowners knowing beforehand the compensation which pipeline companies are offering as well as the compensation the companies are paying for traversing crown lands. All this should be public knowledge.

We urge any affected landowner not to sign anything and to make life as difficult as possible for the Maritimes & Northeast Pipeline Project.

Gas Processing Plant

The Green Web is very concerned about the location of the gas processing plant in Goldboro, Guysborough County and what this means for the ecology and the people living in this beautiful rural coastal area. The more we learn about gas processing plants in Alberta and B.C., the more concerned we become. We are alarmed at the lack of critical information that is available to people living in Guysborough County. There will be toxic sludge and waste materials produced. Much of it will end up being sent to the municipal landfill site near the black community of Lincolnville.

The gas processing plant in Goldboro will produce a continuing gas flare (unless it goes out, which apparently sometimes happens). Company documents report a "normal" flare height of one metre, but in emergency situations the height of the flare could be up to 15 metres. Reports from Alberta note that flare plumes from gas processing plants, e.g. Shell, contain high concentrations of toxic chemicals, and that people, animals, and the land itself, situated in the dispersal area of gas plumes (both sweet and sour gas) are getting sick. There are hundreds of compounds emitted from flares. "Routine" air emissions, according to the appropriate Sable Offshore Energy Project document (Addendum 2), include carbon dioxide and nitrous oxides, benzene, toluene, ethyl benzene,

xylene, volatile organic compounds linked with ethylene glycol regeneration, etc. If this is all not enough, noise will also be associated with the gas plant.

Offshore Concerns

From investigating the Sable gas project and its early history, it is clear that the threat of gas and gas liquids pipelines today are the consequences of essentially unopposed oil and gas exploration on the Scotian Shelf, started in the late 1960s. Literature distributed by the Sable Offshore Energy Project says, that "a total of 125 test wells were drilled in the Nova Scotia offshore region". Toxic drilling fluids, drill cuttings and water laced with hydrocarbons from the oil and gas deposits, would have been discharged into the sea from exploratory wells.

We know that despite claims by the oil and gas corporations, of being concerned about the ecology of Sable Island and protecting the submarine canyon known as the Gully, a number of exploratory wells were drilled on Sable Island. Also, wells have been drilled right up to the edge of the Gully, e.g. the Primrose Gas Field.

In 1984 there were two well blowouts off Sable Island in the Venture Field, one of which took from September 1984 to July 1985 to be permanently capped and abandoned. (See Sonya Dakers, "Eastcoast Offshore Oil and Gas Development", revised edition, 1995, Research Branch, Library of Parliament) The Green Web believes we need an independent and credible inventory of the ecological damage that has already occurred on the Scotian Shelf and Sable Island, due to the oil and gas industry.

There was no offshore informed consent obtained from the people of the East Coast for the exploratory drilling for oil and gas, and what its consequences would be. "Consent" was acquired through the payment of a drilling fee to supposed regulatory authorities. For example, in December of 1996, the Canada-Nova Scotia Offshore Petroleum Board was inviting bids for exploratory well drilling near Sable Island. A newspaper article (Chronicle Herald, Dec. 21, 1996),

informs us that "The minimum bid that will be accepted on each parcel is \$1 million." Ecology has taught us that everything is interconnected. Out of sight is not ultimately out of mind. The Scotian Shelf exploration ultimately results in today's pipeline concerns of rural Nova Scotians and New Brunswickers.

We believe that the Sable Offshore Energy Project should be terminated without any financial compensation to the corporate entities that are involved. The project is another manifestation of an expansionary, industrial consumer capitalist society, which must have a continuing "fix" of fossil fuels. Such societies have become ecologically obsolete. They require that more and more of the remaining wild Nature be brought into "resource" production. Climate instability/global warming are a direct consequence of fossil fuel consumption. Yet there is zero informed discussion of the contribution of the burning of 25 years of Sable gas to this! The price for humans and non-humans is too high.

Establish Marine Reserve

The time is ripe for the establishment of a large non-extractive marine reserve which would encompass Sable Island and the Gully. The boundaries of such a marine reserve to be determined by the theoretical insights of conservation biology and lessons learned from The Wildlands Project and the non-human centered philosophy of deep ecology.

- To contact David Orton or the Green Web, write: R.R.#3, Saltsprings, Pictou County, Nova Scotia, Canada BOK 1PO. E-mail: greenweb@fox.nstn.ca

- The Nova Scotia Anti-Pipeline Group can be contacted by writing c/o Citizens Against the Sable Island Pipeline, POB 874, New Glasgow, Nova Scotia, Canada B2H 5K7.

- To obtain a free copy of "Report Of The Inquiry: Stress Corrosion Cracking on Canadian Oil and Gas Pipelines", by the National Energy Board, 1996, write: Regulatory Support Office, National Energy Board, 311 Sixth Avenue S.W., Calgary, Alberta T2P 3H2. Telephone: (403) 292-4800.

World's Largest Nickel Deposit Discovered at Voisey's Bay, Labrador

by Alexis Lathem

Labrador has been discovered before. By the Norsemen almost a thousand years ago, and by the Basque, Breton and Portuguese fishermen who discovered the rich fisheries of the Labrador Sea well before the Santa Maria ever set sail. In the fifteenth century, Giovanni Cabot, upon reaching the shore of the New World, claimed the lands of the Innu, Beothuk and Mic Mac for King Henry VII, who sent him hither to "conquer, occupy and possess the lands of the infidels."

