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The Fox is Guarding the Hen House

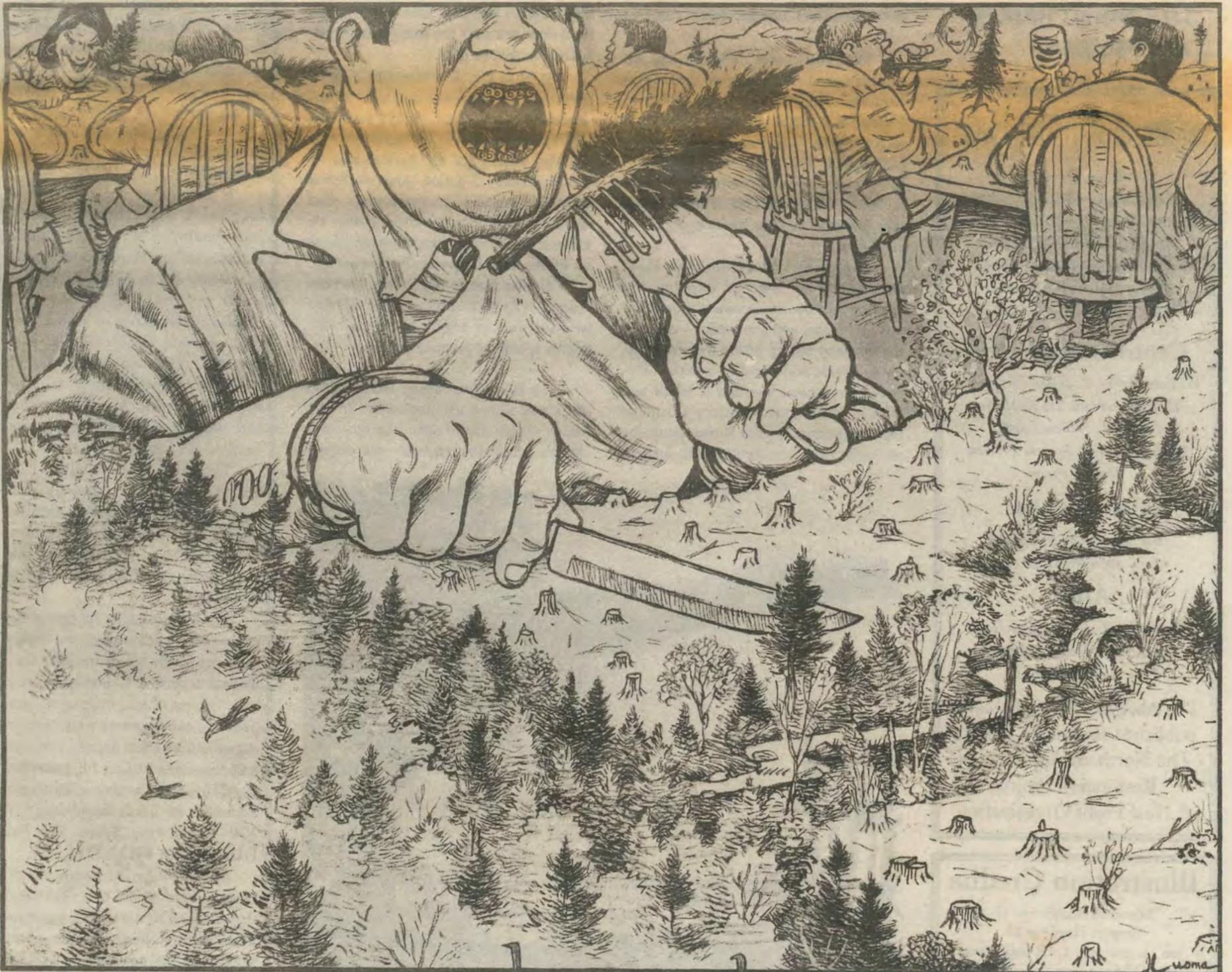
Timber Industry - MaineStream Enviros Cut Deal to Scuttle Ban Clearcutting Referendum

↳ Anti-Referendum Deal Allows Cutting that is Non-Sustainable for Timber, Wildlife & Local Jobs

↳ Deal Leaves Most Issues Unresolved; Industry Retains Veto Power

↳ Ban Clearcutting Referendum Remains Best Hope for Thwarting Abusive Forestry

(See pages 4-5)



The Banquet

Kick the Fox Out of the Hen House

The crisis in the industrial forest in Maine is even worse than we thought. Results from the 1995 US Forest Service Inventory of Maine forest land shows that spruce—the most important economic species of the industrial forest—is disappearing. In 1982 spruce covered 8-million acres in Maine; today it only covers 6-million acres.

The inventory found that the average annual net growth in the Maine woods is 5.1 million cords.; the average annual cut is 6.2 million cords.

While the findings are shocking, they come as no surprise to citizens who have been following the reckless clearcutting and overcutting of the

Maine industrial forest for the past few decades.

There have been countless efforts to slow the rate of forest destruction, to reform industrial forestry. All have failed. Some failed because industry used its dangerous political and economic power to kill reform efforts. Others—like the ill-conceived 1989 Forest Practices Act—failed because they were a political compromise that industry permitted to pass an act it knew would not seriously inconvenience its ability to satisfy its appetite for fiber.

Finally, in 1996 we have an initiative—the Ban Clearcutting in Maine Referendum—that industry cannot control or water down. Although industry plans to spend \$5 million or more to frighten the public into defeating the Referendum, the large clearcutters know the public hates their clearcuts. The Referendum scares the daylight out of the timber industry precisely because it is not another attempt at political compromise, and industry cannot control the voters the way its campaign money controls the Maine Legislature.

Past efforts have failed because they were political solutions to ecological problems. The Referendum is also political, but it is not premised on compromise with industry; instead, the Referendum attempts to set ecologically appropriate standards for forest practices—practices that the forest can live with.

The only reason industry opened negotiations with Maine Audubon Society (MAS) and the Natural Resources Council of Maine (NRCM) is its fear of the Referendum which it cannot control. This gave the environmental groups unprecedented leverage. Sadly, MAS and NRCM frittered away that leverage in their over-eagerness to cut a deal.

The Anti Referendum Deal announced on June 14 exposes the weakness of the environmental community in Maine, and showcases—again—the uncanny ability of the timber industry to divide and conquer enviros. This could have been avoided if MAS and NRCM had rejected industry's demand that supporters of the Referendum be excluded from negotiations. The enviros

should have walked out. Actually, NRCM did just that; unfortunately, it later rejoined the anti-democratic negotiations.

Once industry had established that it could still control the rules of the game, the results of the negotiations were depressingly predictable—a deal hailed as a great breakthrough that actually does not seriously inconvenience industrial foresters.

But, we need to inconvenience these destroyers of healthy forests. They have been cutting the forests of Maine at unsustainable rates for decades. The only way to achieve sustainable forestry in Maine's industrial forest is for society to regulate the abusers. In Maine, negotiations with the timber industry always fail.

Here are a few reasons why the Anti Referendum Deal is bad for the forests and the citizens of Maine:

(1) **It Won't Protect the Forest.** It permits industry to continue to clearcut thousands of acres. It fails to address shelterwood cuts. It does not require adequate stocking standards. It contains incentives that could lead to more herbicide use.

(2) **Most Important Issues Remain Unresolved.** In short, this "deal" has failed to resolve the most contentious issues that are central to protecting the forest. The Deal proposes to "resolve" them through further negotiations with industry. This aspect of the Deal does not pass the straight face test. A Deal without a deal.

(3) **It is Un-democratic.** Fifteen corporate landowners and two mainstream environmental groups excluded representatives of 55,000 registered voters who helped put the Referendum on the November 5 ballot. Also excluded were the loggers, recreationists, and small woodlot owners of Maine who are victims of unfairly low stumpage prices set by the large corporate landowners.

(4) **The Fox is Guarding the Hen House.** Why should industry be allowed to continue to regulate itself? The results speak for themselves.

The Ban Clearcutting Referendum does not solve all problems in the Maine woods. But it does stop the worst abuses. It remains our best—our only—

hope to end the unsustainable forest "management" practices that have so degraded our Maine Woods.

The time has come to reinvent democracy in Maine and to kick the fox out of the hen house.

—Jamie Sayen

Wolves Raising Rabbits?

"[Environmentalists want] management by nature, somehow thinking that will be better for the environment. They are trying to create an 'ectopia' that never existed, with wolves raising rabbits. To protect the forests of Maine you need good information, and the forest industry can best tell Maine how to take care of the forest."

—Bruce Vincent, Libby, Montana Wise Use spokesman advising Maine mill workers.

Northern Appalachian Restoration Project Incorporates as Tax Exempt Corporation

In June the Internal Revenue Service notified us that the Northern Appalachian Restoration Project is officially recognized as a non-profit corporation with the tax-exempt status of a 501(c)(3) organization. This means that contributions to NARP and The Northern Forest Forum are now tax-deductible.

It also means that after almost four years our wonderful formal relationship with Earth Island Institute in San Francisco is coming to an end. Earth Island took us in when we were only a dream. In addition to providing us with immediate access to its 501(c)(3) status so that we could begin to approach funders for financial support, Earth Island has provided us with advice and assistance in fund-raising, and handled our accounting.

The folks at Earth Island have been unswervingly supportive and quick to answer questions, sort out Snafus, and tolerant of our mistakes. They provided us with support while we grew and learned how to stand on our own.

As we embark on our new, independent adventure, we depart from the Earth Island Institute family with a sense of sadness and gratitude. Those of you wishing to support an excellent environmental organization with diverse interests and a genuine respect for grassroots environmental activism can send donations to: Earth Island Institute, 300 Broadway, Suite 28, San Francisco, CA 94133-3312.

Meanwhile, to support the many projects of the Northern Appalachian Restoration Project and The Northern Forest Forum, please make checks payable to NARP, POB 6, Lancaster, NH 03584.

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—H.D. THOREAU

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The Northern Forest Loses A Friend - In Memoriam Syd Howe

With the death of Syd Howe on April 8, the Northern Forest region lost a great champion and a true friend. The New Hampshire conservation community, often the object of Syd's wrath, is especially impoverished by the passing of this uncompromising advocate of environmental and social justice. Syd was a tough critic, but he had a vision, and he remained true to it.

Syd had a distinguished conservation career at the state and national levels. From 1957-1965 he was the first head of the Farmington River Watershed Commission in Connecticut. In 1965 he joined the Conservation Foundation as Senior Associate and became president in 1969.

Under Syd's leadership, the Conservation Foundation produced an influential report on the National Park Service, "National Parks for the Future," played a critical role in winning passage of the Federal Coastal Zone Management Act, and helped in the founding of what is now known as the Environmental Law Institute.

In 1970, Syd found the money to sustain the first Earth Day when it ran out of money early in the year.

In the 1980s he worked tirelessly to secure passage of the American Conservation Act. This bill was passed in 1984, but vetoed by President Reagan. A revised version was subsequently enacted as the National Community Service Act of 1990. The idea behind this Youth Corps bill, modeled on the Civilian Conservation Corps of the 1930s, was to provide work for low income youth repairing rundown urban parks, working on soil erosion projects, and assisting disaster victims. Unlike the CCC, which was racially segregated, for men only, and run by the army, the Youth Corps as designed by Syd was to be run by various government agencies, and to actively recruit disadvantaged youth of all races and both sexes.

When Syd "retired" to New Hampshire, he became active in a wide variety of conservation and social issues. To the end of his life he fought for the right of public access to his beloved Squam Lake, which, although publicly owned, has no public access through all the private shoreline property.

I first met Syd during the fight to end liquidation clearcutting in New Hampshire in 1991. His was one of the most eloquent—and piquant—voices in the Northern Forest Lands Council debate, especially over the issue of whether or not the federal government should play a role in Northern Forest conservation issues. Excerpts of his letter to the Northern Forest Lands Council in October 1993 are printed below.



Syd Howe 1928-1996

From time to time, Syd infuriated the mainstream environmental groups of New Hampshire and the region with his calls for bolder action, greater vision, and a more inclusive, less elitist membership. Needless to say, this was one of his qualities that I found most endearing.

In recent years, Syd and I spoke a great deal over the phone. He was very generous in his praise of our work at **The Northern Forest Forum**, but never uncritically. Always he had a suggestion for how to make our work more effective. Even when we disagreed, he provoked me to think a little deeper. I'll especially miss his generous, constructive criticism. It is an all-too-rare commodity these days.

Syd never spoke to me of his great achievements in earlier years, not because of a sense of modesty, but, rather, because he was always working on a vital problem in the here and now. There was no time for past glory; there was work to be done.

Right to the end of his life, all his spare energy remained focused on important issues. Two weeks before he died, he faxed me the draft of a book review

he had just written, lamenting important omissions in the book **The Northern Forest** by Dick Ober and David Dobbs. His mind was as sharp as ever; his keen intellect and passionate spirit were undimmed by approaching death. Sadly, his wife of 41 years, Olivia, died two weeks before Syd, also of cancer.

On June 8 family and friends gathered to celebrate the lives of Syd and Olivia. Syd's propensity for delivering unwelcome advice was recounted through countless very funny stories. But, so was his warm and generous humanity, and his unswerving devotion to social justice in society at large. Above all, we were regaled with story after story of his fanatical devotion to fly fishing.

Right now, somewhere Syd is probably teaching the angels how to set a fly, and advising them on other vital issues as well.

We at the Northern Appalachian Restoration Project are especially grateful to Syd's kids who requested that contributions in his memory be sent to NARR.

—Jamie Sayen

Would it Really Hurt us to Join the Union in Natural Resource Management?

Ed. Note: The following is excerpted from a letter Syd Howe wrote to the Northern Forest Lands Council on October 16, 1993.

Dear Members of the Northern Forest Lands Council:

With many thanks for your considerable efforts, this is to comment on your September 1993 "Findings and Options." . . .

Acknowledge and Increase Federal roles in Northern Forest conservation. On page 5 of the Introduction is the statement that "the Council has focused on only those issues which it deemed are the most significant from a regional, multi-state perspective." With apologies if I neglect some provision in your mandate, the national perspective seems fully relevant to this federally funded project, where option after option relies on U.S. Government payments or tax benefits. And just as New Englanders care about the landscapes and resources of diverse U.S. regions, and love to visit them, Americans at large care, or should care, about the Northern Forest.

Having worked on land conservation issues locally and nationally, including especially critical analyses of the National Park Service and of the

Land & Water Conservation Fund, I find this report's dim view of federal agency potentials to be incongruous and self-defeating. The repeated neglect and denial of federal capabilities, beyond that of dishing out money, are typified in item 10 on page 22:

"The existing delivery systems of some federal land conservation programs . . . are often antiquated and not easily workable in the region because these programs are often national in design and are rarely tailored to the needs of landowners in a specific region and state."

With apologies if I've missed something, there seems no positive reference in this report to real operating roles for the U.S. Forest Service, National Park Service or Fish & Wildlife Service. Yet those bodies serve effectively across the USA to meet challenges like some in the Northern Forest. Of course Feds are not uniformly angelic (like our state folks?), and they should not own and run most of the land in question. But their mandates and methods are increasingly adaptable to local needs, and the national agencies tend to employ excellent professional managers and scientists, too few of whom our states can afford. "Yankee

independence" and "home rule" paranoia must not deny us national competence and resources.

Given the purviews of federal land agencies and the outlooks of "their" congressional committees, it is idle to hope that Northern Forest states will receive Federal handouts commensurate with the same handouts *plus* federal agency direct conservation expenditures in other states. Such largesse, tailored for us, is not in the cards.

Yet many of the report's options call for special cooperative and state-only initiatives, under federal funding. Would it really hurt us to join the Union in natural resource management, after this federally funded study? . . .

Require management that sustains biodiversity. Your treatment of biological resources is reassuring in a way, for it indicates knowledge and caring in the Council about the importance of restoring biodiversity across the Northern Forest.

However, having stood not long ago near Rangely, Maine, in cleafcut devastation reaching as far as the eye could see, I feel that a report on policy changes for these 26 million acres must deal more closely and more sternly with

forest management and harvest practices. While science-based management for diversity is still evolving, some practices grossly destructive of public interests in fish and wildlife, functioning watersheds and scenic vistas must be curbed now.

Yet the 'biological resources' options of the report pose only 'voluntary landowner cooperation... in such practices as longer rotations, enhancing structural diversity in the forest, limiting fragmentation by roads, and other practices.' An option such as 'State laws regulating forest management to protect plant and animal diversity, waters and scenery' is sorely missed. Sadly, the commercial interests that have minimized analysis of forest practices in this forest study, by exerting pressure at the state level, illustrate why federal agency involvements may be needed to conserve the Northern Forest.

The protection of waters and watersheds, having been basic to creation of the White Mountain National Forest and remaining central to forest management controversies today, seems particularly under-represented in this document. . .

Sincerely,
Syd Howe, Holderness, NH

Timber Industry & MaineStream Enviro Cut Deal Designed to Scuttle 'Ban Clearcutting Referendum'

Anti-Referendum Deal Will Allow Cutting that is Non-Sustainable for Timber, Wildlife & Local Jobs

Industry Remains Firmly in Control of Forest Policy in Maine

by Jamie Sayen

"Maine's Forest Practices Act was developed in advance by an Environmental/Industrial Forum that consisted mostly of professional environmentalists (who did not live in or near the industrial forest) and representatives of absentee-based industrial ownerships. Major grassroots stakeholders from forest-based communities were left out of the debate until the forestry bill was already crafted. The result was a bill that allowed cutting that can be non-sustainable for timber, wildlife, and local jobs."