But it would take almost another 500 years for a technologically over-developed society to find a dollar value for Labrador's scrawny trees, fool's gold, and mighty rivers. Although Labrador was the launching post for the earliest explorations of the continent, much of it remained unexplored until well into the twentieth century. Even the fur trade, which had found its way to the most remote corners of the Arctic, failed to penetrate the Labrador interior. The Labrador Innu continued to freely roam the peninsula as they had for thousands of years, following the migrations of the caribou and the salmon in their seasonal cycles. In the 1950s, an industrial encroachment began, with the establishment of military bases, hydro dams, and iron ore mines. But still, most of Labrador remains roadless and relatively unspoiled.

The map of Labrador is dissected by only a single road: a 500 kilometer unpaved tote road connecting the iron ore mines in western Labrador to the Churchill Falls hydro complex, and east to the Goose Bay military base. For the rest, the peninsula is without cars, billboards, electric lights, tourist concessions, or even hiking trails. From the extensive boreal forests of southern Labrador, to the high sub-arctic tundra, this is still a place where evolutionary processes are in play, where large herds of mammals roam freely over great expanses of taiga and tundra, and where a delicate ecological balance is achieved not by management, but the drama between wolf and caribou, falcon and vole. It is a place where pristine rivers, thick with salmon and char, run freely from the mountains to the sea.

However, this is rapidly changing. Between November, 1994—when a Vancouver mining company, Diamond Fields Resources, announced its discovery of the richest nickel ore body the world has ever known—and June, 1995, the Labrador peninsula had been transformed into a checkerboard of mineral claims of hundreds of mining companies from around the world. Today claims are staked without ceremony, and without so much as the requirement of setting foot on the land. Hundreds of holes have been drilled into the tundra and taiga. Presently there are more than 50 companies actively drilling in Labrador, the sky is aswarm with helicopters and planes; there are fuel spills, giant bore holes, drilling sludge, animals are harassed or killed; there is dumping, debris, noise, heavy equipment—all of this is taking place without any environ-



Voisey's Bay (Emish), view from 'Discovery Hill'. Photo © John Clark/Friends of Nitassinan

mental regulation whatsoever, and without the approval of the Innu or Inuit who live there.

A Place of Great Beauty

The site of the most famous ore body is known as Voisey's Bay, so-called after an English trader, Amos Voisey, whose abandoned weather-beaten post, hanging precariously over the tidal waters of the Labrador sea, is the only testament to the presence of commercial enterprise in this vast, undisturbed area. The Innu call the place Emish, after the Emish river. Testimony to the Innu and Inuit presence here is more subtle, but is everywhere: in old snares left hanging in trees, in ancient and not-so-ancient campsites; and in the evidence, buried deep, of the immemorial occupancy by two peoples whose impact was no more lasting than footprints in the sand. Caribou antlers carefully suspended from the upper boughs of trees in honor of the Animal Master, are a reminder of an ancient pact between humankind and the animal world that made their home a spiritual universe and insured survival, in one of the harshest and coldest climates in the world.

In the spring and fall, thousands of migrating geese flock to feed and nest in the nutrient rich marshes around Voisey and Antakalek Bays. Whales and dolphins sport in the turquoise colored waters, diving beneath rainbows, at the

feet of the rugged Shining Tops mountains; wolf tracks mark the white sand beaches and inland, animal paths—caribou, lynx, bear, fox, marten—crisscross the intricate tapestry of lichen and mosses, wildflowers, and berries of all varieties. Eagles soar from giant granite cliffs.

Innu and Inuit Ignored

Neither the Innu or Inuit were informed before Diamond Fields set up its exploration camp in the winter of 1994-95. Billions of dollars have exchanged hands over mineral rights to this land, by those who have never set foot in this land. After one of the most intense bidding wars in Canada's history, nickel giant Inco, of Sudbury fame, successfully out-bid Falconbridge; buying out Diamond Fields Resources shares in Voisey's Bay at \$4.5 billion. Diamond Fields biggest shareholder, the infamous environmental criminal, Robert Friedland (who is associated with both the Summitville, Colorado and Guyana mining disasters) walked away from the deal with \$650 million. Meanwhile, the people of the barrens, many of whom were born and raised in Emish, remain virtually destitute.

Friedland is saying that he has learned his lesson and promises the development will be "environmentally fool-proof"—a promise he has absolutely no authority to make.



Notokawon River Valley, one of four essential rivers for eastern harlequin duck. It is slated for drilling in 1997. Photo © John Clark/Friends of Nitassinan.

According to a study conducted by the Wisconsin Department of Natural Resources, there has never been a metallic sulfide mine that has not leached sulfuric acid into neighboring streams or ground water. The waste rock, which will constitute 95% of the rock that is dug up, will remain toxic for thousands of years. In the history of sulfide mining in the US, no metallic sulfide mine has ever been reclaimed. Will Mr. Friedland preside over the mountains of tailings for hundreds of thousands of years?

Smelting

Perhaps the most environmentally devastating aspect of the project will be the smelter, which Inco proposes to locate in Argentia Newfoundland—directly over the Grand Banks. Implications for marine mammals and for the Grand Banks, Gulf of St. Lawrence and New England fisheries are potentially far-reaching. Inco's nickel smelter in Sudbury is the largest single source of sulfur dioxide emissions (responsible for acid rain) in the western world, accounting for 50% of the sulfur dioxide emissions in North America. The proposed smelter is expected to be one of the largest smelter/refinery complexes in the world—bigger than Sudbury, with its quarter-mile high superstacks, the tallest in the world. It will increase sulfur dioxide emissions in North America exponentially, and is likely to have international environmental consequences.