—Mitch Lansky, *Beyond the Beauty Strip*, (written in 1992), page 415.

Deja Vu All Over Again

During the week of June 10-14 all hell broke loose over efforts to defeat the Ban Clearcutting Referendum in Maine. Mainstream environmental groups collaborated with timber industry leaders to strike an "Anti-Referendum Deal" that fails to protect the forest and undercuts participatory democracy. If all this has a familiar ring, it should; this is the way it always works in Maine. Industry makes the rules of the game—and insists on excluding its critics; the mainstream environmental groups—always determined to "retain a seat at the bargaining table"—try to accommodate "reasonable" industry demands, and the result

is another "win-win" deal that fails to address the crisis in the Maine Woods. The quote above from Mitch Lansky's book referred to the 1989 Forest Practices Act, but it might just as well have been written about the Anti-Referendum Deal, which has left almost all critical issues of forest health still unresolved.

As of this writing, the only certainties are that the Ban Clearcutting Referendum is the only initiative that will end the worst abuses in the Maine woods, and it will be on the November 5 election ballot, come hell or high water.

A Deal is Struck

On Monday June 10, after months of brutal negotiations between Maine's two largest environmental groups—Maine Audubon Society (MAS) and the Natural Resources Council of Maine (NRCM)—and representatives of the timber industry, led by the ubiquitous Roger Milliken, the *eminence grise* of Maine forest policy, a deal to defeat the Ban Clearcutting Referendum was struck. Towards the end, Governor Angus King held the proverbial gun to the head of the negotiators, following months of on-again-off-again negotiations. Just when all seemed lost, a brutal negotiating session on June 7 at the Blaine House (governor's mansion) produced a deal that none liked, but all agreed to accept.

On Tuesday, June 11, the Ban Clearcutting organizers, who had been excluded from negotiations by fiat of Milliken, were informed of the deal and told to take it or leave it. A second expanded meeting of Maine environmentalists was held the next day. At this meeting, the Ban Clearcutting Referendum proponents raised countless questions and objections to the deal. Some were answered, the most critical issues of forest sustainability, it was admitted, remain unresolved. At this meeting the Referendum proponents rejected the deal.

Highlights of the Deal

Highlights of the Anti-Referendum Deal include:

- The Deal "limits" clearcuts to 75 acres. Since the average clearcut today is around 33-35 acres, this means most clearcutting will be unaffected. Sort of like setting the speed limit at 120 mph; most drivers can comply.

- Half a landowner's cuts have to be "other" than clearcuts. This means half could be clearcuts and the other half could be cut to 46 square feet basal area which is severely below minimal stocking standards for mixed woods and softwoods.

- It changes the definition of clearcut to require leaving at least 45 square feet basal area of trees 6" dbh per acre. Currently the definition requires only 30 square feet residual basal area. While this is an improvement, the Referendum calls for residuals of 50 square feet per acre.

- It limits unrestricted clearcuts to 0.25% of a landowner's entire holdings in a given year, unless you do thinnings. There are other loopholes that will permit landowners to continue with business as usual. The most egregious loophole is that there is no limit to the size or amount of "overstory removals." These are the second step in a two-step clearcut called a "shelterwood harvest." As written, an overstory removal can leave less than 45 square feet basal area and still not be called a clearcut. In 1994 53,762 acres of Maine were clearcut; 97,645 acres were treated with shelterwood cuts. This huge loophole effectively assures landowners they can continue to clobber the landscape without inconvenience, regardless of what the defenders of the Anti-Referendum Deal say. In fact, it's possible that half of a landowner's cuts could be a shelterwood cut, and the other half an overstory removal, and none of this would count as a clearcut.

- All "exemptions" for clearcutting (read loopholes) depend on how they are interpreted, and who does the inter-

preting. The standards have not yet been developed, and industry retains veto power over these standards.

- The Deal provides an incentive for more clearcutting if you thin or plant. Generally, if you thin or plant, you also spray herbicides. It is not too much of a stretch to suggest that the Deal rewards landowners for spraying poisons in the forest.

- The Deal calls for the establishment of a "Sustainable Forest Management Audit Program" with standards that will make landowners accountable for "sound forest stewardship." Sounds wonderful. Will the audit be mandatory or voluntary? Will forest liquidators be willing to submit to a voluntary audit? Who will set the standards? Will the standards be like the "green certification" that Seven Islands purchased last year?

- The Deal calls for designating about 15,000 acres of public land currently under timber management as an ecological reserve. Industry gives up nothing in this. The Deal also calls on the governor to bring "a substantial land acquisition bond" to the 1997 or 1998 legislative session. There is no guarantee this will pass; and it is an initiative that should stand on its own. Trading away the protections of the Ban Clearcutting Referendum for something that ought to happen anyway is not much of a gain.

What the Deal Fails to Address

- The Anti-Referendum Deal fails to address the issues people are most upset about—clearcuts and herbicides. In fact it allows them and even offers incentives for increased use of both.

- The Deal allows whole-tree harvesting, plantations, herbicides all on short rotations. Is this what we want to encourage or sanction?

Key Issues Unresolved

Senate President Jeff Butland had leaked the contents of the deal on June 13, forcing the dealmakers to go public before key agreements were reached. At the June 14 press conference called to announce the Deal, Governor King admitted the Deal fails to cover important issues regarding sustainable forestry. But he did assert that it significantly restricts clearcutting and charts a course for sustainable forestry. He said 15 large landowners, controlling 9.6 million acres of Maine had agreed to submit to the environmental audit.

Maine Audubon Society Executive Director Tom Urquhart, calling the negotiations "rewarding" extolled the virtues of such gun to the head "cooperative" efforts: "You get more through cooperation than one size fits all regulations." Urquhart's use of the industry's "one size fits all" rhetoric is very telling. So is the fact that he preaches cooperation with industry while subverting responsible environmental initiatives such as the Maine Woods National Park, wolf restoration, and the Ban Clearcutting Referendum.

At the press conference, NRCM's Brownie Carson called this a "stronger alternative. . . to the clearcutting referendum." He then proceeded to admit that almost all critical issues remain unresolved and resolution requires con-



Runoff and siltation in Grace Pond, below a heavily clearcut and eroded hillside near Enchanted Pond, northeast of Rangeley and Flagstaff Lakes. The Ban Clearcutting in Maine Referendum will prohibit such scenes. Will the Anti-Referendum Deal? Photo © John McKeith.

tinued cooperation by the industrial clearcutters.

Still unresolved, according to Carson are:

- "legislation that will stop liquidation harvesting;
- establishment of a Sustainable Forest Management Audit Program;
- the land acquisition bond.

Carson admitted that thus far, the Deal is "only half an agreement until it is given the force of law." He called for a special session of the legislature before the Referendum vote. "Without this step," he admitted, "we do not believe this package has real value." Although King had promised to call a special session a couple of months ago if a deal were struck, he has backed away. Perhaps his political savvy tells him the Deal wouldn't pass, and he'd rather see the enviro dealmakers betrayed in January than before the vote on the Referendum is held.

Referendum Proponents Denounce Deal

Following the Deal-makers press conference, the Referendum forces held their own. Jonathan Carter, Director of Ban Clearcutting declared: "This is a day of betrayal of the forests of Maine and the citizens of Maine." He warned that this deal "merely postpones" the day of reckoning for the forests of Maine. Carter charged that the Deal will not protect the integrity of the forests of Maine, and that the deal is undemocratic because 15 corporations and two environmental groups have attempted to cut out the 55,000 citizens who signed the Referendum petition.

Industry Objections to Referendum Also Apply to Deal

The timber industry has leveled the following accusations against the Referendum that also appear to apply to the Anti-Referendum Deal.

- **Job Loss:** By requiring a reduction in cut, the argument goes, thousands of jobs will be lost in the Maine woods and mills. If the Anti-Referendum Deal also reduces the cut, then, logically, the same job losses should occur. If the Deal fails to reduce the cut, then industry will continue to cut at unsustainable levels, and eventually supply will collapse and jobs will be lost.

- **Too Complex:** The Referendum is one page long, and half of that text is definitions. Ironically, the same critics also say the Referendum is too simplistic—a "one size fits all" approach. The Anti-Referendum Deal is far more complex than the Referendum. In addition, it is vague, and most issues remain unresolved. Industry, smiling like the Cheshire Cat, purrs "Trust me."

- **Enforcement Nightmare that Costs Taxpayers Millions:** Since the Anti-Referendum Deal requires more boards and audits and enforcement agents than the Referendum, it will cost the taxpayers even more while providing far less protection for the forests.

- **Unfair that Southern Maine Decides Fate of Northern Maine:** According to industry, it is unfair that all Maine voters get to vote in a statewide election in accordance with the law on referendums. But it's OK for two environmental groups headquartered in southern Maine and 15 multina-



A series of hillside clearcuts in western Maine done by S.D. Warren, now owned by SAPPI of South Africa. An S.D. Warren forester responsible for such scenes has endorsed the Anti-Referendum Deal. Photo © John McKeith.

tional corporations, mostly headquartered outside Maine, some outside the US, to cut a Deal. Democracy in Maine is a curious critter.

Fox Guarding the Hen House

The Referendum sets regulatory standards by which the timber industry must abide. The Anti-Referendum Deal allows the clearcutters veto power in the rule-making process that defines sustainable forest management. For that matter, the Deal was struck with the clearcutters. The fox is guarding the hen house.

When the Clean Air and Clean Water Acts of the early 1970s were passed, polluters were not allowed veto power. As a result, significant progress in pollution cleanup was made. However, as long as environmental abusers are allowed to "regulate" themselves, our ecological and health problems will worsen. You can bet that industry will set standards it "can live with." One of the strengths of the Ban Clearcutting Referendum is that it sets standards for forest management that the forest can live with.

What Next?

- The Ban Clearcutting Referendum will be on the ballot. It remains the only surefire way to end the worst abuses of industrial forestry.

- The Deal may or may not hold together. It is hard to see how the unresolved issues of sustainability will be dealt with responsibly, given the fact that industry had just undercut the Maine Council on Sustainable Forest Management a week earlier. (See William Butler's article on page 14)

- Industry already has raised \$1.6 million as of June 1 to fight the referendum. It began running hardball ads against the referendum during the critical days of the first week of June. Protests by King and Urquhart caused industry to pull the ads for a few days, only to begin running them again on the very day the deal was agreed upon. Some good faith!

- The public still supports the Ban Clearcutting Referendum, despite a barrage of industry ads over the past sever-

al months. The elite of Maine is boycotting the Referendum, so Ban Clearcutting proponents currently have no money to run TV ads to counter industry lies and distortions. We expect industry to spend \$5-8 million to poison the airways. Although the public strongly supports banning clearcuts, the one-sided ad campaign could well frighten Mainers into voting against the referendum. The Deal will only add to the confusion as many voters will be misled by promises that the Anti-Referendum Deal will protect the forests of Maine.

- The forest continues to get clobbered by industrial forestry. While the Deal may modify the methods used by industry, the assault will continue. Only the Referendum can slow or stop it.

In this issue of the *Forum* (page 10) Mitch Lansky examines the results from the latest inventory of the Maine woods. He writes: "The most obvious news is that there has been a 31% decline of spruce and fir, key species for the paper and lumber industries. . . . The average annual cut estimated by the US Forest Service was around 6.2 million cords. The average annual net growth was 5.1 million cords. The cut to growth ratio was 1.2 to 1. Cutting has not been sustainable."

Meanwhile, Bill Vail, of the Maine Forest Products Council auditions for the role of Nero by asking, "What's the problem?"

- Finally, the Anti-Referendum Deal subverts efforts to establish large ecological reserves or a Maine Woods National Park. It confuses the public into thinking that 15,000 acres in an ecological reserve and a small acquisition fund (there is no guarantee it will ever receive funding) will be adequate to protect Maine's biodiversity. Even if that is not the message of the Deal-makers, that is what the public is likely to think.

Since industry has just rolled the state's two largest environmental groups, it is feeling its oats. It has no incentive to be nice, to negotiate in a responsible manner. It will now turn its attention to rolling the wildlands proposal for Maine that the Northern Forest Alliance will be releasing sometime. . . . Meanwhile, the Alliance, by failing to support the Referendum (in part due to the efforts of Maine Audubon Society), risks alienating citizen activists who are making enormous personal sacrifices to promote the Ban Clearcutting Referendum.

When all is said and done, once again, the biggest losers are the denizens of the forests of Maine. Their only hope is that the Referendum passes on November 5. It can, if you get involved today. Contact: Ban Clearcutting, POB 2218, Augusta, ME 04438. Tel. 207 623-7140.

Timber Industry Invests in Maine Again

Contributes \$1.6 million to Defeat Ban Clearcutting Referendum

The timber industry knows that the public hates its clearcuts, its dioxins, and what it is doing to millworkers and loggers. It knows that a well-informed public will vote Yes to Ban Clearcutting on November 5.

But the timber industry also knows that in our TV age, Democracy is for sale. To defeat the ban Clearcutting Referendum, industry created a political action committee with the soothingly misleading name of Citizens for Healthy Forests and Economy. It has hired expert disinformation peddlers on environmental issues—Winner Wagner & Mandaback to direct the timber industry campaign of fear, deceit and disinformation.

But WWM costs big money. And TV commercials cost megabucks. Through May 30 industry has raised over \$1.6 million in cash donations and in-kind services. The names of the largest donors have a familiar ring: Citizen Boise Cascade—\$167,000; Citizen Bowater Great Northern Paper—\$219,000; Citizen International Paper—\$216,000.

Vermont's Essex County Woods at the Herbicide Crossroads

by Andrew Whittaker

Paper company lands in Vermont's Essex County have been increasingly managed on a short rotation, even-aged basis with a heavy accent on clearcutting and whole tree harvesting. Now, several of the corporate landowners seek public acquiescence to spraying herbicides, as they do on a wide scale in Maine and to a lesser degree in New Hampshire. The objective is to accelerate softwood growth by suppressing puckerbrush and to perhaps prepare ground for plantation softwood species. The question for Vermont residents is whether to further encourage forestry that alters ecological integrity of the forest itself and assume the long-term risks and cultural impoverishment this implies.

Background

Vermont's Department of Agriculture initially issued a permit in August, 1995 to Boise Cascade Corporation allowing the spraying of 180 acres in the Essex County town of Brunswick. No review was conducted by either the Vermont Pesticide Advisory Council; no discussion of forest policy considerations was initiated by either the Agency of Natural Resources or the Forest Resource Advisory Council; towns and citizens were not consulted.

A citizen lobbying effort did convince Governor Howard Dean to request that Boise not act on its permit, pending proper review and public input. A bill seeking a two year moratorium on spraying did pass the House this winter but hit the usual snag of a tone deaf Senate (specifically, the Senate Natural Resources Committee, chaired by Matt Krauss).

The Forest Resource Advisory Council did finally respond to public disapproval of spraying by scheduling



two days of hearings from those proposing and those opposed (June 26 and 27, in Island Pond). Champion International has spearheaded advocacy of spraying; company plans are to chemically treat up to 2500 acres annually in the area as they began doing in adjacent New Hampshire last year. Opposing arguments have been marshaled by citizens working with Vermont Citizens' Forest Roundtable coordinator Barbara Alexander.

Significantly, Deputy Agriculture

Commissioner and Vermont Pesticide Advisory Council member Phil Benedict has twice stated at VPAC meetings that a "No" to spraying by FRAC, based on forest policy considerations, would be sufficient grounds for VPAC's denying a permit to conduct aerial spraying of clearcuts.

What then are the forest policy arguments against spraying of herbicides with the objective of accelerating softwood growth by suppressing puckerbrush species in clearcuts?

Facts of the Case

If there were no clearcutting in Essex County, there would be no proposal to spray. If production of paper and need for fiber were balanced with consideration of our forests': (1) long term economic viability and contributions to local livelihoods, and (2) biological structure, function and overall integrity, then, too, society would not be faced with a proposal to spray.

Thus, spraying itself is symptomatic of the failure to balance supply and demand in the context of biology. Paper companies propose to push forests in the direction of increased softwood fiber production with no biological assessment of the long term impacts on forest productivity and integrity. This represents a further, perhaps ultimate, departure from a forest art or science based on respect for the natural ecosystem functions of the native forest. Production—narrowly defined and focused on one product (fiber)—is to supplant biology in determining how our forests evolve.

The public, meanwhile, has asserted its interests in the long-term viability of an intact ecosystem. The public stake in the sustainability of water, soil and forest functions is sufficient to warrant denial of permission to spray and to place an effective ban on the alteration of ecosystems by chemical treatment.

Ecosystem Impacts

The argument that spraying has minimal ecosystem impacts rests on the assertion that: (1) ultimate tree composition of treated sites is unaffected by spraying, and that (2) herbicide merely accelerates natural processes of succession. Apart from toxicological considerations, this analysis overlooks the roles played in forest function by time, relationship, and components of the ecosystem other than desired crop species.

Ecosystem response to stress requires time. Clearcuts are a stress to which the forest responds with the rank growth targeted by the spray. Vegetation crowding clearcuts cools the soil and cycles nutrients, and allows the cycle of forest succession to begin anew. There is no way to procure the benefits of this stage of succession without going through it. The impact of herbicides on vegetation is measurable years beyond spraying. The depression of non-conifers can be expected to contribute to microclimatic warming of the soil, decreased leaf litter and increased soil acidification from softwoods.

The greatest irony of paper company management of softwood in Essex County is that the preferred silvicultural approach is the least effective means of regenerating softwood. Spruce and fir are shade tolerant and regenerate best in small patch cuts surrounded by mature seed trees which also provide shade and moisture. Large clearcuts are often characterized by large gaps where softwoods have not regenerated naturally; this is why planting becomes necessary. One can expect that where only puckerbrush is growing and is herbicided, the ground will be laid bare and exposed.

By ignoring time requirements of the regenerating forest in choosing to clearcut, paper companies have created a situation which also tempts them to short circuit the forest's temporal needs

Hope for the Future

In his poem about the reclamation of old pasture by meadowsweet and steplebush and so on to maple, birch and spruce, Robert Frost explored a theme of particular relevance to late spring. The season of hope ends; in our gardens and social efforts we enter a period of practical realizations. Poised between hope and hopelessness, there is a productive balance to be struck, and a certain value in impatience and dissatisfaction with present conditions.

I live on a fairly small lot of maturing balsam fir and pasture spruce; in the past two weeks three separate loggers have expressed interest in cutting the wood. It is fairly evident here in the northeast corner of Vermont that softwood is in demand. Chip harvesters move from job to job and probably don't make money on half the cuts which nonetheless remove practically every stem. Many of us look with increasing hopelessness on this particular rotation or cutting cycle. Perhaps there will be value in this round of wholesale harvests if the rapacity of cutting wakens our communities to long neglected needs for education, for economic empowerment, for social integration.

We live in a period of a ubiquitous ideology that government is bad, that regulatory approaches are inherently flawed and that the needs of business are basic to cultural well-being. Although we may thank the two Roosevelts (and Eleanor) for an interruption in this essentially American approach, Ralph Waldo Emerson bore witness to it as well:

"Tis the day of the chattel/ Web to weave, and corn to grind;/ Things are in the saddle,/ And ride mankind."

We forget, however, that America has also fostered a more hopeful philosophy. On a delivery with a fellow worker recently, we passed a clearcut that occurred on the grounds of a local school. Apparently the logging contractor told the school that a little blister rust in a stand of beautiful white pine necessitated a clearcut that laid the ground bare. Last fall I watched the skidders working in the rain and mud, kneading the porosity right out of the soil. Oh well. My partner, a New Bedford fisherman and as well acquainted with the world of work as anyone, sighed as we passed the open land and said, "Nothing left for beauty."

We assume too much when we place a "good for business" ideology ahead of community interests. Part of the mis-assumption is that people don't care: they do. Here in northern New England, our communities depend on beauty, and all too often we are left grappling with endemic ugliness. The clearcuts which surround us represent something more than an affront to shallow aesthetics; they embody an absent regard for social connection, and, an even greater ugliness, remoteness from the awareness of creation and our natural connections. I rather guess this is what my friend in the delivery van may have meant when he said, "Nothing left for beauty."

—Andrew Whittaker

Attend VT Herbicide Hearings June 26-27

Citizens who wish to prevent herbicide spraying in Vermont forest management should attend the two-day hearings sponsored by FRAC in Island Pond. These hearings will almost certainly determine Vermont's herbicide policy for forestry management.

The hearings will be held in Town Hall in the center of town. They begin at 9:30 AM on Wednesday, June 26, when proponents of spraying will make their case. Hearings on Thursday, June 27 will begin at 8:30 AM; opponents will present their case.

The hearings will be rigidly structured, so don't expect to have an opportunity to testify. However, there are ways of getting your questions asked. Most important: Come and show your opposition to herbicide spraying and clearcutting.

even further by spraying with herbicides. Those faced with the policy question of whether to allow the practice must take a look at paper company management and ask whether it has in total made sufficient allowance for the time it takes Nature to accomplish its work.

Single goal management has also blinded company managers to the fact that forest species act in concert—and that relationships encompass species other than crop trees. While the outcome of such narrowness of vision may be manifold, and extends beyond exclusively economic concerns, we should consider two areas of relevance to forest productivity: spruce budworm and clearcut foragers such as deer and moose.

Research has found that budworm outbreaks in this century are of increasing extent. The general hypothesis is that human disturbance has created a forest more susceptible to the budworm. Spraying with herbicides is intended to encourage softwood and will reduce intermixing of tree species. Furthermore, managing softwood on a short rotation basis will tend to favor balsam fir over red spruce, since fir reaches reproductive maturity more quickly than spruce. In other words, advocates of chemical treatment of clearcuts are setting the north woods up for yet even wider, more intense outbreak of spruce budworm. The response to budworm in Maine and New Brunswick has, of course, been to spray with insecticide.

Owners and managers of forest lands adjacent to Essex County clearcuts who have opted to manage for sawtimber and retain natural forest structure and function have noted that the impact of clearcutting is not necessarily confined to the cuts themselves. Deer, for instance, are yarding more



Clearcuts such as this huge Northeast Kingdom job are the first step in the herbicide process. If we ban clearcuts, the excuse for using herbicides in forestry will disappear.

intensively within such closed canopy woods as remains, with increased devastation to hardwood and even some softwood saplings during hard winters. A Maine researcher looking at moose and herbicided clearcuts, found that spraying has a similar effect of reducing available browse and thus concentrating grazing on lands adjacent to those treated. Thus, landowners in Essex County who have already experienced negative effects from the impact of clearcuts on deer cover may expect a similar result from spraying's reduction of available browse.

Conclusion

Considered individually, no single ecosystem impact of chemical spraying may seem overly significant or critical to forest integrity. Taken together, and in the context of short rotations and intensive harvest, the impacts suggest a harmful trend and direction. Ecosystem stability, it has been suggested, is dynamic, with one change inviting another, with feedback processes intensifying impacts and fundamentally altering forest character. After years of intensive harvest pressure, this is the condition of Essex County's woods

today; herbicides are simply an unwelcome addition.

Forest productivity will in the long run be best assured by attention to fundamentals: protect the soil, water and vegetation and we will protect the processes linking these. By thus protecting ecosystem integrity we will, with minimal reliance on technology, be assured of living forests that can yield livings as well. Vermonters thinking of the future of their communities know that there is but one choice to make in a forest policy decision on the chemical spraying of clearcuts.

Five New GMNF Timber Sales Opposed

In a series of five timber sale proposals all issued in the last three weeks in May, the Forest Service has announced plans to log over 800 acres of the Green Mountain National Forest in Vermont. Two hundred and sixty four acres will be logged through clearcutting and its variants, which include "shelterwood" logging, a two-stage form of clearcutting where most of the trees are removed immediately, and the rest in 20 years. A total of over four and a half million board feet of timber will be removed from the GMNF with these five sales.

The Chandler Ridge and South Lincoln Timber Sales, which call for two-stage clearcutting (shelterwood) of 86 acres of rare oak stands, have drawn particular public opposition.

The timber sales follow a restructuring of the Forest Service in Vermont in the wake of a recent court decision which declared illegal Forest Service plans to log in the Lamb Brook roadless area of the GMNF. A new forest supervisor, planner, and a new district ranger have since appointed.

According to Green Mountain Forest Watch, these proposals violate the Forest Plan for the GMNF. According to the Forest Plan for the GMNF: "We believe that public land in New England is scarce and pre-

cious. Our management philosophy reflects that belief. The GMNF should be managed to provide benefits that private land does not. . . With its large blocks of land in remote areas, the GMNF is particularly well-suited to providing opportunities for backcountry recreation and Wilderness." (p. 4.03)

The Plan further states that while "Private lands should easily be able to meet [society's demand for wood products]. . . private lands are less well-suited to meet demands for recreation and wildlife benefits." (pp. 5.06-07)

The five timber sales are the Mad Tom Timber Sale, located in Rochester; the Chandler Ridge Timber Sale in Leicester, the South Lincoln Timber Sale in Lincoln, and the Otter Creek Timber Sale in Mount Tabor.

The Green Mountain Forest Watch is asking the Forest Service to extend the public comment period by 60 days to allow the public adequate time to consider these proposals and provide meaningful input. The four Environmental Assessments of the proposed five sales fill over 191 pages of text, charts and maps.

For further information, contact: Green Mountain Forest Watch, 48 Elliot St., Brattleboro, VT 05301. Tel. 802 257-4878.

Maine Referendum Challenges NH To End Liquidation Clearcutting

The New Hampshire forestry community is worried about the Ban Clearcutting in Maine Referendum. Unfortunately, sloppy journalism conveyed the erroneous impression that NH's largest conservation group, the Society for the Protection of New Hampshire's Forests (SPNHF) was actively campaigning against the referendum, when, in fact, it was warning NH forestry officials that NH can no longer drag its feet on sensitive issues such as liquidation clearcutting.

On May 31 the *Sun-Journal* carried a story by Liz Chapman titled "Maine's forestry vote worries N.H." The article quoted Eric Kingsley, Executive Director of the NH Timberland Owners Association (NHTOA): "It's one of the greatest threats to good forestry and a strong forest products economy throughout the Northeast in a long time." He alleged that the referendum would be "devastating" to the health of the forest and the forest economy throughout the region.

Kingsley's concerns echo industry claims in Maine. If you believe that forests require clearcuts and heavy cutting to maintain health and if you believe that a healthy forest economy is one that cuts trees at an unsustainable rate, and cuts thousands

of logging and mill jobs while increasing the intensity of cutting, as has been the case in Maine over the past two decades, then you probably agree with the NHTOA.

This approach to "protecting" NH forests is indeed a peculiar one: sacrificing Maine to preserve NH.

SPNHF policy director Tammara Van Ryn worries that loggers from Maine will come into New Hampshire and take advantage of the state's lack of regulations on clearcutting. She told me that SPNHF "will not actively oppose" the referendum.

SPNHF recognizes that passage of the referendum could have consequences for NH forestry. Therefore, SPNHF believes, it behooves New Hampshire to: (1) establish a "Forest Roundtable" (as recommended by the Northern Forest Lands Council and delayed while the New Hampshire Forest Resources Plan was completed) which could assess the impacts of the referendum, and (2) take steps to end liquidation logging practices that are still legal in NH. In short, instead of adopting a defensive posture, Van Ryn sees the referendum as presenting NH with an opportunity to take long overdue action to prevent the most abusive clearcuts.

—JS

Citizens Challenge Herbicide Spray Permits Applications by Large Clearcutters in Northern New Hampshire

by Daisy Goodman

The **Herbicide Project** of the Northern Appalachian Restoration Project and **Nidôbak**, a Native American environmental/cultural organization based in the Coös region met with the New Hampshire Pesticide Control Board and jointly challenged applications by Boise Cascade and Champion International for aerial spraying of herbicides. The herbicide products involved include Accord (glyphosate, manufactured by Monsanto), Arsenal (imazapyr, manufactured by Dupont), and Oust (sulfometuron methyl, manufactured by American Cyanamid) with the surfactant Entry II (polyethyleneamine or POEA, also a Monsanto product).

If these permits are approved, the two companies plan to spray 4000 acres of former clearcuts in Coös County sometime between August 15-September 15.

Glyphosate, imazapyr and sulfometuron methyl are broad spectrum herbicides which profoundly alter the composition of forest stands attempting to grow back after clearcutting and potentially contaminate surface waters. In addition to target species (known disrespectfully as "brush" or "weed species"), most other plant species are eliminated, with the exception of softwoods. These herbicides and the surfactant POEA impact many non-target organisms, including animals, birds and fish, directly through exposure to the herbicide/surfactant combination, and indirectly through loss of food source, breeding area and shelter. Sublethal doses of pesticides, including some herbicides, have been linked to the extremely alarming phenomenon of endocrine disruption, in which reproductive success of animals and birds decreases dramatically. Minute quantities of compounds have been implicated, and recently the synergistic effects of pesticides in combination have been shown to increase toxicological effect by one thousand times.¹ Sulfometuron methyl is one of a class of compounds which have been shown to decrease plant reproductive ability.²

Prior to EPA licensing, most research on these compounds had been sponsored by the manufacturers. The results were reassuring, the scientific methods questionable. In fact, results of product testing by Industrial Biotest Laboratories and Craven Laboratories, both allegedly independent laboratories under contract with chemical corporations, were called into question by an EPA audit at a later date. Unfortunately, IBT had by that time conducted 11 of the 19 chronic toxicology studies on glyphosate required by the EPA licensing process.³ University researchers are still often reliant on corporate sponsorship for studies. Some, like University of Maine's Max McCormick, a high powered proponent of silvicultural herbicide use, are paid consultants for cor-

porations such as Monsanto.

A limited amount of reputable research is now available concerning the long term, cumulative impacts of the compounds mentioned above and their breakdown products. Little research exists on the possible synergistic effects of their combination. In addition to their active ingredients, ACCORD, ARSENAL and ENTRY II all contain approximately 50% inert ingredients, which are unlisted and unknown to the regulatory bodies involved. Inert ingredients in formulations remain a proprietary secret of the manufacturer, not subject to testing or approval by EPA. In fact, EPA requires testing of active ingredients only rather than the full formulations found in pesticide products.

Recent findings indicate that glyphosate, imazapyr, sulfometuron methyl, POEA, certain contaminants in their formulations, and their breakdown products all have serious toxicological implications for mammals, fish, soil bacteria and non-target plants, particularly in combination. Studies on the Monsanto product ROUNDUP, a glyphosate/POEA formulation similar to the combination of ACCORD and ENTRY II, indicate that POEA presents a greater threat to wildlife and fish survival in sprayed areas than glyphosate alone.⁴ A 1990 study at St. Louis

University (Missouri) found that "It is possible that the combination of glyphosate and POEA potentiate each others' toxicity. It is therefore not reasonable to quote or rely on calculations based on individual toxicity when both ingredients are present in combination [emphasis added]...It should also be remembered that glyphosate/POEA combinations pose a very serious hazard to the lung on direct contact..."⁵ We have as yet not identified research investigating the chemical behavior and toxicology of the combination of glyphosate, imazapyr and POEA proposed in Champion's 1996 Special Permit Application, or the implications of adding sulfometuron methyl to the mix as proposed by Boise Cascade. The potential effect of aerial application of these inadequately studied and demonstrably dangerous chemicals over thousands of acres is extremely serious and should be enough to warrant a halt to the program right away.

Based on the questions raised by recent research, and on the lack of adequate long term study of the cumulative effects of large scale herbicide application on northeastern forest ecosystems, NARP and Nidobak strongly urged the Pesticide Control Board to impose a moratorium on future applications. The Division of Pesticide Control will now

make an administrative decision, after which either side can—and undoubtedly will—appeal to the Pesticide Control Board. We chose to approach the Pesticide Control Board at the beginning of the process, rather than wait until time to appeal, because we believe this is not an appropriate issue to be decided on the administrative level at all. To our surprise, several members of the Control Board were unaware that Boise and Champion have received permits and have sprayed for the past several years. In addition to alerting the Board to this reality, our challenge identified the following initial areas of concern:

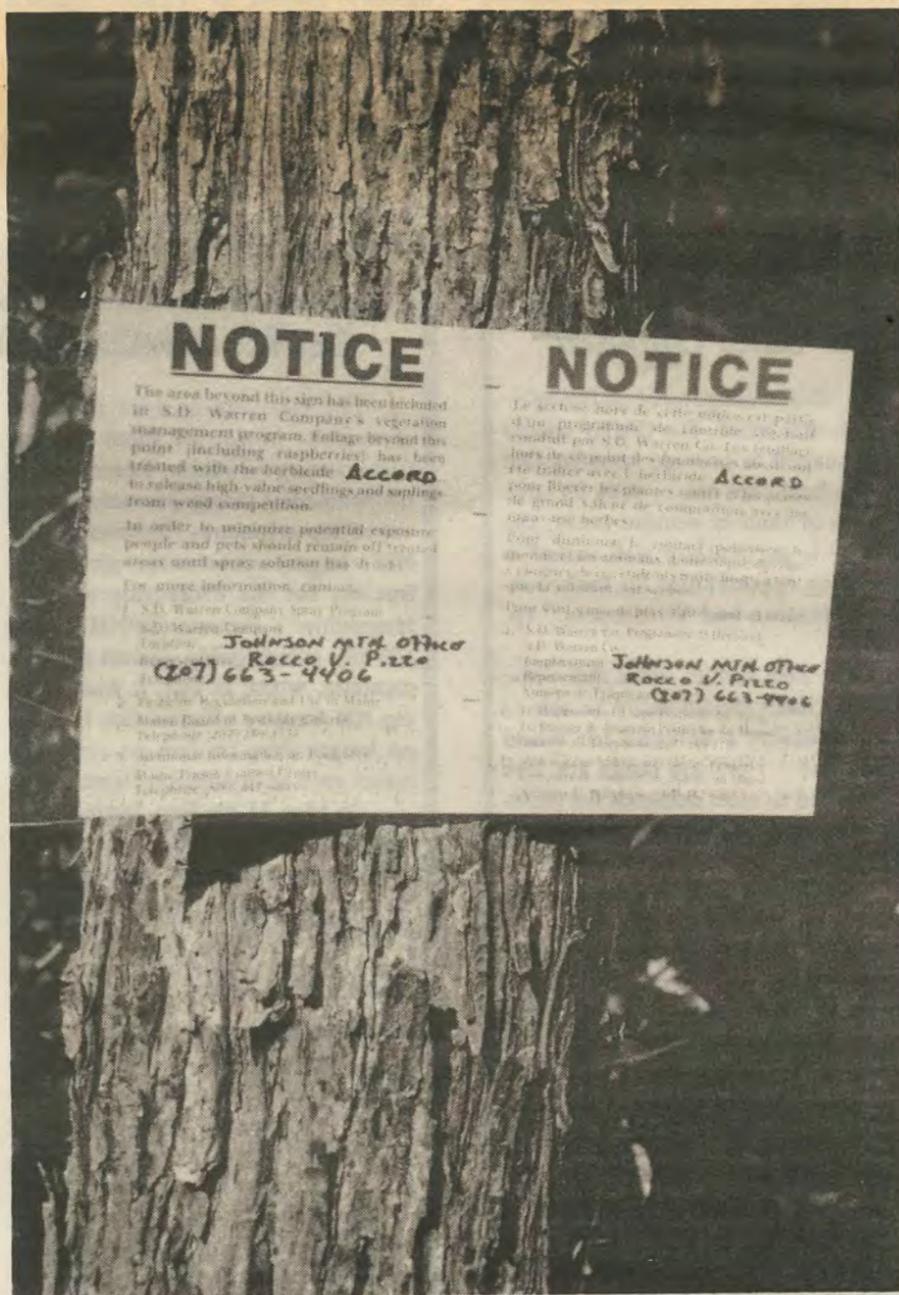
1. DRIFT/OFF TARGET APPLICATION/WATER CONTAMINATION:

- Proposed spray areas are within the headwaters region of the Connecticut and Megalloway Rivers, an area with numerous springs, seeps, seasonal and permanent wetlands, brooks and tributary streams. Protection of water quality is impossible in such an environment.
- The majority of the proposed spray areas are on slopes above wetland or surface water areas. Numerous studies conclude that "The preponderance of evidence indicates that drift (of the smallest droplets) is essentially unavoidable" regardless of delivery system and droplet diameter.⁶ A recent visit to the areas sprayed last year showed that the predicted had occurred: off target drift had caused extensive tree and brush mortality at considerable distance from spray area "borders" described on company maps.
- According to EPA literature, glyphosate and its breakdown product, AMPA, adsorb strongly to soil particles and are therefore unlikely to move to ground water. "However, glyphosate does have the potential to contaminate surface waters...through erosion, as it adsorbs to soil particles suspended in runoff. If glyphosate reached surface water, it would not be broken down readily by water or sunlight."⁷ Referring to Champion's Special Permit Application, it is clear that the majority of proposed spray sites present severe erosion and water contamination potential, in some cases actually surrounding wetlands areas.
- POEA has high water solubility and weak cationic properties, and therefore high potential for surface water contamination⁸ with associated injury to fish, aquatic insects and their predators.

2. TOXICOLOGICAL EFFECTS:

A. Fish and Aquatic Invertebrates:

- Glyphosate is found to bioconcentrate in fish, data revealed a bioconcentration factor of 80 times in rainbow trout.⁹
- Glyphosate, especially in combination with POEA surfactant, has been



A sign similar to this one will soon appear at clearcut areas in northern New Hampshire that are scheduled for herbicides. Champion and Boise Cascade have applied for permits to spray 4,000 acres this year. Although this has been going on for four years, the NH Pesticide Control Board had been unaware until NARP opposed the 1996 permit applications. Photo © John McKeith.

found to be acutely toxic to fish, sub-lethal doses decrease breeding success.¹⁰

B. Mammals:

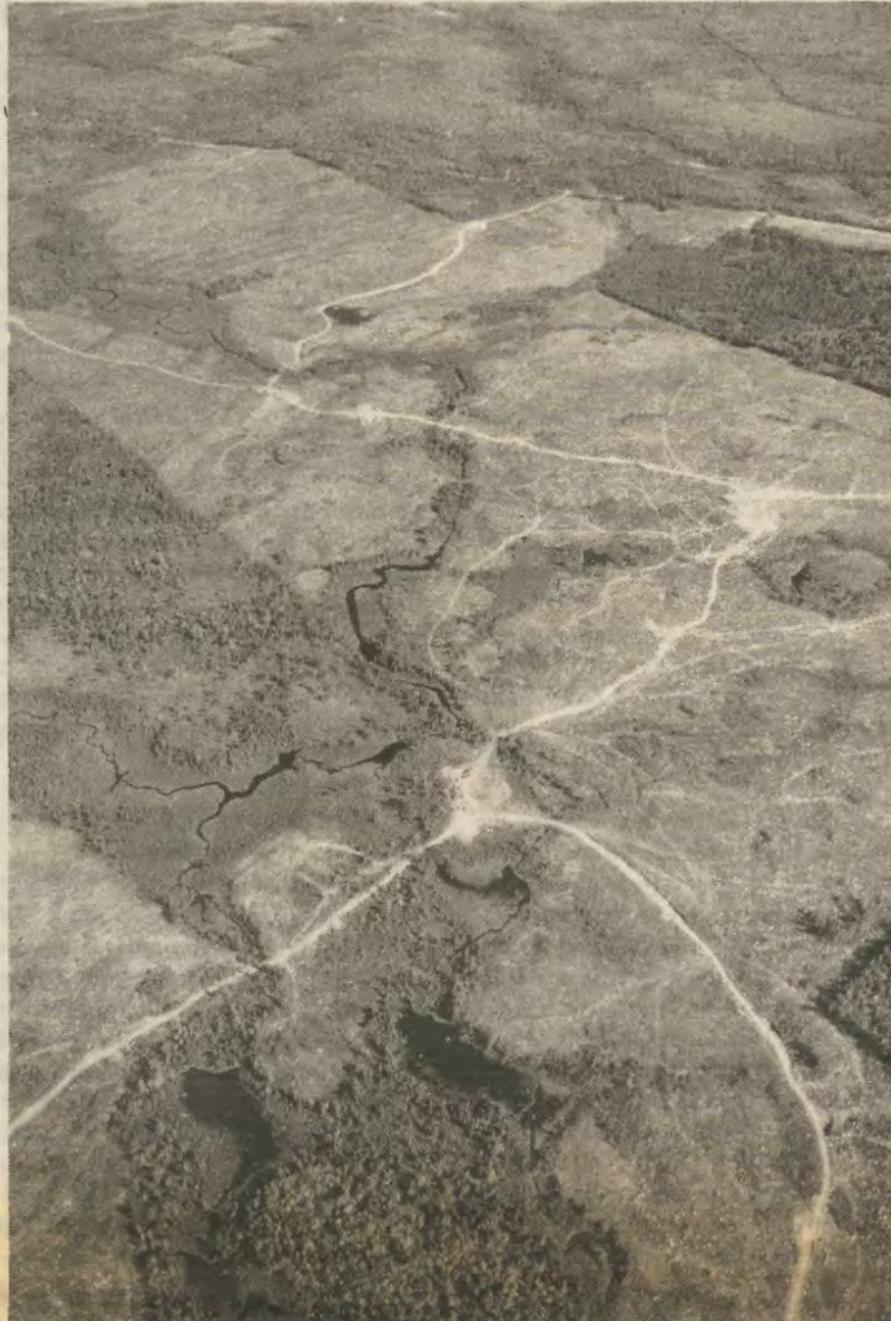
- Mammals in sprayed areas are exposed to herbicides through dermal contact, inhalation, and ingestion of sprayed plants. All three methods of exposure cause clinical symptoms; including irritation of skin, mucous membranes and eyes (dermal contact); pulmonary oedema leading to death in severe cases (inhalation); erosion of gastrointestinal tract, hypotension, hypovolaemic shock (ingestion).¹¹
- Studies indicate a decrease in breeding success in animals exposed to glyphosate/POEA formulations: Sublethal doses of glyphosate were given to mature male rabbits to test semen characteristics. Herbicide treatment resulted in the following: decline in body weight, interest in breeding, ejaculate volume, sperm concentration, and increases in abnormal and dead sperm count. Clinical effects may be the result of either direct toxicity to sperm cells or indirectly through malfunction of the hypothalamus/pituitary/testes which control reproductive efficiency.¹²
- Herbicide application severely alters natural habitat for small mammals, including breeding areas, and disrupts predator-prey relationships. Studies in Maine, British Columbia and Norway found dramatic decreases in small mammal populations post-herbicide treatment.¹³
- Hunting season coincides with late-summer herbicide applications. Glyphosate and other herbicide residues are found in forest herbivores in far higher concentrations than in laboratory animals, probably due to repeated feeding in sprayed areas. Since these residues are stable when frozen, "a hunter who brings home contaminated venison for the freezer may unwittingly expose her or his family to repeated doses of brushkiller over a long period".¹⁴

3. EFFECTS ON BIRD POPULATIONS

- Herbicide treatment caused marked decline in breeding bird populations in sprayed areas in Nova Scotia: repopulation of clear-cut areas by a succession of diverse bird species did not occur where herbicides had been used.¹⁵
- raptor populations are severely affected by decrease in small mammal population, and potentially affected by bioaccumulation/biomagnification of herbicide/surfactant in prey species. The proposed spray areas are well within the range of the known American Bald Eagle nesting pair at Lake Umbagog. Osprey and Peregrine Falcon are found in the area proposed for spraying this year.

4. EFFECTS ON SENSITIVE AND ENDANGERED PLANT SPECIES POPULATIONS,

- The U.S. Fish and Wildlife Service has identified 74 endangered plant



This 1800 acre clearcut in Whitefield, NH illustrates a key issue about herbicide spraying in this region—it is almost impossible to find a forest tract that is not covered with wetlands. Photo © John McKeith

species that could be jeopardized by silvicultural use of glyphosate. Yet the New Hampshire Natural Heritage Inventory has not been able to assess the effects of large scale application of broad spectrum herbicides on rare and endangered species in the area because *no recent inventory of Boise and Champion land has been done.*

- Commercial glyphosate products have been shown to reduce nitrogen fixation/nitrification of soils¹⁶. Northern forest soils are notoriously depleted after clear-cutting; nitrogen-fixation by alder and leguminous species is extremely important in forest stand regeneration; *inhibition of this process would have implications for desired crop species as well.*
- *In addition, glyphosate inhibits growth of numerous species of mycorrhizal fungi,¹⁷ the foundation of every forest and essential for water and nutrient absorption by roots of non-target and crop species.*

5. ECONOMIC IMPLICATIONS

- A visit to the areas sprayed by Champion last year show obvious signs of damage to crop species. Herbicides reduce necessary soil micro-organisms and damage crop species because they remove the protective cover provided by early successional deciduous species. Canadian researchers found that injection of Roundup in lodgepole

pine inhibited defensive response against fungus¹⁸. It is extremely questionable whether herbicide treatment has actually increased yield under field conditions.

- Is the value of potential employment of local people in manual brush clearing exceeded by the economic gain to the company from aerial application of herbicides? According to Mr. Bud Delano, who runs Champion's New Hampshire herbicide program, herbicides are an essential part of Champion's forest management plan, without which "we would not be able to pay our taxes".¹⁹ Since Champion pays very little in property taxes, perhaps the company could expand its touted good-neighbor policy to include providing jobs cutting brush for local community members.
- Fishing and hunting declines due to harmful effects of herbicide use on fish and wildlife will hurt both subsistence hunters and the tourist industry.

Once considered a routine practice, the aerial application of herbicides in forestry is now under intense scrutiny both in the United States and Canada. In the past several years a number of state and federal agencies in this country have severely curtailed the silvicultural use of herbicide products. In addition, authorities in several Canadian Provinces have recently reconsidered the question of aerial application of her-

bicides. In 1995 the Environmental Appeal Board of British Columbia overturned five of eight applications for silvicultural use of herbicides. In its decision the Board mentioned "affect [on] the quality and quantity of nesting sites, browse for ungulates; cover for small animals and birds and bears", finding that "in many of the Permits under appeal these concerns have been inadequately addressed"²⁰. In Alberta, a province heavily dependent on the forest products industry, the provincial government does not issue spray permits for broadcast glyphosate applications in forestry.²¹

Herbicide use reduces a regenerating forest ecosystem to a barren monoculture. Whether or not the practice actually contributes to Boise Cascade or Champion profits, it is unacceptable on ecological and spiritual grounds. A sprayed area is initially lifeless, and the chemicals applied to one area do not remain there. Although the forest products and chemical industries are powerful, biocidal practices like aerial application of herbicides have been, must be, and can be stopped. 1996 could be the year that we win, with your help.

Please take the time to write to Steven Taylor, Chair of the NH Division of Pesticide's Pesticide Control Board at the Department of Agriculture, Concord, N.H. 03301. Tell him that aerial application of herbicides is not an acceptable means of forest management. For more information contact the Herbicide Project through the Forum address or (603) 922-5544. Thank you.

Footnotes

- ¹ June 7, 1996 National Public Radio's *All Things Considered*, summarizing results of a study reported in *Science* magazine of the same date.
- ² Norma Grier, National Coalition for Alternatives to Pesticides, personal communication, May, 1996.
- ³ Cox, Caroline. *Glyphosate, Part 1: Toxicology*. Journal of Pesticide Reform. 15:3 (1995).
- ⁴ Folmar, et al. *Toxicity of the herbicide glyphosate and several of its formulations to fish and aquatic invertebrates*. Arch. Environm. Contam. Toxicol. 8. 269-278 (1979).
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- ⁶ Rashin, E. et al. *Effectiveness of Best Management Practices for Aerial Application of Forest Pesticides*. Washington State Department of Ecology. 1993.
- ⁷ EPA R.E.D. Facts. *Glyphosate*, 4.
- ⁸ Monsanto, undated.
- ⁹ U.S. Forest Service, Pacific NW Region. *Managing Competing and Unwanted Vegetation: Federal Environmental Impact Study*. Portland, Or. USDA 1988. I/B-401.
- ¹⁰ Servizi, J. et al. *Acute Toxicity of Garlon 4 and Roundup herbicides to salmon, Daphnia and trout*. Bull. Env. Contam. Toxicol. 39:15-22.
- ¹¹ Talbot, A.R. et al. *Acute Poisoning with a glyphosate-surfactant herbicide ('Roundup'): a review of 93 cases*. Hum. Exp. Toxicol. 10(1):1-8 (1991).
- ¹² Yousef, M.I. et al. *Toxic Effects of Carbofuran and Glyphosate on Semen Characteristics in Rabbits*. Journal of Env. Sci. and Health. B30:4 513-534(1995).
- ¹³ Cox, Caroline. *Part 2 Glyphosate*, loc. cit. p. 18.
- ¹⁴ Payne, Gary. *Pesticide Residues in Wildlife: Violating Legal Standards?*
- ¹⁵ MacKinnon, D.S. et al. *Effects of Silvicultural use of the herbicide glyphosate on breeding birds of regenerating clearcuts in Nova Scotia, Canada*. Journal of Applied Ecology. 30:395-406 (1993).
- ¹⁶ Cox, Caroline. loc. cit. p. 18.
- ¹⁷ loc. cit. p. 19.
- ¹⁸ Bergvinson, D. *Enhanced colonization by the blue stain fungus *Ophiostoma claverum* in glyphosate-treated sapwood of lodgepole pine*. Canadian Journal For. Res. 22:206-209. (1992). Referenced in: Cox, Caroline. *Glyphosate, Part 2: Human Exposure and Ecological Effects*. Journal of Pesticide Reform. 15:4 (1995) p. 19.
- ¹⁹ Personal communication, 1996.
- ²⁰ Glover, P. *Forest Spray Permits Overturned in British Columbia*. Journal of Pesticide Reform. 16:1 pp. 9-11 (1996).
- ²¹ Freedman, Bill. *Controversy over the Use of Herbicides in Forestry, with particular reference to Glyphosate Usage*. Journal Envir. Sci. Hlth. C8(2), 277-286 (1990-91).

Preliminary Results of '95 Inventory of Maine's Forests Reveals Overcutting

"The budworm made me do it!"

by Mitch Lansky

According to the Maine Forest Service, from 1990 to 1994 landowners in Maine were cutting around 6.2 million cords of wood per year. The Maine Council on Sustainable Forest Management asked itself the question, "Can this level of cut be sustained?" Had they looked at the 1982 survey of Maine's forest by the US Forest Service they would have noticed that the average annual growth from 1971-1982 was only 5.7 million cords per year. If those growth rates persisted, the council could have answered its own question.

The council was waiting instead for the figures from the current US Forest Service inventory. After 13 years, preliminary results of this "decennial" forest survey of Maine are finally out. The most obvious news is that there has been a 31% decline of spruce and fir, key species for the paper and lumber industries. Fir declined by 41% and spruce by 27%. The average annual cut estimated by the US Forest Service was around 6.2 million cords.¹ The average annual net growth was 5.1 million cords. The cut to growth ratio was 1.2 to 1. Cutting has not been sustainable.

Since red spruce and balsam fir together made up 36% of the total volume in 1982, other declines or increases pale in comparison as major news. Statewide, other species that declined included white spruce, black spruce, hemlock, paper birch, aspen, black ash, basswood, and elm. Increasing in volume were white pine, northern white cedar, red maple (which showed the biggest increase in volume of any species), sugar maple, beech, white ash, and red oaks.

The modest declines in white birch and aspen were expected, but the increase in sugar maple, beech, and yellow birch were a surprise. These species showed a decline in the MFS 1990 interim survey. The combination of these hardwoods plus red maple and white ash led to a net increase for hardwoods. Due to the large volume declines in spruce and fir, however, the

total volume of all species declined by 6%.