Conclusion

Northern Labrador provides refuge for many species which have been extirpated elsewhere in North America: walrus, wolf, polar bear, eagle, Atlantic salmon—and for an indeterminate number of endangered species, tenuously clinging to existence in this remote region—most notably, the wolverine and Harlequin duck. In addition to the problem of the tailings, there will be sedimentation, which can clog streams and flood plains, and destroy fish and wildlife habitats; there will be dust, that may contain pollutants such as sulfur dioxide; there will be, most certainly, water pollution and changes in water table levels. In addition, there will be roads, airstrips, ship traffic, ice-breakers, and an influx of thousands of outsiders (mostly men, mostly white) with all of their consumptive and abusive habits.

The Innu, too, constitute an endangered species. What will this onslaught, and this degradation of the ecosystem which forms an integral part of the their consciousness and cultural identity, mean for the fragile destiny of a people, already struggling with the terrible symptoms of cultural disintegration?

And what will it mean for North America, to have closed the circle that began, on these same sea-battered shores, over 500 years ago?

For more info contact: The Friends of Nitassinan, POB Burlington VT 05402; Phone/fax: 802-425-3820.

NH Forest Advisory Board Refuses to Study Liquidation Logging, Clearcutting & Highgrading

by Jamie Sayen

On February 18, 1997 the NH Forest Advisory Board (FAB) rejected my request that it convene a committee to study clearcutting, liquidation logging and highgrading. The FAB's response to a request from a member of the public, and its interpretation of its mission suggest that NH forest policy has slipped back into the Dark Ages and that the excellent NH Forest Resources Plan (reviewed in the Mid Summer 1996 Forum, page 18) may be headed for oblivion.

The FAB was established in the summer 1996 in response to the Northern Forest Lands Council recommendation to create state forestry roundtables. The NH Forest Resource Plan's (FRP) "Action Item 11-1" outlined its role: "to advocate implementation of actions in this plan, coordinate forest policy development, facilitate dialogue between diverse interests and ensure opportunities for public participation in policy development." The FAB contains no members who participated in the two-year process of trust-building and plan writing, and thus far has offered no evidence it has even read the FRP, let alone comprehended it.

At the FAB's third meeting, on January 21, 1997, I offered my proposal to study liquidation logging and clearcutting. I suggested a study committee of six to nine people assess the impacts of such operations, especially: location of clearcuts; pre- and post-harvest stocking; harvest quality (degree of high-grading and stand damage); and regeneration. I suggested that the study should assess both ecological and economic issues and that the study committee should conduct public technical hearings, review experiences of other states, study relevant literature, and visit logging sites.

Herbicide Action at Dartmouth College

On April 18-19, Dartmouth students will sponsor a weekend of events centered around herbicide spraying in NH and VT. For more information, contact Sally Dickinson, 603-646-7804.

↳ Science Panel, discussion of the ecological and toxicological impacts of herbicide spraying. Friday, April 18 at 4:00 in 13 Carpenter Hall

↳ Keynote Address by Jamie Sayen: Friday, April 18 at 6:00 in 13 Carpenter.

↳ Native Forest Network Roadshow: Saturday, April 19, 11-12:30 in Collis Common Ground

↳ Awards Ceremony/Press Conference: Students award former CEO of Champion the "Most Environmentally Destructive Alum Award." 12:30-1:00, 101 Collis.

↳ Activist Panel: A discussion of herbicide activism with Barbara Alexander (VT Citizens Forest Roundtable), Orin Langelle (Native Forest Network - VT) Daisy Goodman (Herbicide Project - NH), Caroline Snyder (Coalition for Alternatives to Herbicides - NH).



This Stratford, NH clearcut in left foreground was sprayed with herbicides by Boise Cascade in 1993. The state of New Hampshire refused to conduct a public hearing because, according to its interpretation, the area was 'non-residential.' Unsustainable cutting on the western face of Sugarloaf Mountain (upper right corner) is part of a 5,000 acre highgrading operation in the Stratford Bog area. Flying over this section of Stratford is a depressing sight to anyone who loves forests, or who cares about the region's economy in the next couple of decades. Nevertheless, the NH Forest Advisory Board refused in February even to study the crisis in overcutting. Photo © Alex S. MacLean—Landslides

Response to my proposal was bizarre. Champion forester Brendan Prusik first requested that I leave the public meeting before discussion commenced. I declined. Then he wanted to know if the public was going to inundate the Board with other requests, and if he was expected to read all the stuff submitted to the FAB by the public. Who, he complained, was going to pay for his time spent reading this material?

Ralph Arnold, of Timco, Inc. asked me if FAB turned down my proposal, would I be back the next month with the same request? I did not bother to point out to him that FAB could shoo me away, but the issue will remain to plague us all. The sense of the group was that such a study did not fall under its mandate.

After this strange meeting, I located 20 (out of 87) Action Items in the FRP that supported my contention that this issue clearly fell under the mandate of the FAB. I also outlined economic, ecological, and data and information problems associated with heavy clearcutting.

At the February 18 meeting, the FAB was educated about the "Public Right to Know Law". Like it or not, it has to suffer the public's attendance at FAB meetings. Next, a long discussion ensued over whether the public should be allowed to speak at FAB meetings. Finally, after about two hours of this dreary discussion, the FAB turned to my proposal. I was not invited to answer questions this time, nor given the opportunity to correct the many erroneous statements made about my proposal.