Pre-Spin

Leading up to the survey release, the Maine Forest Products Council released its own study to reassure the public that the news we were about to hear would sound bad, but in the context of past trends, *would not be as bad as some people had predicted*. The authors hinted there might be some seemingly bad news; a possible statewide decline in some hardwoods, and a severe decline in spruce-fir in Washington and Hancock Counties. The document had a ready explanation for the latter problem:

"Anecdotal information suggests that pulp mills are likely to rely increasingly on wood supplied from small landowners rather than company lands. This is because of the more intense effects of budworm and heavy cutting. Typically, these counties possess the poorest sites, with the thinnest soils. They were hit hardest by budworm, and in many cases received the least treatment. Ingrowth was delayed by the extended period of spruce-fir mortality. Budworm was not the only pest at work. Hemlock looper took its toll on both the host species and on small balsam fir and the balsam woolly adelgid plagued stands along the coast. The 1980-81 USFS inventory was near the peak of volume, so the contrast with the 1994 inventory data is likely to be startling for the reasons just mentioned."

Post-Spin

Now that the survey is out, industry representatives are announcing the happy news that the total inventory has increased greatly since 1959. They are hoping that the public is not aware that in 1959 there were 4 million acres with less than 5 cords to the acre, and the average stocking was around 12 cords to the acre. At that time, millions of acres of former farmland were starting to come back as forests, a million and a half acres were recovering from fires

since 1900, and softwood stands were recovering from a combination of spruce budworm and heavy cutting earlier in the century. In any case, the inventory in 1959 was going up, but in 1995 it is going down (see graph 1). The growth in 1959 was 40% greater and the cut was 50% lower than in 1995. Had landowners been cutting at the 1959 rate over the past decade, the total inventory would have increased.

The excuse for the recent heavy cutting and clearcutting of spruce-fir is that industry had to salvage for budworm. Indeed, industry spokespeople claim that had there been no salvage cutting, the inventory would have declined anyway. The heavy cutting is actually, they claim, leading to a quicker rebound, by hastening regeneration. And this growth is being speeded up with "intensive management" (spraying herbicides on the clearcuts).

Washington and Hancock Counties

The Washington County inventory figures look bad, but by no means did that county have the most dramatic declines. Fir died at a rate of 3.7% per year, the highest mortality rate of any county. Yet growth, especially *ingrowth* (the volume of trees that reach 5 or more inches in diameter between surveys and are thus measured for the first time) was so great that fir in Washington County actually had a positive net growth (gross growth minus mortality and culls). Red Spruce also had a positive net growth. In Washington County, if there had been no cutting, spruce-fir might have increased by 12%.

But there was cutting. The cutting was hardest on spruce, not fir. Indeed, spruce accounted for 45% of the entire volume removed. The ratio of cut to net growth of red spruce was 3.9 to 1. Spruce volume went down by 33% in just 13 years. Fir volume had already declined 69% from 1971-1982, but only declined 8% from 1982-1995. Total volume of all species, however, only

declined 5%. Since Washington County had the lowest volume per acre of any county to start with, this modest decline just made a bad situation worse.

In Hancock County, the predicted disasters did not happen. Although there was some mortality, growth was high and cut was (compared to other counties) lower. The result is that spruce-fir actually increased by 37% from 1982 to 1995. Fir increased by an incredible 78%, mostly from ingrowth. Total volume in Hancock increased 44%. So much for industry predictions.

Big Declines

The counties with the most dramatic declines were Aroostook, Piscataquis, and Somerset—the heart of the industrial forest. These are also the counties that had the most clearcuts and were the only counties where fir had a negative net growth. Only in Aroostook was this negative growth significant. In all three counties, however, red spruce had more growth than mortality.

The cutting of spruce, however, was heavy, leading to big inventory declines. The cut to growth ratio of red spruce ranged from 3.6 to 1 in Somerset to an incredible 5.3 to 1 in Piscataquis—where spruce volume declined 39% in just 13 years. In Aroostook, spruce-fir declined 43% and total inventory went down 17% between 1982 and 1995. In Piscataquis spruce-fir declined by 44% and total volume went down 27%. In Somerset spruce-fir declined 39% with total volume declining 18%. In Aroostook and Piscataquis, the majority of the fir volume, 58% and 57%, was gone by 1995.

In these counties, it was not just red spruce and fir that declined. In Somerset, for example, tamarack, white spruce, black spruce, red pine, hemlock, cedar, yellow birch, paper birch, gray birch, aspen, red oak, basswood, and elm also declined. In Piscataquis, white spruce, white pine, cedar, sugar maple, paper birch, gray birch, black ash, red oak, and elm all declined. One can hardly blame the budworm for declines of all of these other species.

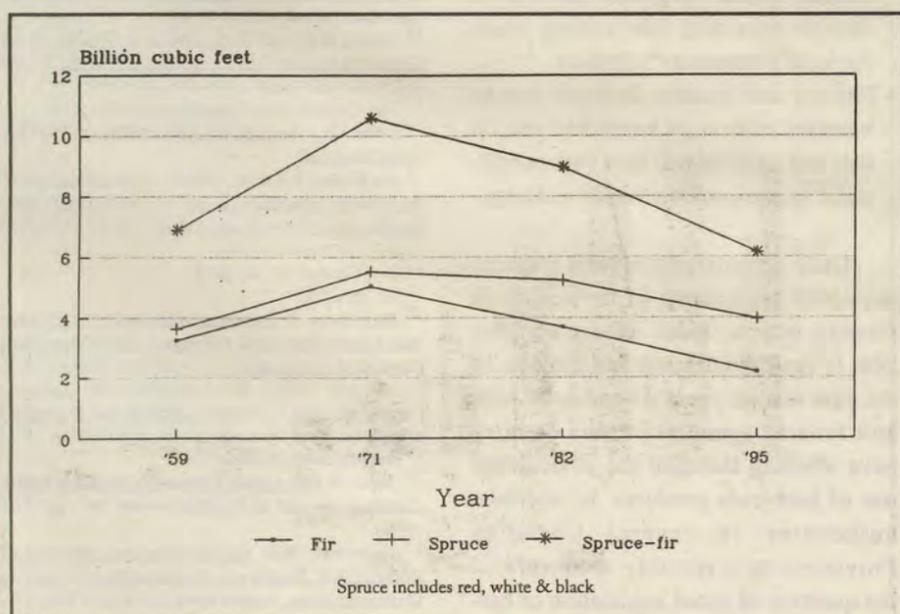
In 1982, of the nine geographic areas of the state, Piscataquis, Aroostook, and Somerset were ranked one, two, and three for volume per acre. In 1995, these three counties were ranked, respectively, seven, six, and eight. Only Washington County had lower stocking. Hancock County, in contrast, rose from

Annual Rates of Growth and Cut 1982-1995
(in thousands of cords)

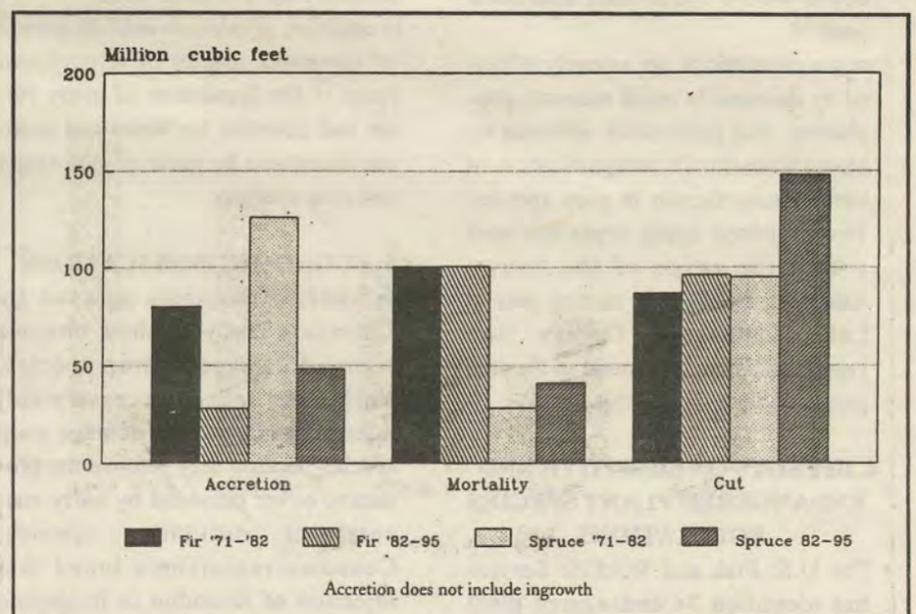
Species	Net Growth	Cut	Cut/Growth	% Change
Softwoods	2,324.6	4,465.1	1.9 to 1	-17.7%
Hardwoods	2,336.5	1,747.4	.75 to 1	13.5%
All species	5,071.1	6,212.5	1.2 to 1	-6.3%

¹The US Forest Service's figures were in cubic feet. To convert to cords, I divided by 80. In the 1959 survey of the US Forest Service consistently used 80 cubic feet to the cord as a conversion factor.

Graph 1: Spruce-Fir Volume Changes 1959-1995



Graph 2: Spruce & Fir Changes 1971-1982 vs. 1982-1995



The most obvious news is that there has been a 31% decline of spruce and fir, key species for the paper and lumber industries. Fir declined by 41% and spruce by 27%. The average annual cut estimated by the US Forest Service was around 6.2 million cords. The average annual net growth was 5.1 million cords. The cut to growth ratio was 1.2 to 1. Cutting has not been sustainable.

eighth place to second place. The Casco region, which is highly settled and developed, is now first, with 21 cords to the acre, while Washington County has around 12 cords to the acre. A spruce forest cut to silviculturally recommended residual stocking would have more than 30 cords to the acre.

What Happened?

Mortality from spruce budworm alone is not a sufficient explanation for the big declines. Remember, red spruce had a positive net growth in every county. When one looks at the rate of mortality (by dividing the mortality volume by the 1982 inventory for a given species), red spruce is about in the middle of the pack of the 22 species examined by the US Forest Service. Elm, gray birch, fir, black ash, tamarack, basswood, beech, aspen, paper birch, and black spruce all had a higher mortality rate.

What really stands out with red spruce is the low rate of growth (both of accretion on existing trees and ingrowth) and the high rate of cut (see graph 2). Indeed, red spruce (along with hemlock) had the highest removal rate of all species. Although the spruce budworm was partly responsible for lower growth, the high rate of cutting exacerbated the low growth rate; as more of the inventory was cut, there were fewer trees left upon which to add growth.

The predicted rebound for spruce-fir will, apparently happen with fir. Although only 10% of the growing stock volume in 1995 is now fir, 21% of the ingrowth, 28% of the 3-5 inch trees, and 34% of the 1-3 inch trees are fir. This explosion of fir in smaller diameter classes is not necessarily a good thing since fir is the species most vulnerable to spruce budworm attacks.

There is no rebound for red spruce in the near horizon. Although 15% of the growing stock volume is red spruce, only 12% of the ingrowth, 9% of the 3-5 inch trees, and 6% of the 1-3 inch trees are red spruce (see graph 3). When one looks at the change in spruce volumes by diameter class the big drops

happened in the 5-7 and 7-9 inch classes (see graph 4). This could be explained by budworm hastening the mortality of small-diameter suppressed trees and by clearcuts, which removed all diameter classes, obliterating future growing stock. Current rates of cutting of spruce for lumber cannot be sustained since there are insufficient volumes of trees in lower diameter classes to serve as future sawlogs.

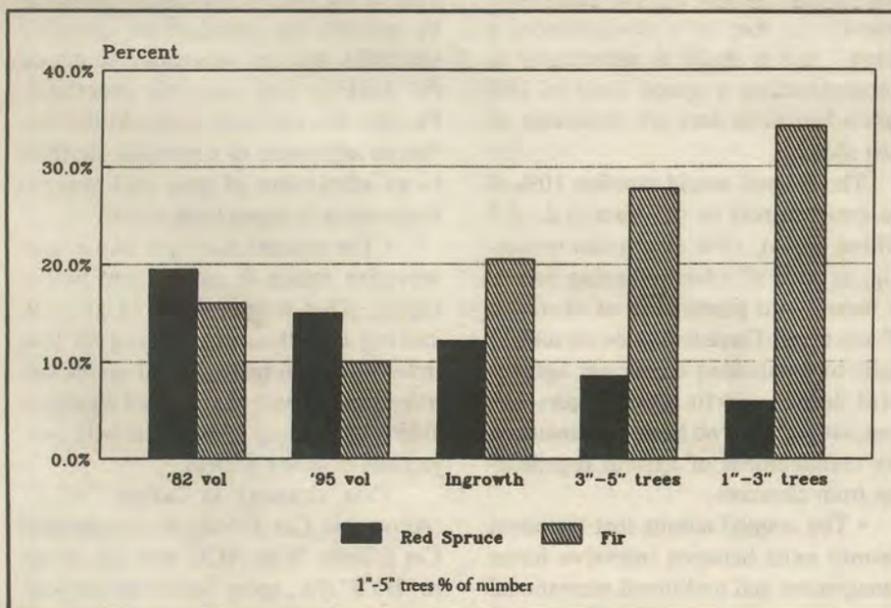
Conclusion

Red spruce was once called "King Spruce." In the latter half of the 19th century, it surpassed white pine as the number one sawlog species, and it was most valuable for pulpwood because of its long fibers. It is a tree that can live for centuries. In Baxter Park on North Turner Mountain there are spruce trees more than 400 years old. Existing old-growth red spruce have survived repeated budworm outbreaks. Growth rings narrow temporarily, but the tree recovers and continues to grow.

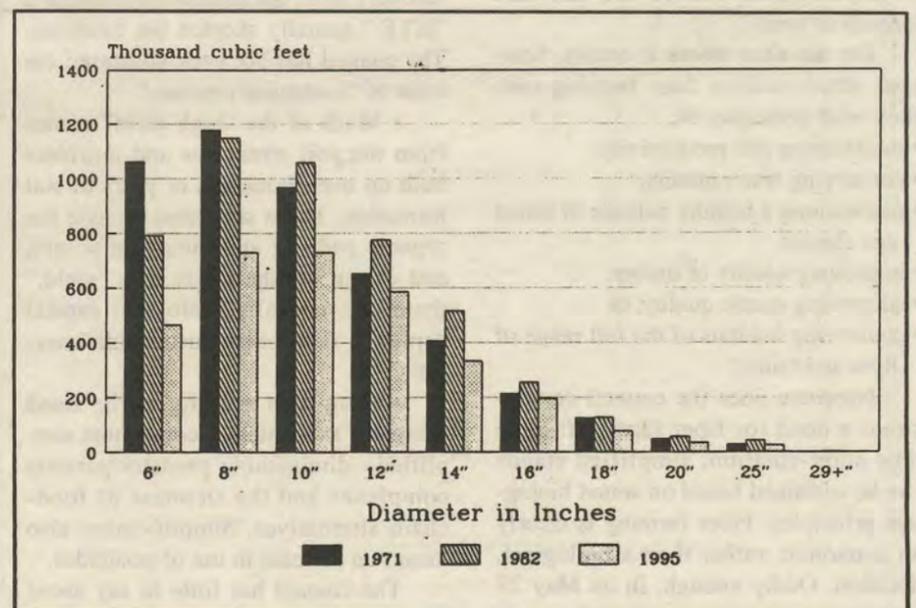
With current industrial management, however, the red spruce has been cut at a rate that would not lead to mature trees, let alone old ones. And there is not a big blip of replacement trees that will rescue the inventory over the next few decades. Cutting has not been sustainable. Since this is the number one species in the Maine woods, the problem is very serious. The fact that red maple is increasing in volume as red spruce declines is not very reassuring.

While forestry policy makers are addressing hypothetical concerns about sustainable forestry, they could be addressing real concerns about an existing problem. What would be the best approach to forest management for sustaining, rather than further depleting, red spruce? The issue is not merely one of concern over a resource—red spruce is a key species to the Acadian forest ecosystem. While it is convenient to blame the spruce budworm for the recent decline, a good case can be made that mills had as much responsibility as moths. The time has come for some restraint and more refined forestry.

Graph 3: Spruce-Fir % of Total by Diameter Class & Volume



Graph 4: Spruce Volume Changes by Diameter Class



Two Fables

The Wolf and the Lamb

from Aesop's Fables

A stray Lamb stood drinking early one morning on the bank of a woodland stream. That very same morning a hungry Wolf came by farther up the stream, hunting for something to eat. He soon got his eyes on the Lamb. As a rule Mr. Wolf snapped up such delicious morsels without making any bones about it, but this Lamb looked so very helpless and innocent that the Wolf felt he ought to have some kind of an excuse for taking its life.

"How dare you paddle around in my stream and stir up all the mud!" he shouted fiercely. "You deserve to be punished severely for your rashness!"

"But, your highness," replied the trembling Lamb, "do not be angry! I cannot possibly muddy the water you are drinking up there. Remember, you are upstream and I am downstream."

"You do muddy it!" retorted the Wolf savagely. "And besides, I have heard that you told lies about me last year!"

"How could I have done so?" pleaded the Lamb. "I wasn't born until this year."

"If it wasn't you, it was your brother!"

"I have no brothers."

"Well, then," snarled the Wolf, "It was someone in your family anyway. But no matter who it was, I do not intend to be talked out of my breakfast."