Eric Kingsley, Executive Director of the NH Timberland Owners' Association, launched the first attack. The study was "premature" he said. We should wait until the 1997 Forest Inventory Assessment (FIA) was com-

pleted at the end of the year. Never mind that the FIA will address few, if any, of the questions raised in my proposal, including the economic causes and consequences of such practices. The FIA will not disclose which mills are, or have in the past, subsidized operations by the large liquidators, in return for guaranteed deliveries to their mill.

Prusik said voluntary industry self-policing would address the problem. Readers should note that in the autumn 1993 a silt plume was followed 50 miles up the Connecticut River to a logging job done by Prusik's company, Champion. Ralph Arnold took the prize when he cheerfully observed:

"We've been liquidating this timber resource for 350 years. If it becomes a problem, then we'll take action."

Only Jane Difley of the Society for the Protection of New Hampshire Forests supported a study of liquidation logging. Difley noted it is not just the amount of affected land, but that liquidation cuts are, in the eyes of the public, symbolic of what forestry is. A study, she suggested, would help improve public perception of the integrity of the forestry profession.

At its fifth meeting on April 15, the FAB will hold its first discussion of the FRP. Perhaps a few members will have read the plan by then.

In Memoriam: Robert Koch

The Adirondack region lost a great friend when Robert Koch died from injuries sustained in a freak automobile accident on January 28, 1997. Bob was only 37. He is survived by his wife Lois and two sons, Daniel and Timothy.

His mother, Maxine C. Koch wrote me a moving letter informing me of Bob's death, which read, in part: "He will be deeply missed by his family and by those people who shared his beliefs and concerns of the environment, especially the Adirondack region. Robert loved the Adirondack region and often went hiking and camping there. He became very much at peace when he was able to just enjoy all the beauty of the area."

I never met Bob, but last year we spoke a number of times over the phone about articles he had written or planned to write. These were long, rambling, pleasurable conversations. He was wise, thoughtful, and caring.

Bob loved wilderness. Sharing this love with his sons was his greatest pleasure. His mother wrote that his sons "were his first love and he was instilling in them a love for our earth." A trust fund for Daniel and Timothy has been set up. To contribute, contact Maxine C. Koch, 3256 Nancy Ave., Mims, Florida 32754.

Bob and I often spoke about plans for articles he never had a chance to write. We are the poorer for it. Here is an excerpt from his important Autumn Equinox 1996 Forum essay "Wilderness Values: Economics or Ecological Capital":

Wilderness is both a tangible and intangible good; a natural state and a human construct. Only a part—and I would argue only a small part—of the true value can be accounted for in a homocentric monetary system. Wilderness is the last refuge where nature is allowed to take its own course and abide by its own laws. Its value is comprised of public, moral, and biotic goods and services. But it may hold an even greater value. Wilderness is a place where, when we decide—or, are forced to accept that we need—to live more in harmony with nature, we will still have these remnants to examine how we may best change our actions to do so. Once we've paved all our roads, manicured all our lawns, and fouled all of our waters, then we might still have some place instructive to turn back to.

—JS

Coastal Waters Project Updates

Fishing Industry, Enviros Debate Marine Reserves Study Bill

Should there be marine reserves in Maine state waters? The Maine legislature received two very different visions of the stewardship of the states' oceanic environment, when supporters and opponents of LD 773, "An Act to Study Marine Reserves Designation in State Coastal Waters," squared off at a March 4th hearing before the Marine Resources Committee. The bill directs the Maine Department of Marine Resources (DRM) to add a study on the value of establishing ecological marine reserves into its research program. Marine reserves, also called marine protected areas, are portions of the marine environment where the natural ecology is undisturbed by fishing or other extractive practices.

Supporters told the committee that marine reserves, where extractive activities such as fishing are prohibited or restricted, are important management tools used worldwide to provide baseline biological and environmental data to scientists researching the impacts of fishing and other activities to the Gulf of Maine's ecology.

Without such baseline areas, bill proponents said, it is impossible to carry out the scientific studies necessary to understand the impacts that fishing and other marine activities have on the long-term sustainability of Maine's marine resources. They said passage of the bill would bring DMR's technical expertise into marine protected area studies already being carried out by the State Planning office.

Opponents of the bill, including commercial fishers, 'wise use' groups and the Deputy Commissioner for Marine Resources voiced a variety of objections. Fishers were concerned about potential loss of fishing grounds, and said that the law would overlap new federal regulations requiring studies of

"essential fish habitat."

Representatives of the Wise Use groups Unorganized Territories United and Washington County First called the proposal "an ocean grab", and told legislators that the study proposal was linked to a global conspiracy to internationalize control over America's natural resources. Deputy Commissioner Estabrook said the state lacked money to carry out such a study, and that temporary closures of cod spawning areas, as proposed in an earlier piece of legislation, LD 500, would be sufficient. Following a work session, the marine resources committee gave the bill an "ought not to pass" designation, effectively dooming it.

All is not lost, however. The Maine State Planning Office will host an invitation-only marine protected areas conference in Freeport, Maine on April 24-25. The meeting will bring together selected 'stakeholders' from the Gulf of Maine states and provinces including the Conservation Law Foundation, New Brunswick Conservation Council and a Nova Scotia conservation organization, fishing industry representatives and state and provincial agencies to seek for "common ground" on marine protected area designations.