And without more words the Wolf seized the poor Lamb and carried her off to the forest.

The tyrant can always find an excuse for his tyranny.

The unjust will not listen to the reasoning of the innocent.



The Industrial Landowner & His Working Forest

by Ish Kabibble

A certain landowner had an impressive stand of trees that he wanted to clearcut in order to make a quick buck. Knowing that his neighbor did not like such practices, he announced that, "This stand is overmature and must be cut."

His neighbor, who knew the stand well replied, "But this is a multi-aged stand of tolerant trees, most of which are putting on good growth."

"Well," said the landowner, "I have to clearcut the stand because it is not windfirm."

"The neighbor replied, "Gosh, that's odd. Your forest abuts mine, and when I removed the suppressed trees on my lot, but left the dominant ones in a well-stocked condition I had little trouble with losses to wind."

"What you don't understand," said the landowner, "is that I want to grow shade intolerant species and create browse for the wildlife."

"If that is the case," said the neighbor, "why did you spray herbicides the last time you clearcut?"

"I am converting this stand to high-yield silviculture. I have to clearcut in order to plant trees. I need to intensify my management to prevent a future shortfall."

The neighbor gasped in disbelief, "If you anticipate a shortfall, then why are you cutting your growing stock now? Wouldn't you be better off growing fiber on your good existing trees?"

At this, the landowner grew angry. "You have no right to tell me what to do on my land. Preventing me from doing what I want is a takings. Anyway, clearcutting is legal now and you are not going to talk me out of it." And so cut it he did.

What is So Sustainable About Fiber Farming?

by Mitch Lansky

(Note: The Maine Council on Sustainable Forest Management is still revising its draft standards. Some of the standards mentioned in the following article either have changed or may change. The inconsistency in logic concerning "High-Yield Silviculture" (i.e., fiber farming) has been persisting. This eco-illogic is not restricted to just the council. In fact, the "agreement" between large landowners and large environmental groups announced June 14 as a way to defeat the Ban Clearcutting Referendum appears to provide incentives to landowners to practice fiber farming—clearcuts, plantations and herbicides.

The council, and even some environmental groups in Maine, have proposed a trade-off of HYS for "mature" or "later-successional" forests as "mitigation." Unfortunately having mature forests somewhere else does not mitigate the effects of fiber farming where it occurs.)

The Maine Council on Sustainable Forest Management (MCSFM) has declared that sustainable forestry "enhances and maintains the biological productivity and diversity of Maine's forests, thereby assuring economic and social opportunities for this and future generations." The mission of the council is "to develop practical, credible benchmarks of sustainability against which forest landowners can assess their forest management practices." Unfortunately, the council has ignored important areas of biological productivity and diversity where it interferes with favored industrial practices. It has also chosen to ignore benchmarks of "economic and social opportunities"... except where it intersects with industrial needs.

This double standard becomes most apparent when the council considers what it calls "high yield silviculture" (HYS). The MCSFM's definition of HYS ignores forms of silviculture that can lead to high yields of high-quality timber, such as selection. The council's definition only includes management that has "significant investment in pre-commercial treatments such as planting or spacing..." Such investments in early stand management usually lead to shortened rotations due to the problems of discounting of costs and benefits. Indeed, the council stresses that the goal of HYS is to "maximize the fiber yield of a particular site in the shortest amount of time."

On the sites where it occurs, however, short-rotation fiber farming conflicts with principles of:

- maintaining soil productivity,
- conserving water quality,
- maintaining a healthy balance of forest age classes,
- improving quality of timber,
- addressing scenic quality, or
- conserving habitats of the full range of flora and fauna.

Nowhere does the council demonstrate a need for fiber farms or argue how short-rotation, simplified stands can be sustained based on sound biological principles. Fiber farming is clearly an economic, rather than a biological, decision. Oddly enough, in its May 27



The first step in "High-Yield Silviculture" is a whole-tree clearcut. Following conversion to a plantation, the stand is sprayed with herbicides. The deal struck in mid-June between 15 large landowners and two mainstream environmental groups to defeat the Ban Clearcutting Referendum provides incentives for landowners to practice this destructive forestry. Photo © John McKeith.

draft, the council rejected dealing with the following issues, because they were economic, rather than biological: raw log exports, labor imports, workers compensation, mechanization, regional shortages of timber, piecework pay rates, and the impacts of corporate decisions on the stability of forest-dependent communities.

The council deals with the conflicts between short-rotation fiber farming and sustainability principles by ignoring or exempting the disjunctions:

- Site preparation for plantations usually begins with whole-tree clearcuts, which remove much of the above-ground biomass. This removal is usually accompanied by significant breakdown of organic matter and leaching of nutrients. Another burst of leaching occurs after the stand is sprayed with herbicides, killing the plants that have recolonized the site, halting the leaching. The soil, in a whole-tree clearcut, is often rutted and compacted as well.

The more intense the disturbance, the longer it takes to fully recover what was lost. One would think that whole-tree clearcuts plus herbicides, plus soil disturbance, would require a fairly long recovery time, but landowners, calling it "HYS," actually shorten the rotations. The council has not even addressed the issue of "ecological rotation."

- Much of the "high yield" comes from the soil structures and nutrients built up over thousands of years of soil formation. These structures include the organic pad, pit and mound structure, and coarse woody debris. The "yield," therefore, is really biological capital depletion rather than sustainable interest.

- Long-term stability of the stand decreases as habitats become more simplified—diminishing predator/parasite complexes and the richness of food-chain alternatives. Simplification also means an increase in use of pesticides.

The council has little to say about

pesticides and almost nothing to say about avoiding the creation of stands susceptible to spruce budworms or "weeds." One hardly gets the impression of any controversies or problems with pesticide spraying when one reads the council's statement that, "Most, but not all, forest managers consider the judicious use of pesticides (particularly herbicides) essential to achieving the goal of high yield silviculture."

- Clearcutting on short rotations means a higher percentage of the landscape subject to soil and nutrient leaching, which means impacts on water quality (not to mention possible contamination from pesticides).

- The council recognizes the wildlife benefits of large-live trees, dead-standing trees, or dead-downed trees, but exempts HYS from having to provide such habitat elements.

- Habitat conversion is one of the more serious threats to biodiversity, along with simplification and fragmentation. The council would allow a certain percentage of rich hardwood sites to be converted to softwood plantations. The limits so far recommended are higher than what any landowners have done in the past or might even do in the near future. While the council could honestly say they have recommended a "limit," this is about as meaningful as recommending a speed limit of 200 mph when most cars are incapable of such speeds.

The council would sanction 10% of the entire forest in the state (i.e., 1.7 million acres), 15% of a given ownership, or 25% of a land planning unit to be turned into plantations of exotic or off-site trees. There would be no serious limits to plantations on former agricultural lands, or to plantations for "restoration," and no limit to plantation-like management of natural regeneration from clearcuts.

- The council admits that "inherent tensions exist between intensive forest management and traditional recreational

uses of the Maine woods..." These tensions are greatest in the interior of the "wildlands." The council does not even suggest zoning such practices toward the more populated regions. Yet such practices clearly conflict with the vision to retain the forest's "wild character."

- Short rotations also violate the vision to have "mature trees well distributed across the landscape." The council tried to deal with this dilemma by avoiding defining the word "mature" and instead referring to trees as "harvestable." Finally, the council came up with a "recommendation" (not a benchmark) for a certain proportion of the forest to have bigger trees (most of which can be in riparian buffer strips).

- The council never justified the need for fiber farming. There is a vague suggestion that fiber farming is needed to address the possible declines in yield from following other sustainability principles. The council, however, nowhere demonstrates that increasing stocking of trees or lengthening rotations actually lowers productivity. Logic would suggest that sustainable yields would increase with more sustainable practices.

The council never identifies the state of the current inventory, the trends by species, the cause of any possible shortfalls, nor any alternative strategies for dealing with possible shortfalls. Perhaps this omission is due to the fear that an admission of a possible shortfall is an admission of past and present overcutting by some landowners.

- The council does not take a conservative stance to cutting and timber supply. This would mean, in general, cutting less than is growing so that inventories can increase and yields can increase. Instead, the council has considered balancing today's cut with projections of future growth.

This strategy is called "ACE" (Allowable Cut Effect, or Accelerated Cut Effect). With ACE, one can invest in "HYS" (i.e., spray herbicides on your

Barnet Wooden Things - Working to Create a Future in Wood

by Andrew Whittaker

A visit to the Barnet, Vermont homestead of Stewart Hoyt is generally a good way to catch a glimpse of how Vermonters may live and work some years hence. Stewart is a former organic market grower who has developed a thriving shop facility in a small roadside barn where he and several employees turn out spoons and other wooden creations designed for the fashionable kitchen. Stewart has more widely conceived ideas than just spoons, but the woodworking business will be the backbone for some of the more futuristic conceptions coming out of the Hoyt Idea Factory.

These spring days the crew at Barnet Wooden Things has been busy filling its largest order to date—one from the upscale New York area retailer Simon and Pearce. Stewart has built his business slowly, starting part-time while farming and marketing through high-end craft fairs and local outlets. Last fall he invested in a glossy paper catalogue portraying his productions and landed the Simon and Pearce order.

Stewart sees wide potential in the

production and marketing of natural wood products from commercial thinnings: spoons, dish hooks and clothes hangers, maybe even a "shake and bake" greenhouse kit utilizing sapling poles. Using small timber to produce a high end product is in Stewart's view a key to sustaining the timber resources, the forests, of Vermont. "I also see a lot of potential for marketing more products by wildcrafting from the forest," he says. One example: the often-disparaged thorn apple of hedgerows and old pastures is increasingly used as a heart medicine and valued accordingly.

Labor intensity and low technology are also keys to Stewart's concept of sustainability. "I think we should go back and re-think hand tools versus the chainsaw," he says, while discussing ideas for a low impact logging outfit. Such a crew could probably work more safely than one with power tools and, suggests Stewart, successfully market itself to the typical absentee landowner or summer resident who values peace and quiet and an intact forest after harvest.

Certifying a green harvest would offer the manufacturer of wood products another marketing tool: "The mar-

ket I am selling to consists of high-end consumers with a green consciousness. . . Certification may not increase sales but would increase my customer good will and there's a monetary value to that."

Workers at Wooden Things generally take a relaxed lunch break with Stewart on the building site of his largest ongoing project, a house that he is tucking into the contours of a south facing slope across the way from the wood shop. Lunch may involve some impromptu invention jamming with available materials both natural and human (Stewart is an assiduous collector of re-usable refuse). Last fall on one visit I was treated to an on-the-spot invention of a scouring-rush cleaning tool and a mini-greenhouse fashioned from pvc piping (in addition to a memorable chicken soup).

Discussion over lunch also tends to the cosmopolitan, with past topics having included some of the seamier aspects of sugar production and the impact of deforestation in Jamaica, where Stewart has several friends. Employment of the last resort on the island is charcoal production and Jamaica's forests have suffered to the point where hillsides can no longer retain tropical rains, which flush down the slopes and further degrade the hydrology. One of Stewart's presently back-burnered projects is human powered shop equipment (such as a belt sander) that could render alternative

economic strategies more feasible in impoverished areas with ample human labor. Here Stewart is thinking in terms of bicycles equipped with cement flywheels powering belt driven tools.

For now, house and spoons take priority. As is typical with Stewart, his house design is innovative, and intended to blend functions synergistically. Laid out as a central hexagon surrounded by a greenhouse and six smaller hexagons, the house steps into the contours of a clay hill, rising from front to back in such a way that each room will receive sunlight at some point in the day. Pasture pine have provided the structural timber. The foundation is based on a Frank Lloyd Wright design of a rubble filled trench for which Stewart utilized salvaged construction material. Off the grid by virtue of economic necessity, Stewart will be experimenting with methane digestion in the greenhouse. Stewart is also interested in straw bale and cord wood building techniques (and other "freak technologies") and may utilize them in his construction. Using natural building materials provides a psychic benefit as well. "What I like best is that at the end of its useful life my house will fairly naturally subside back into the forest," says Stewart.

Stewart Hoyt and Barnet Wooden Things may be contacted at: Barnet Wooden Things, RFD 3, Box 84, St. Johnsbury, VT 05819.



Fiber Farming

clearcuts) and justify higher cut levels now. The predicted high future yields are based on computer models, rather than real evidence—this region has not had the experience of a full rotation, let alone two or three, of short-rotation forestry. Unfortunately there can be "bugs" in the computer programs (the spruce budworm, for example).

Conclusion

Unless the council can demonstrate that "HYS" is sustainable for multiple rotations on the sites where it occurs, it should drop any incentives or exemptions for such practices. Indeed, to the extent that fiber farming violates principles of sustainability, it should be actively discouraged. Embracing fiber farming while rejecting labor and other economic issues, issues which are key to sustainability, represents a serious bias on the part of the council.

The council's mission starts with an economic question, "Can we sustain Maine's recent harvest levels of 6.225 million cords." This assumes that the

cut is a constant and the forest is a variable. Unfortunately, over the last several decades the cut has not been a constant—it has been rising. At some point, no matter how intensely the forest is managed, limits will be reached if the cut continues to rise.

A biologically-based question would be, "What level (and type) of cutting is sustainable, and how do we get there from here?" Connected to this biological question should be the economic question of "How are the benefits of forestry currently distributed, and how can this be improved for workers, communities, and the state in the future." Instead, we are left to assume that what is good for industry is good for the forest, and the state. The council's endorsement of short-rotation fiber farming dependent on chemical pesticides makes this clear. Those who were hoping that the council would seriously address the more important forestry biological and economic issues will have to now look elsewhere for meaningful solutions.

First Book Devoted to Eastern Old-Growth Forests Published

Eastern Old-Growth Forests: Prospects for Rediscovery and Recovery, Edited by Mary Byrd Davis, Foreword by John Davis, Island Press, 420 pages, Hardcover: \$50.00, Paperback: \$24.95.

Old-growth forest—loosely described as forest that appears largely as it would have if Europeans had not settled North America—is of incalculable value. Old-growth sites can play a key role in plans for restoration of large areas of wilderness. Some, with restoration, could become core areas for future wildernesses, while others could become nodes of biodiversity linked by corridors. Scientists are just beginning to discover ways in which old growth is biologically unique.

Eastern Old-Growth Forests: Prospects for Rediscovery and Recovery is the first book devoted exclusively to old growth throughout the East—an area considered to extend from the East Coast to western Minnesota, and through eastern Texas to the Gulf of Mexico. Edited by Mary Byrd Davis, the book offers authoritative essays by leading experts. The essays are divided into three main sections:

- "Biological and Cultural Values"—The ways in which old-growth forests differ biologically from second-growth forests, a topic that researchers are only beginning to understand, are explored, and the impact of old growth on the human psyche and the importance of old growth to the culture of Native Americans point to the cultural value of old growth.
- "Identification"—Single ecosystems, including old-growth forests of Southern New England, New York, and Pennsylvania, and of the Great Lakes, are considered.
- "Preservation and Restoration"—Examples of current preservation and restoration efforts are discussed and recommendations for further work are given.

These essays are framed by an introduction in which Robert Leverett analyzes historic views of forests and current definitions of old growth and Davis explains the extent and location of Eastern old growth, and an epilogue in which Bill McKibben presents the remnants of original forest as a foreshadowing of the glory of the East's future forests.

Much remains to be learned about Eastern old-growth forests. This book will spur further efforts to identify and evaluate as well as to preserve and restore the forests that are its subject.

Mary Byrd Davis is co-founder of the Cenozoic Society and associate editor of *Wild Earth*. She divides her time between central Kentucky and Lyon, France, where she is U.S. liaison and board vice president for the Center for Documentation and Research on Peace and Conflicts. She is also director of the Ygdrasil Institute which conducts research and disseminates information on environmental and nuclear issues.

Sustaining Dystopia - Maine's Council on Sustainable Forest Management

by William Butler

Editor's Note: The following are bill Butler's "minutes" of four meetings of the Maine Council on Sustainable Forest Management (SFM). The notes capture the contrapuntal nature of such meetings—with various themes weaving in and out of the composition, sometimes creating a cacophony. In these notes, Butler reveals how decisions concerning such items as stand structure and age or stream protection were made, and then later modified, or even shelved. From these notes one can gain an insight as to why this group will not come up with concrete proposals to serve as an alternative to the referendum.

April 22

On April 22, Governor King's Council on Sustainable Forest Management, meeting at the Augusta Civic Center, changed its format from internal discussion to outside review of its current draft. First on the agenda was a select panel that included landowners, paper-and-sawmill-industrial foresters, a Maine Audubon Society forester, an industrial wildlife consultant, a writer-critic, and a forester for Baxter State Park. Allowed ten minutes each, the panel gave a scatter-shot treatment of their ideas. Questions from the council members, followed by those from observers, filled in some of the gaps. This, the morning session was followed later in the day by opportunities for public comments on the draft of the *Criteria, Goals, and Benchmarks* thus far developed.

Noting the change in procedure, I asked Bob Seymour of the council if this were the finale; he assured me that they would continue with the important questions not yet resolved. I sensed that switching from the usual deliberations to taking public testimony was a political move. This was reinforced when the *Bangor Daily News* statehouse reporter the following week interviewed the Governor about his plan to produce an

alternative to the November anti-clearcutting referendum. This alternative could be either as the SFM council's report or as the offspring of a cabal of industrial landowners conjoined with the Natural Resources Council of Maine and the Maine Audubon Society. The BDN interview with Gov. King states that this group was unable to reach a compromise by their May 1 deadline and that time may be running out for his calling a special legislative session to "deflate the appeal of the referendum," as the paper put it.