—Ron Huber

Ballast Water Blues

Expanded commercial ports in Portland and Searsport, and the creation of a new cargo port in Eastport, have raised worries that new super-large bulk cargoships will bring exotic marine pest species to Maine waters in their ballast tanks. Bulk cargo vessels typically travel empty of cargo on one leg of each voyage. For stability, the empty ships take on large amounts of seawater ballast (up to six million gallons) before going to sea. Upon arriving at their destinations to pick up bulk cargoes, most or all of this water, along with the organisms in the water when it was taken on, is pumped out to make way for lumber, woodchips, paper or other export products taken aboard.

Biological invasions through ballast water discharges have created havoc in coastal and river waters around the globe, including destroyed aquaculture operations, giant fish kills, and fouled power plant water intakes. In the Gulf of Mexico, cholera bacteria was introduced in ballast water in a ship from South America, leading to a lengthy shutdown of the Gulf's shellfishery when cholera germs were found in oysters.

The Coastal Waters Project is working with some members of the aquaculture industry and others to pressure the state to join the Aquatic Nuisance Species Task Force, created by Congress in 1990 to coordinate federal and state efforts to control the introduction of aquatic nuisance species into US waters, and develop management plans for minimizing the introduction of species into Maine waters. As a member of the task force, Maine may be able to qualify for federal funding to help design our new and renovated ports in a way that would prevent the discharge of exotic pests into state waters. A bill introduced by Maine State Representative Paul Chartrand directing the state to join the Task Force was turned down by the Marine Resources Committee, following a promise by the Dept. of Marine Resources to include ballast water management in the deliberations of the Land and Water Resources Council, and interagency committee composed of state natural resource and transportation agency heads, at their next meeting in April.

At a Coastal Waters Project-sponsored March 12 meeting on the issue in Eastport, which attracted numerous participants from Nova Scotia and New Brunswick as well as Maine, it was decided to expand efforts to the creation of a ballast water management plan for the entire Gulf of Maine region. For more information, contact Ron Huber at (207) 789-5310 or write the Coastal Waters Project at POB 94 Lincolnville Maine 04849.

—Ron Huber

Sears Island National Wildlife Refuge

Debate continues on the future of Sears Island, the largest unprotected natural island on the US Atlantic coast. Located off Searsport in the upper Penobscot Bay, 980 acre Sears Island is surrounded by eelgrass beds that serve as nursery areas for cod flounder and numerous other marine creatures. The likely destruction or damage to eelgrass meadows was one of the major reasons the state abandoned the island port proposal last year. While the King administration has proposed that the state purchase the island, setting aside one-quarter of it for a future industrial port, environmental and conservation groups and other citizens have been negotiating with the US Fish & Wildlife Service towards designating the island a National Wildlife Refuge.

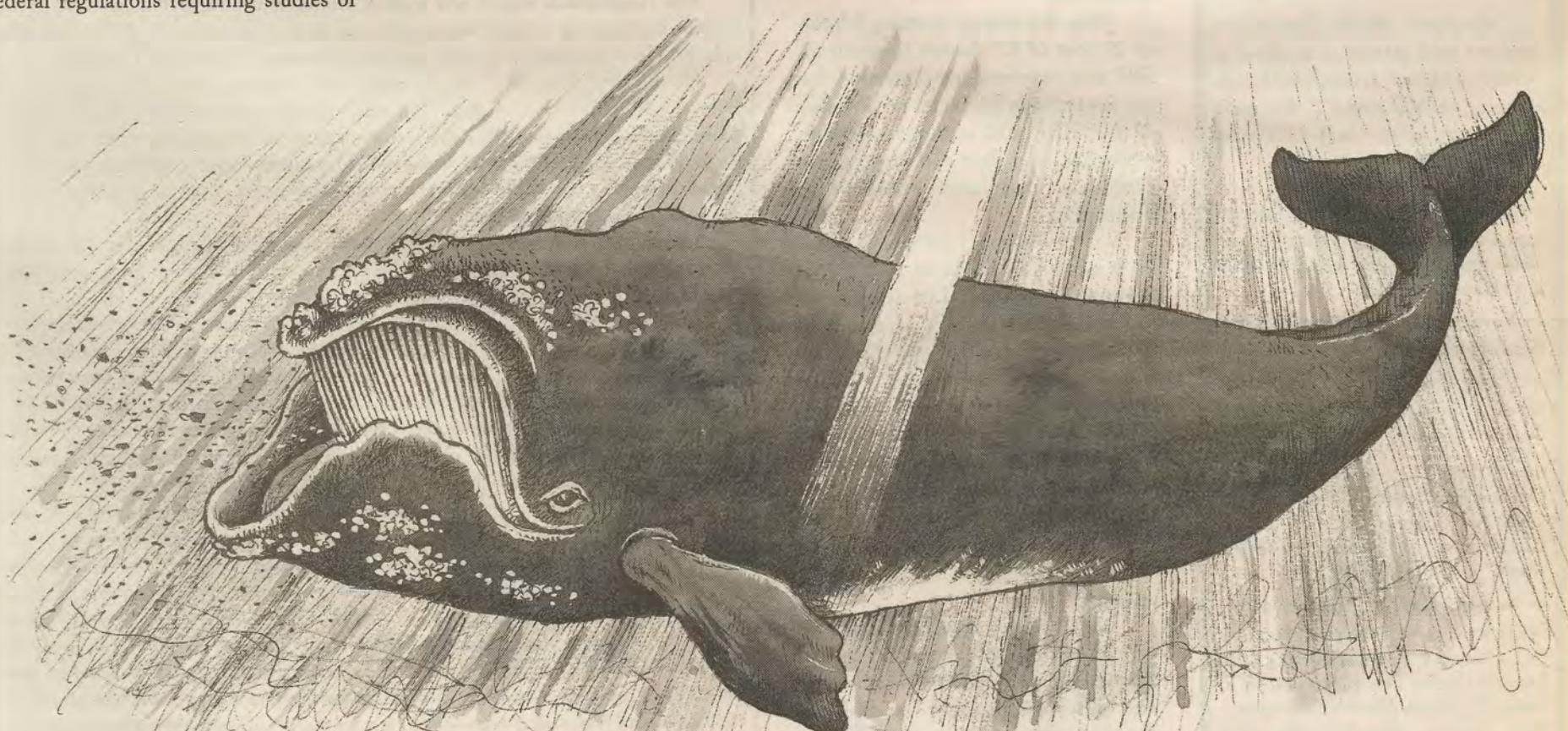
The King plan would pay to buy the island by adding a \$2 million request to a general state transportation bond at the next election, while supporters of wildlife refuge status are looking at private and non-profit monies to buy the island and then transfer ownership to the U.S. Fish and Wildlife Service.

For more information about any of these issues, or to get involved in protecting Maine's marine heritage, contact the Coastal Waters Project at POB 94 Lincolnville Maine 04849, Tel (207) 789-5310.

—Ron Huber

Illustration Credits

- ⇒ Jon Luoma—Front Cover, pages 6, 17, 22, 27, 30, 31
- ⇒ Rachel O'Meara—Mast, pages 12, 16, 24, 31
- ⇒ Vince Packard—page 6
- ⇒ Pam Prodan—page 23
- ⇒ Jym St. Pierre—page 20
- ⇒ Sue Szwed—pages 2, 25



Right whale

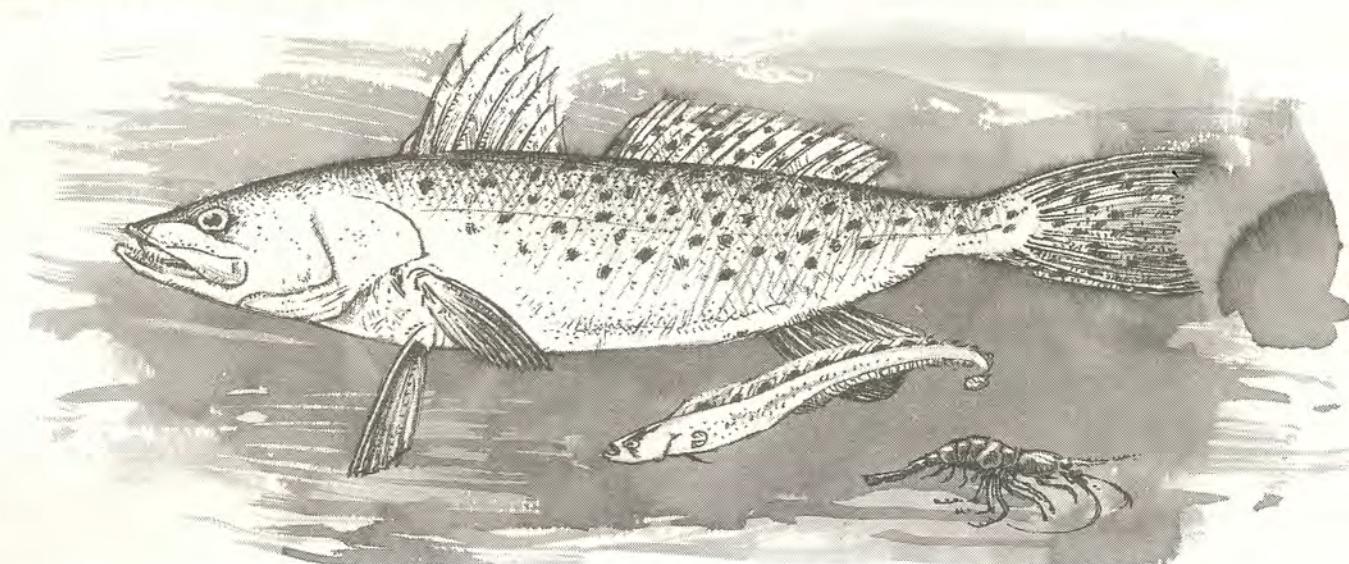
Survey of Retired Fishers Reveals Historic Inshore Gulf of Maine Fish Abundance

by Ron Huber

The Gulf of Maine's most heavily exploited species, cod and haddock, are not amorphous schools ranging blindly throughout the Gulf with few if any genetically distinct sub-populations. Recent oceanographic studies, and a survey of retired fishing captains, suggest that, like the Atlantic Salmon, these keystone predator species consist of numerous discrete stocks with individual ranges and spawning areas, and that many of these spawning areas are biologically isolated from each other. These findings may have major implications for efforts to restore inshore fisheries in the Gulf of Maine's coastal waters.

In 1995, the Rockland, Maine-based Island Institute commissioned fisherman Ted Ames of Stonington, Maine to interview retired fishing captains on the locations of inshore spawning areas for these two species along the coasts of Maine New Hampshire and Massachusetts (excluding Massachusetts Bay).

The Institute recently released Ames' study, "Survey of Cod and Haddock Spawning Grounds within the Gulf of Maine". The survey shows that the inshore waters of the Gulf of Maine, from Grand Manan Channel near the US/Canadian border to Ipswich Bay, once boasted 181 separate functioning major spawning grounds totalling nearly one million acres (1,694 square miles). Ames' study may hold some clues to the riddle of why these



Spotted seatrout

widely scattered areas are no longer productive.