Here are some high points of the April 22 discussion:

- "Duncan Howlett said it is no longer fun to manage forest land"—Terry Walters, forester for a large southern-Maine pine sawmill. Howlett was founder of SWOAM, small woodlot owners, usually on industry's side.

- "I just don't know. We haven't studied the larger bird species and birds of prey."—John Hagen, avian consultant for two large clearcutters, when asked importance of 40-60% forest canopy closure.

- "Your draft does not reflect a disciplined approach; we must shift from rushing to a deadline. . . Insufficient attention devoted to multi-aged stands under current regulations. . . Different landowner objectives should not be used to excuse shoddy forestry; we suspect many practicing foresters in Maine would welcome a chance to improve on current practices."—Jensen Bissell, Baxter Park forester, and co-chair of the Society of American Foresters committee studying the referendum issue.

- "Your 'high-yield' forestry neglects uneven-aged management; fewer megamachines mean more jobs. . . Since it is your policy to not give incentives for anything less than 'excellent forestry', this implies you should either get rid of the Tree-Growth (current use) Tax law or make it dependent on management standards. Landowners are taxed according to growth rates. Cut should not exceed this growth. . . You don't talk about Canadian labor, import-

ed wood, jobs, or current mill shut-downs." —Mitch Lansky, analyst, author of *Beyond the Beauty Strip*.

- "Companies that balance harvest and growth should welcome a chance for the public to know. . . The study lacks a cost/benefit analysis."—David Manley, International Paper's manager of the St. Aurelie, Quebec unit.

- "In the Southern U.S., stocking guides with B-line, C-line, etc. deal with very simple even-aged stands destined to be clear cut; these guides have no relevance to our situation. As David Smith told me Saturday, they are an 'awfully simple guide to achieve simply awful results' . . . You must change the law to assure the public that the store is being minded, self-regulation with public accountability."—Roger Milliken, who hires foresters like David Smith and Chuck Gadzik to manage his family's 108,000 Maine acres, and prominent in the Maine Forest Products Council, a major industry group.

- "The agrarian model of forestry has overshadowed that of Pinchot and Leopold. . . Your plan lacks multi-age stands over the landscape. . . We need benchmarks for 2- and 3-aged stands to grow sawlogs, not brush. . . You should increase red spruce, white pine, and yellow birch. You should impose a cap on clearcutting and other even-aged management. . . The referendum has only one cap."—Rob Bryan, forester with Maine Audubon, which is party with industry in drafting a bill to defuse the referendum.

Asked by Harry Dwyer, council member and private forester, how the draft report would change his management of the Baxter Park scientific management area, Jensen Bissell replied that dropping traditional ideas would make management more complex; that what is proposed doesn't fit classical definitions of even- and uneven-aged management. To my question that he and the panel give the council a goal of forest productivity, Bissell replied that the SFM could only deal with the condition of the present forest, but, even so,

the modeling should be complex, not simplified.

Dick Schneider, panelist representing a firm that does clean-up work for Great Northern, asked about licensing loggers, responded that "all parties" should be regulated. This and log export are issues the council has skirmished around intermittently.

Judith Berg of SWOAM, put the question, "Is the premise that the forest is unsustainable?" Roger Milliken didn't think so, but Jensen Bissell held that is becoming clear that the SFM will have to answer whether there is a crisis. Charles FitzGerald wanted to know why uneven-aged forests were neglected in the draft, to which Milliken said, "It is not addressed, nor is creating Utopia."

Roger's last remark reveals the state of our forest better than he intended—dystopian. I recently encountered a pertinent example of regulatory mendacity in a book *Giant Bluefin*, by Douglass Whynott. The international and federal commissions protecting these wonderful tuna have set catch limits to sustain the present population. But, the present population is no more than 20% of that of 1975. Sounds like the Maine woods to me.

May 6

The second meeting, 6 May 1996, marked a discernible watershed in the SFM process. Previously, the deliberations were on increasingly finer points, the goals, vision statements, benchmarks and criteria, further segregated into "A" and "B" lists, with agreement that clearcutting was a non-issue. For the first hour of this meeting Don Mansius, SFM staff, reviewed the public comments taken in April, especially those stating that clearcutting was not just an environmental issue, with "a lot" feeling that it needs to be limited. Izzy McKay, lawyer-forester, commented that clearcutting should be better addressed than at present. Mac Hunter asked for data on the size and amount of older forest, to which Robert Seymour added, "My concern is that current economics-driven forest practices will not sustain forest values."

It is clear that the council are revisiting topics they had finessed; the public comments of 22 April are ostensible grounds for this. Only a bit of cynicism permits one to think that they received the message from Milliken — the SFM report on which the Governor hopes to defeat the referendum question must appear to address the clear-cut issue.

Discussing a desirable forest age structure, presented as a matrix of ages and species, the council attempted questions of canopy closure and successional stages as definitive. Hunter nominated use of 65% crown closure for "closed canopy" forests, avoiding the B & C line stocking guides, and leading to a component of requirements for "mature" forests. This, along with requirements for a forest to be "late successional" (i.e., have softwoods over 13 inches DBH and hardwoods over 16 inches in diameter) was met with Peter Triandafillou's objection that it implied a "longer rotation, 65% [canopy closure] is too high."

Seymour said the question is will the stand be multi-aged and multi-storied? Lovaglio added that about two-



Despite the pressure from the Governor to come up with an alternative to the Ban Clearcutting Referendum, the Sustainable Forest Management Council was unable to offer anything of substance. Another victory for industry foxes guarding the henhouse. Photo © John McKeith

thirds of our forest is now even-aged, Hunter countered that this is the problem and we should move away from it. Lovaglio: "The forest is mostly of post-1917 budworm origin." Hunter: "Our heavy-handed manipulation has prevented establishment of anything except even-aged stands." Seymour: "The reason for the even-aged condition is the heavy cutting since 1850, followed by budworm. It is a myth that budworm caused Maine's even-aged stands; New Brunswick, with much more fir than Maine is a classical 2-aged forest. The need for a diversified structure is the crux of what we are to do." Objection by Triandafillou that this discussion unnecessarily complicates the whole issue.

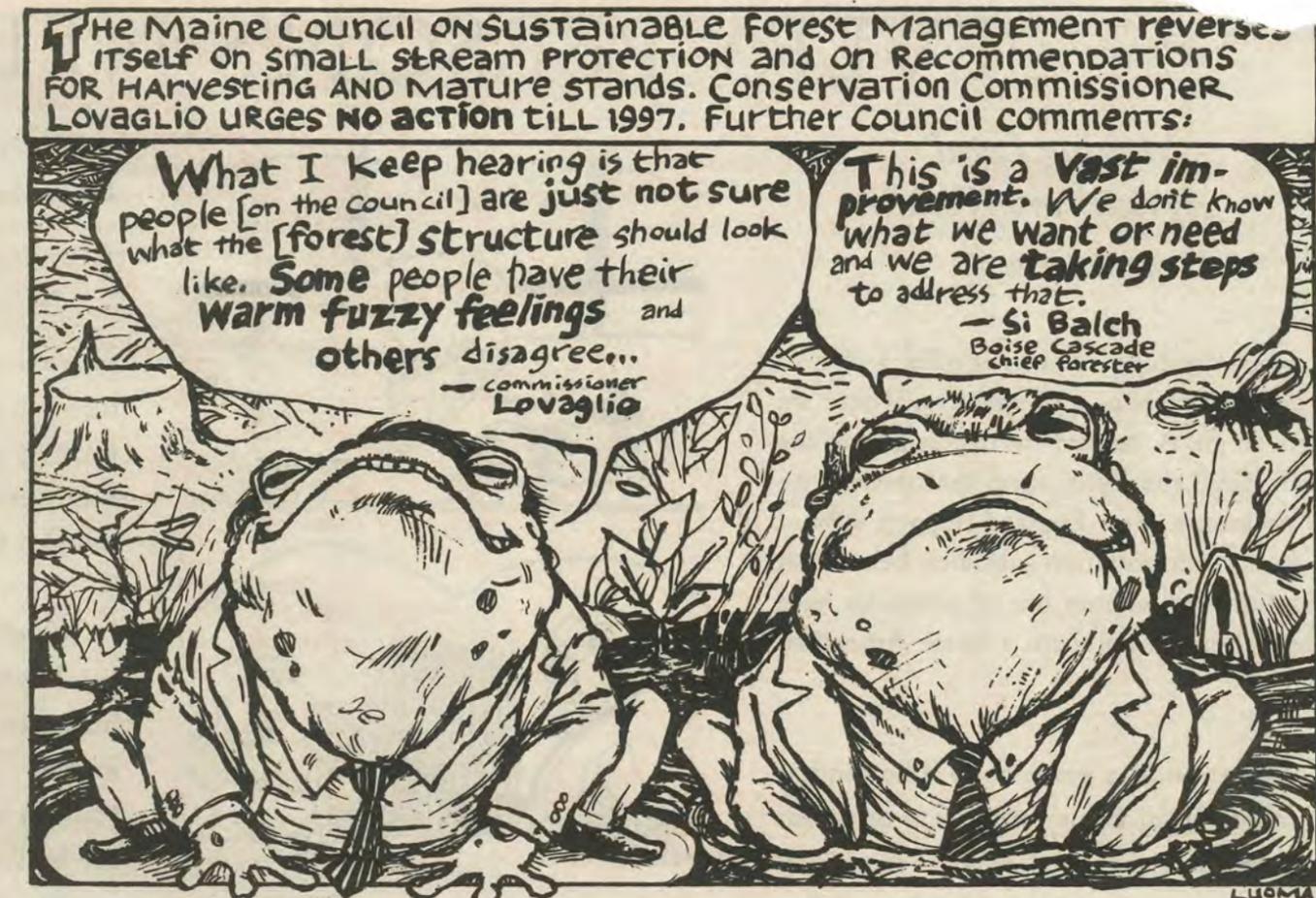
Possibly the first substantive argument by the SFM, this passage closed on the motion of Don Tardie of Fraser Paper to "settle the dust" by "deconfliction," leaving the forest owners free to balance their objectives versus public values. The vote was to table, retaining the existing draft's language.

Immediately, the discussion turned to the subject of better addressing the clearcutting/even-aged management. This, before today, was only on the "B" list of priorities. Reminded by Seymour that the question goes back to forest structure and by McKay that they must deal with those who cut down to the legal clearcut definition (30 ft² basal area/acre), Tardie responded that this implied a "black label" for what might be "high-yield management." Here Commissioner Lovaglio asserted some real politic: he wants this on the "A" list, so that people see it as addressed "forthrightly." When he continued, "If it (clearcutting) is not to establish a plantation, it is a mighty poor clearcut," there was a confused outcry. This time Lovaglio applied the hammer: "Put clearcutting on the 'A' list; the motive might even be political." Tardie, from the rear guard: "We should stick to our previous commitment on priorities."

May 20

Resuming on 20 May, the group again took up the "top public comments," reminded by Moderator Joe Michaels, USFS, that time was closing on them; "Ten hours left, eight of them at the next meeting." Discussion of clearcutting led to an impasse in deciding where clear felling is silviculturally justified, by contrast with the practice loosely termed "high-grading." Gadzik, a non-voting member of the SFM, argued for defining this term, eight voted to defer further argument, and to avoid definition. Lovaglio suggested language to require increasing forest growth by 10% every ten years until 0.5-0.6 cord/acre/yr. is reached statewide. Seymour responded that Lovaglio's requirement would not guarantee sustainability, ingrowth of small trees would falsely appear to have increased growth. Gadzik admitted that, now, mortality exceeds growth, with ingrowth making up the perceived increase. (In 1959, the average growth of the Maine forest was reported by USFS as 0.5 cord/acre/yr; now it is less than 0.3 cord/acre/yr.)

Comments from the spectators were mostly that they lacked the written discussion material. I offered a quantifying definition of "high-grading"—the ratio of the dollar value of what is removed to the present value of what



can straight-facedly be expected as the next cut. This test ratio may well deflate the abuse of the term "high-yield forestry," which ought to be at least two cords/acre-year, but has shrunk to one.

Izzy McKay reported her wish list for landowners: investigating state policies that affect the Tree-Growth (current-use) tax, capital gain treatments, open-space (another current-use dodge, reportedly as much as a 95% reduction), and timber liquidation taxes.

Here began a most significant passage, leading to a division between the industry landowners and the other council members. (Remember, Gadzik doesn't vote; Lovaglio does.) Janet McMahon of The Nature Conservancy presented a more adequate process of protecting water quality. She collapsed the group's A and B rankings into 4 benchmarks and synthesized the existing state LURC and DEP standards and definitions, with maps showing how these two standards would apply to the same river. Immediately opposed by Triandafillou of James River Co. and Tardie of Fraser Paper, that the requirement of 70% crown closure within 250 feet of ponds and streams shown on USGS maps was too restrictive, she argued repeatedly that the rule permitted cutting over time. Tardie held that his stands with "no vertical structure" would be subject to windthrow on entry. He stated that, "If the protection area is meant to be a preserve, call it that."

After luncheon, Tardie's attempt to change the topic was set aside, and the group returned to McMahon's water quality revision. Peter suggested a 75-foot zone with a 40% limit, objected to by Harry Dwyer that, "Your proposal undermines the intent of the criterion." Peter tried again: "... An extremely complex issue; we haven't documented it. . . We shouldn't do it. . . My mind boggles. . . We are rewriting the law, but we are not experts." Janet replied that she had talked with the experts. Tardie said, "We are not ready with the relevant data." Janet quoted Fred Todd, director of LURC that, "75 feet is mostly unacceptable." Despite this, Mac Hunter proposed that the 75-foot buffer be incorporated, applying to the entire

PSL2 protection zone, and no clearcutting within 250 feet of all streams.

Here Triandafillou called for the "super majority" ground rule in the decision. Lovaglio, asked what would be the downside, answered that the process unravels—not time enough to redo the question. McMahon would be "uncomfortable" if the debate were not shown in the record of the deliberations. Requiring 7 of the 9 votes, the question had 6 in the affirmative going along the table, approaching Lovaglio, Triandafillou, and Tardie. Ron gave an immediate thumb up.

How many more of these "right" decisions will we see? Monday, 3 June is the supposed end of the time allotted; see you there.

June 3

On 3 June, the council agenda, curiously foreshortened, allotted five hours to deciding the final form of four of the criteria. Moderator Joe Michaels pushed for key questions on the issue, public response, and an immediate council decision by consensus or majority vote. Ron Lovaglio, alluding to "sub-committee meetings" in the interval, finessed consideration of the current state of the forest and the forest economy by claiming, ". . . we don't have a good idea of what the forest looks like," and promising the MFS would beef-up its analytical capabilities to resolve conflicts between forestry and economic goals.

Lovaglio then offered revisions to the criterion on ecosystem and biological diversity. These were greeted by Si Balch, Boise-Cascade, as a "vast improvement," and similarly applauded by industry foresters. Seymour joined in forwarding the decision to the "analytical group as a point of departure." On the fraction of land converted to plantations, he defended his guess that 10% should be the usual limit, but "... without the analysis we can't decide." Triandafillou sums up; "We admit here we don't know where we are, so we can't know where we want to be." Putting a date of 1980 on the determination of the forest's condition, Seymour asked for "verification from other than

landowners that the modeling won't work." A majority voted to leave dangling the cap on plantation area.

In a second startling political maneuver. Lovaglio re-opened discussion of the criterion on water quality, wetlands, and riparian zones, which had been hailed in the *Bangor Daily News* as being adopted by "a landmark vote" at the 20 May meeting. Claiming there were new data, Lovaglio, the deciding affirmative vote originally, undid the only substantial act of the council. Apparently intimidated, Janet McMahon said there was not a flood of new data, rather a better way of showing the ranking of streams and the basal area requirements to achieve the degree of crown closure to protect the stream. As the *BDN* saw it, the protection given two weeks ago was watered down. Unmapped streams were stripped of protection. Paper corporations' foresters applauded her new version, although Gadzik opposed.

My conclusion to this sorry mess is that not even a token plan to counter the clearcutting ban will emerge. The council lack spirit and moral fiber. While there was a macabre satisfaction in watching the council members dance nearly to the point of indicting Maine's forestry, thereby producing something good enough to give the Governor talking points, this session convinces me they have ducked the hard questions and are writing new sheet music for the orchestra on the *Titanic*. Angus King, master.

King and his puppets had better face the music—how about *You Can't Clearcut Your Way to Heaven?*

Training Session in Environmental Communication Offered July 29-Aug. 2

Dick Beamish, author of *Getting the Word Out in the Fight to Save the Earth* will conduct the course at the Vermont Law School in South Royalton.

For information contact: Dick Beamish at 802-453-6448.