According to Ames, as early as 1880, fisheries biologists documented runs of cod and haddock to specific spawning grounds in every major bay along the Gulf of Maine coast. Most of these grounds were depleted by intensive fishing by the middle of this century. As fishing activity turned toward the offshore banks, knowledge of the historic spawning grounds in the inshore waters of the Gulf of Maine was gradually lost.

Ames' interviewees described preferred inshore spawning habitat for these species as channels or basins at depths of 30 to 90 meters with sand or gravel slopes and mud bottoms. Another important characteristic was

the presence of tidal eddies that may both serve to concentrate floating eggs and larvae and provide sufficient water velocity to prevent the silting over of the sand and gravel where the cod and haddock laid their eggs.

These areas have not changed. So where are the fish? The answer may lie in the hydrologic structure of the Gulf. It is frequently assumed that the counterclockwise movement of water around the Gulf (the so-called "Gyre") should transport eggs and larvae from productive spawning grounds to areas that are barren of cod and haddock.

But, according to Ames, recent research shows otherwise. While the Gyre distributes water around the Gulf, the Maine Coastal Current tends to separate inshore waters from the waters of the Gulf. In addition, the Gulf's large tides and the complex nearshore structure of islands and submerged ledges produce smaller eddies and currents that serve to isolate areas of the coast from each other.

Ames writes: "Such conditions would tend to make it difficult for coastal areas to receive eggs and larvae from GOM [Gulf of Maine] circulation. In a similar manner, eggs released inshore in Eastern Maine waters would be less likely to drift into the GOM gyre and would tend to remain inshore. If, in fact, coastal stocks of fish depended on eggs released into inshore waters

to maintain their populations, it would partly explain why, once those stocks disappeared, the grounds were not repopulated. Once fished out, they could not recover because there were no eggs."

Indeed, fishers interviewed by Ames reported that once an resident inshore cod or haddock population was "fished out", it tended to remain unproductive even when neighboring areas continued to support spawning populations.

Ames' study has important implications for efforts to restore inshore populations of these two important species. The Maine Department of Marine Resources' Groundfish Hatchery Commission, created to study the potential for restocking cod and haddock into inshore waters, found that while cod, and haddock, like other marine species, may be grown in hatcheries, unless the cultured juveniles were induced to return as spawning adults to the abandoned inshore grounds, the result would simply be an economically unfeasible "put and take" fishery. With spawning areas for these two species identified, it may become possible to restore these native inshore populations.

Note: For a copy of the report "Survey of Cod and Haddock Spawning Grounds within the Gulf of Maine" contact: Scott Dickerson, Island Institute, Rockland ME 04841.

Nitassinan: the Last Frontier

by John Clark

Nitassinan, the Innu homeland, comprises the watersheds of the North Shore of the St. Lawrence and the Atlantic seaboard of Labrador. This wilderness frontier, however, is threatened by the encroachment of industrial society. The Friends of Nitassinan is dedicated to the protection of these vast boreal wildlands, and of the endangered people who live within them. Most of the organizing in Canada regarding wilderness and conservation is coming from Indigenous communities, and we feel it is important to work to build bridges between the environmental movement and the movement for Indigenous self-determination. In Canada, many of the areas at issue have never been ceded to the government, raising the issue of indigenous rights and sovereignty.

Friends of Nitassinan & Energy Issues

The Friends of Nitassinan was formed by an affinity group that participated in a protest against the construction of Hydro Quebec's SM3 project in 1994, originating as the Caribou Affinity Group in March of 1994. Later we became the Friends of Nitassinan, expanding our activities to support the whole of Nitassinan and the Innu communities affected by NATO flight training, road projects, other dam projects, and, most recently, one of the biggest mineral frenzies in Canada's history.

Hydro-electric dam construction remains a very real threat to the remaining wild rivers of Quebec and

Labrador. It is scarcely known that HQ has been building mega dams in eastern Quebec and Labrador—Nitassinan—since the 1950s, and is currently building the useless SM3. This dam project (including Phase II of the project currently on hold) would, if completed, flood 450 square kilometers of riparian, wetland, and forested areas; open vast areas of Boreal forest to logging; string 350 kilometers of high voltage transmission lines using extensive herbicide applications; and divert 40% of the flow of the Moisie river (this part of the project awaits approval). Hydroelectric dam construction on the land of the Innu as well as the Cree will continue in response to the energy demands of the Northeastern United States. Many of Hydro-Quebec's dam projects include construction of hundreds of miles of roads into previously roadless areas. Once the roads and construction camps are built, logging and mining become more economically attractive, and a gradual population influx into the area is hard to curb.

There is a serious need for a revitalization of the energy debate in New England. Our task is to educate the public on the connections between our energy sources and the rivers and forests of the North. The work of promoting and developing a long-term vision for sound energy policy must come from grassroots and community organizing. Alternative technologies exist but there is a lack of political will to implement them and replace our dependence on large centralized and earth-destroying power sources.

SUBSCRIBE TO THE FORUM

*A one-year subscription to the Forum costs \$15 (US) or \$25 (Canadian) for six issues.

*We will send you a freebie if you can't afford to pay on the condition that you become actively involved in the search for sustainable natural and human communities.

*We urge our more affluent subscribers to send us \$30 or more to sponsor a freebie.

*Please consider becoming a lifetime subscriber with a donation of \$1000 or more.

**Enclosed is \$_____ to cover _____ subscription(s).

** I can't afford a subscription right now, please send me a freebie. I promise to roll up my sleeves and get to work on behalf of the Northern Forest Communities.

** Here's some extra cash to cover the cost of freebies.

** Enclosed is \$1000 (or more). Please sign me up as a lifetime subscriber.

Name _____

Address _____

Town _____

State _____ ZIP _____

Contributions to the Forum are tax-deductible. Please make checks payable to:

The Northern Appalachian Restoration Project and send to:

The Northern Forest Forum, POB 6, Lancaster, NH 03584

EVERY PERSON'S NEED

by Michael Phillips

Us and them. Some of us know what's good for this earth and others are total greed barons, right? It can be easy to feel that way when you knock heads with the powers that be. Or even friends and family that find the *snowmobile for everyone getaway weekend* irresistible, or—gasp!—buy strawberries in winter. We're a radically-divergent bunch of folks in a human race. Our effect on the planet and sense of purpose can be as different as night and day. Yet somehow we need to come together and listen and understand and respect each other if we're to make headway with our environmental woes.

I'll be the first to admit there's challenge in embracing "one's enemies." A shared tenet of most of the world's religions speaks of seeing the good, however small, in all. Seeking that good is perhaps more pertinent. Emphasizing shared values and the cherished things of the heart leads to revealing our spirit nature. Earth is not just a place where we come to cause physical ruckus and emotional havoc. This is a journey of love and caring and compassionate insight. We must radiate from such a center if we truly want to affect our bit of good in this world.

Clearcuts and the spewing of poisons into our streams and air are symptoms of a greater illness. Debating the merits of aerial dumping of herbicides onto forested earth and defending "our



oil" across the globe are besides the point. We have lost respect for our beautiful planet. We have lost respect for the right of our poorer sisters and brothers to a balanced share in the

"There is enough for every man's need, but not enough for every man's greed."

—Gandhi

earth's riches. We have lost respect for the place of all life in the grand harmony of Creation. We are out of touch with the humbleness and joy that are just as much a choice in our relatively few days on this awesome island home.

Selfishness is the beginning of division. It can take many forms, from the obvious desire for "more, more, more" to feelings of superiority and an unwillingness to compromise. Thinking in terms of self is not an answer to the world's problems. Thinking in terms of respect for one another and the *path we walk together* leads to solid ground. We best affect our surroundings by beginning with our selves. An embracing heart goes beyond anger and hate for the wrongdoer to find a compassion that touches the other person's soul. Standing strong in the face of aggression is important, but so is understanding the spiritual vulnerabilities of the aggressor.

There is power in visualizing a better world and striving confidently towards it. Our ability to make a difference hinges on respect. We won't change other hearts unless mutual recognition takes place. The gloom of human stupidity pales next to human love and the miracle of being. "We shall overcome" is an inclusive struggle.

Northern Forest Forum Classifieds?

We need a classified section for those messages being beamed out to space in search of intelligent life. Down beneath that Morse code rendition of pi, surely, we could find some room . . .

Wanted: Another planet for earth's global economy. Exterior gloss looks good, but fundamental errors in value structure require work. Stock options in tobacco companies included. Serious inquiries only.

Barter Deal: Complete set of Dow Jones Industrial Averages for the past twenty years. Will trade for topsoil or old growth forest.

Looking for a Life? White male, age 39, seeking environmental asylum. Fantasies include a human community bent on caring for its planet home and each other. Organic farming and sustainable forestry a must. Thriving local economies without malls a personal passion. Will await reply in orchard on night of next full moon.

Local Economy Profiles

Local economy in action is the best way to see the ideals often expressed in this column. Next issue we will begin a regular feature to profile commendable woodworkers, farm stewards, and green business ventures that are making a difference. We need to hear from you to find the eco-entrepreneurs in each region of the Northern Forest. Write us today! *Every Person's Need*, RFD 1 Box 275, Groveton, NH 03582.

This Spring Plant an Apple Tree

Nurturing apple trees along is an earthly pleasure not to be missed. Varieties should be family favorites appropriate to your hardiness zone. Spreading the harvest season out with an early fall variety, a mid-season apple, and a good winter keeper may be the best choice. Here are some organic tips to help make your home orchard fruitful.

- Removing all alternate host trees within a hundred yards of your trees will reduce insect damage as most apple pests won't migrate this far in search of your apples. You can always offer to care for a neighbor's fruit tree that's been too long neglected.
- Disease control can be abetted by raking up all the fallen apple leaves in late fall. Either compost these in a general humus mix or take them a couple miles away to where apples aren't growing.
- Choose scab-resistant apples like William's Pride, Redfree, and Liberty that are immune to the scab fungus. Tolerant varieties like Burgundy, Sweet 16, and Tompkins King can get scab, but damage will be minor in a normal season.
- Hand thinning is as vital in the backyard as on any apple farm. Removing fruit to every six to eight inches along the branch makes all the difference. Always make the effort to remove insect-stung fruit. Raking up "June drops" for this very purpose is doable with just a few trees in a mown yard.
- Curculio weevils are likely to be the greatest insect problem. Capture the little buggers by jarring them daily onto ground tarps during the two weeks or so immediately following bloom. Apple maggot fly can be effectively trapped out with red spheres (four traps per standard or one per dwarf tree). Codling moth pressure can be reduced by hanging cut-open milk jugs containing molasses solution spiced with a few drops of sassafras oil.
- Borers destroy young trees by chewing away the inner bark. One old time repellent worth noting was to make a woodash slurry with onion juice to coat the trunk thickly at the soil line in late June. Any egg slits brazenly made by the adult beetle need to be gouged in September to prevent the grubs from doing in the tree.