EVERY PERSON'S NEED

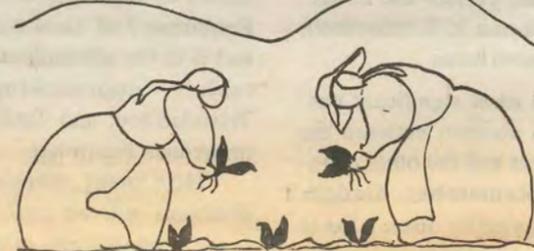
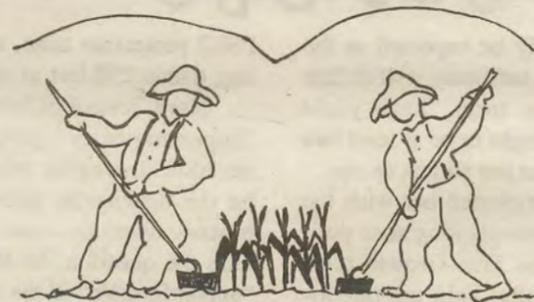
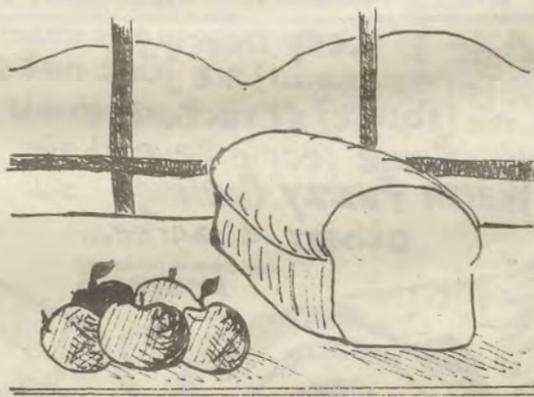
Making Local Agriculture Work

by Michael Phillips

Root meanings of words offer a clue of where we've been, and perhaps, where we ought to go. A 'culture' intimately tied to the 'land' (from the Latin *ager*) that feeds it we are no longer. New England imports 90% of its food. Transportation subsidies, below-cost irrigation and wanton use of pesticides have made cheap food seem a basic American right.

But at such a great cost! The land is degraded. Small farms continue to disappear at an alarming rate. And as far as the notion of local economy goes, we've blown it big time. Food is what we can produce most readily, food is that which every human needs. A local food system is at the core of a sustainable economy.

It's up to each of us to make local agriculture viable. To support a local food system that produces at a slightly higher price but at a much reduced environmental AND human cost. Being aware of where your food comes from and how it is grown is a consciousness we all need to adopt. Eating in harmony with



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

—Gandhi

the seasons means eating what local agriculture can produce—or preserve—at a given time of year. "No, Virginia, there aren't California strawberries in heaven. But just you wait till it's berry picking time in June!"

Hope is on the horizon and as near as you local farmer's market. The 'Community Supported Agriculture' movement is growing rapidly. . . see our listing of CSA farms where you can become an intimate shareholder in the harvest that feeds your family. Seek out neighborhood farmstands to buy your produce directly from the grower. Encourage the chef of your favorite eatery to offer crisp salads of local green. Support grocers that willingly pay growers a wholesale premium for higher quality vegetables. Plant your own garden and get your hands in the earth. . . you'll be nourishing your soul as well as your body.

Local agriculture is not yet lost. Stewardship of the land and culture that feeds us goes hand in hand with our vision for the Northern Forest.

Inspiring Local Economy

- Those of you who ever insulated a home know well the worry and itch of fiberglass. It turns out recycled newspapers offer a much more effective insulation option—cellulose. Therm-Cote insulation made in Bath, New Hampshire, is a local economy alternative . . . ask your local building supplier for the scoop.

- Small dairy farms are a relic of the past, or are they? Growing demand for organic milk and cheeses creates an economically-viable niche for a small milk herd. Cows on free grazing are much happier, we all enjoy a true agrarian landscape. Paying more for organic milk is a choice that assures these values and helps farm families maintain a non-industrial approach to agriculture. Local milk is more likely than not to be bottled in glass, which for anyone with taste buds, is well worth the higher cost of local production.

- Thinking through local economy calls for distinguishing local production from the middle ground of local retailing. Utilizing area resources to make long-lasting products people can use is the ultimate goal of a sustainable economy. It's our vision come full circle: dollars recirculate locally to mutually support each member of the community. Sadly, it's local production that's practically been wiped out by the so-called global economy. Imports are cheaper, that's what people buy. Yet on the local retailing level there is an important difference between a K-Mart and the general store still found in some New England villages. A living wage and some store profit are kept in the community by the latter. A locally-operated store is much more likely to provide an outlet for locally-made products. Service and satisfaction come directly from your neighbors. Hell, you may even find people know you by your first name and remember you're a carpenter, or a French tutor, or a good auto mechanic when their old Volvo grinds a crank. Local economy matters because all of us matter.

- Never, if you can at all help it, shop at a store or eat at a restaurant of which there is more than one (a non-franchise contribution from our one and only Bill McKibben)

Note to our Readers: What are your ideas for inspiring local economy? Your suggestions, thoughts and outlandish opinions are that make this feature of the **Forum** work. Write us today! *Every Person's Need*, RD 1, Box 275, Groveton, NH 03582.

A Sampling of Community Supported Agriculture (CSA) Farms in the Northern Forest Region

Maine

Beggar's Ride/Soil's Gift CSA
Tor & Linda Smith & Jill Broeker
RFD 1, Box 318
Houlton, ME 04730
207-532-2835

Chapman Ridge Farm
Jay Robinson
RR 1, Box 4073
Athens, ME 04912
207-654-2425

The Turkey Farm
Bob Neal
RFD 1, Box 2445
New Sharon, ME 04955
207-778-2889

New Hampshire

Roots & Fruits
David & Andrea Craxton
RFD 2, Box 378
Dalton, NH 03598
603-837-2383

Mt. Washington CSA
Thomas Earle
RR 1, Box 27
Ctr. Conway, NH 03813
603-447-6641

Graymist Farm
Gordon & Nancy Gray
Brown Road
Groveton, NH 03582
603-636-1294

Vermont

Peace & Carrots Organic Farm
Wendy Martin
POB 69
Calais, VT
05648

Earth Mother Gardens
Addison County Community Action Group
POB 165
Middlebury, VT 05753
802-388-3608

Mountain Foot Farm
Curtis Sjolander
RR 2 (S. Wheelock)
Lyndonville, VT 05851
802-626-9471

For a more complete listing of CSA farms in your state, contact: Steve Gilman, CSA Farm Network, 130 Ruckytucks Road, Stillwater, NY 12170.

Plum Blossoms

I spent an hour this afternoon beneath the plum trees with my baby daughter. Gracie delighted in the pure ecstasy of a tree in flower. She introduced me to tasting plum blossoms. Together we witnessed the myriad of insects flying from blossom to blossom. Time stood still, a father and daughter caught up in the perfect fragrance of spring.

People rarely reckon on plum blossoms in the balance of time and resources we call economy. Ours is more often than not a pursuit of something beyond the moment. Each day "plum blossoms" await. . . It's worth the time to breathe deep and give thanks for this life and incredible creation. No wealth can replace what we've already been given.

—MP

Giving Away the Goose

by Willem Lange

"I gotta get back to work" commentary series Vermont Public Radio, Broadcast Nov. 30, 1995. Reprinted by author's permission.

My wife is in the kitchen and bath business. Some years ago, an emigrant from New Jersey remodeling his condominium, picked from one of her catalogs a 4-foot-square fiberglass whirlpool bath. "I'll get that order right out," she said, "and it should be here by next Thursday."

"What! But I need it now! How come you can't get it sooner?"

"Because it's not a stock item anywhere but at the distributor's, in Philadelphia."

"Jeez! Back in Jersey I could walk in and get one! How come you don't stock 'em?"

"Well, this is the first one of these we've ever sold. We couldn't afford to stock them."

"God! And you're gonna charge me shipping, besides?"

"Oh, yes," she said, "It'll be about \$40."

"I thought northern New England was supposed to be a cheaper place to live."

"Well, it is cheaper if you want to live like northern New Englanders. But not if you want the same conveniences you had in New Jersey. Think of the higher prices as the cost of living surrounded by mountains and forests, instead of apartment houses and parking lots."

It's easy to feel superior when you've lived here a while. But about a month ago, I wandered idly through a Miami Wal-Mart, checking the brands and prices. Hmm, not too bad; lots of cheap stuff, but some excellent brand names, too. I mostly strolled with my hands behind me, nodding philosophically. But when I caught myself looking with real interest at a Coleman stove at a very low price, I felt a sudden chill.

I felt like an evangelist surprised in the parlor of a bawdy house. And I appreciated for the first time the strength of the attraction that is sucking us New Englanders into selling ourselves cheap too—that has caused the coast of Maine to disappear as rapidly as old-growth forest in the Northwest. That has strung miles of jerry-built condominiums along once-beautiful highways near big ski areas. That has caused the State of Vermont, of all things, to be listed as an "endangered species."

Ask yourself what's so wonderful about living here. The weather? Fertile soil? Low heating costs? Lots of jobs? A booming economy?

Not very likely. Whether we live here by choice, necessity, or heritage, what's so nice about this place is the place itself—its granite mountains and tree-filled valleys; its lovely rivers, flowing cleaner now than for generations before; its feeling of openness, freedom, and relative isolation from the problems besetting more crowded parts of the country.

But none of these things come without prices on them. It can be as simple a matter as waiting a week for a whirlpool; or as agonizing as refusing to sell to a developer. It can be as little a matter as saving your empty egg cartons for the local food coop, or as big as paying \$10 more for a Coleman stove in a store that's owned by, and employs, your neighbors. It can be as easy as showing up once a year to pick up litter along your road; or as hard as attending distant public hearings to help prevent the "reclassification" of your favorite trout stream to accommodate sewage from the enlargement of a ski area.

The alternative is a price that may seem lower, because it's paid in easy installments. But ultimately it means the loss of everything that makes northern New England a special place—its farmland paved for shopping centers, its woodlands posted by immigrant owners, its roads gridlocked, more and more of its people clerking, instead of producing. This may seem an exaggeration; but just a short drive from the hills of Hanover Center down to the Connecticut River bottom at West Lebanon demonstrates clearly all of these features of the new New England.

Perhaps the most valuable feature of the life we enjoy so much is its simplicity. In relatively unspoiled land, you can see clearly the slightest changes, for better or worse. You can appreciate better the impact that our activities have upon the land. You can understand how fragile a thing is the northern environment. And when you drive into town and see the new grade stakes driven into cornfields, the bulldozers parked beside wetlands and waiting, the new traffic lights going up, you perceive that we are giving away, for mere money, things infinitely more precious.

The land—only the land—is the goose that lays the golden eggs.



IVIA SENATE Guts Resolution to Undermine Conte National Wildlife Refuge

by Jamie Sayen

In April the New Hampshire Legislature passed a relatively toothless "Resolution" on the Silvio O. Conte National Wildlife Refuge that had originally been proposed by anti-environmental elements of the state senate and house. The original resolution (HJR 22)—offered by Coos County Senator Fred King and his crony Representative Leighton Pratt of Lancaster—was full of biased language against federal land protection agencies.

It would have required a town meeting or permission from town selectmen (the poorly-worded resolution was as confusing to its authors as to the rest of us) before the Conte could undertake any action in a given town for the first five years.

Further, the resolution called on the New Hampshire Congressional delegation "to limit any fee acquisition of private property within New Hampshire where any federal funds are to be utilized to lots of record of less than 500 acres. . ."

The authors of this resolution pose as strong proponents of "private property rights." Yet, the purpose of the resolution was to kill the Conte by violating the property rights of landowners who wish to participate in the Conte program.

April 9 Senate Hearing

On April 9 the Senate Environment Committee held a hearing on the resolution. Normally legislative hearings are not exactly a barrel of laughs, but this one was different; it was awash with hypocrisy and humor.

Senator King made an "aw shucks" presentation alleging that the resolution really wouldn't have much impact on the Conte. He opened with the question: "How would you react to news of a new federal program in town?" He called the Conte (and by extension any federal program) a "federal intrusion." The not-so-subtle message is: the feds can do no good; the state, county and municipal governments can do no wrong.

Silly me. I thought it was the state, county and municipal governments that had flushed untreated sewage into the Connecticut River, and that it was only after the sinister Feds intruded with the Clean Water Act in the early 1970s that canoeists stopped finding toilet paper wrapped around their paddles.

Property Taxes

One of King's greatest concerns about the Conte was the property tax issue. Although federally-owned lands don't pay property taxes, they do pay "payment

in lieu of taxes." King warned of a net loss of property taxes. On this issue he exhibits selective outrage. For years he has boasted that due to his work as County Executive the large timber landowners pay no property taxes to Coos County in the unincorporated townships. At a meeting in Lancaster in October 1994 he justified this subsidy by telling me: "The large landowners don't require any services."

Think about that response. According to Senator King, you shouldn't be forced to pay property taxes for services you don't require. That means I should be relieved of my school taxes because I don't send any children to the Stratford Public School. King isn't particularly outraged that many financially strapped constituents of his must pay for services we don't require while footing the bill for the taxes the wealthy absentee landowners don't pay.

Furthermore, it is untrue to claim that these landowners don't require services. Anyone who has seen the condition of Route 3 between Stratford and Lancaster, NH this past winter and spring knows these huge logging trucks are the prime culprit for the sorry condition of this major route.

Ironically, payment-in-lieu of taxes from federal agencies that own land in a given municipality may actually be higher than land taxed under current use or Senator King's zero tax policy for the unincorporated townships.

Local Control

Another concern raised by King was the issue of "local control." Should local people have any say in the process? Although the Conte Refuge staff conducted over 200 meetings throughout the watershed, although it listened to a full month of public testimony in June 1995, Senator King somehow felt that his bill—with one poorly-publicized hearing in each house of the NH Legislature—was fairer to the public.

At the April 9 hearing I was one of three citizens who testified; the rest of the testimony came from legislators and lobbyists. By contrast, on June 29, 1995 at the final Conte public testimony session, in Lancaster, 52 citizens testified—36 in favor of the Conte and 13 opposed (three took no clear position). Senator King and Representative Pratt attended. Since they didn't much care for the results of open democracy, they opted for an end run around the democratic process.

Now, if King and Pratt were sincere in their support of "local control" they would lead the charge to repeal the 1993 law that denies local municipalities the right to regulate pesticide use in their communities.

Thanks to that law, towns like Stratford and Pittsburg are powerless to prevent paper companies like Boise-Cascade and Champion from spraying herbicides into our forests and drinking water. Representative Pratt and his beloved Farm Bureau love this violation of local control—it's good for agribusiness.

Public Lands Myths

Senator King further alleged that the federal government already has enough land and doesn't need any more. The most effective way to protect land, he claimed, is to keep land in private timber ownership. While many private landowners are responsible stewards, many aren't. Exhibit A—Teddy Ingerson's 1800-acre clearcut in Whitefield/Twin Mountain. Exhibit B—Champion's clearcut in the Perry Stream that produced a 50-mile plume of silt detected in the Connecticut River as far south as Columbia in the fall of 1993. Yet King and Pratt are in the forefront of opposition to regulations that would make such activities illegal.

Ironically, the Conte National Wildlife Refuge may be the last best hope for some struggling farmers in the Connecticut River Watershed. Under the aegis of "free market" and "private property" and "local control", and, of course, the advice of the Farm Bureau, 65% of agriculture land in the Connecticut River watershed was lost to development from 1964-1992. Much of the remaining farmland is threatened. The Conte offers farmers the opportunity to sell conservation easement to protect wildlife habitat and continue farming. The easements would provide a needed cash infusion and remove the threat of development. But the anti-enviro "friends" of the farmer would deny farmers this assistance.

Another reason for limiting public land acquisition, Senator King explained, is that public land is taken out of production. He complained that 60% of the White Mountain National Forest is off limits to logging, thereby wrecking our local economy. In terms of economics, the national forests were not established to provide welfare for local communities, although, this has often been the case throughout the US.

• Much of the land off-limits to logging on the WMNF is steep slope, high elevation, unstable soils, or barren. Does the good senator really think driving a skidder to the top of Mt. Lafayette makes sense?

• Public land that is off-limits to the sort of exploitation favored by Senator King produces clean air, clean water, habitat for wildlife, and recreational opportunities. It also is good for our souls to act with generosity toward a small portion of the landscape by protecting it from economic exploitation.

When Committee Chair Senator Richard Russman, R-Kingston, asked Senator King if this resolution would place NH at a disadvantage with the other three states in the Conte plan, King pulled out a brochure produced by the Northern Forest Alliance and warned of plans for a "land-grab" all over the Northern Forest region. Not exactly an answer to the question.

Following Senator King was Representative Pratt who raised one valid point: there is great disappointment that the planned education centers have been dropped from the Conte. There had been significant support in the North Country for these centers, and some support for the Conte has been lost as a result.

500-Acre Limit

For sheer hilarity, the highlight of the April 9 hearing occurred when Representative Howard "Cro" Dickinson explained the 500-acre limit on sales to the Conte. When Dickinson couldn't recall exactly why 500 acres was selected, Senator Russman asked if this weren't a violation of private property rights to tell an owner of 1000 acres that he or she could not sell the entire parcel to the Conte. Dickinson hemmed and hawed, then acknowledged that he could understand why a landowner might be upset over this provision. But, he cheerfully volunteered, not to worry; there are ways to get around it. While the author of this provision offered a crash course in how to evade the law, the audience was rolling in the aisles. Too much.

Cheryl Johnson of the NH Landowners Alliance attended the hearing but did not testify. One of her

Continued on page 26



The Connecticut River meandering through Essex County, Vermont and Coos County, New Hampshire. Photo © by Alex MacLean—Landslides

Protecting New Hampshire's Biodiversity

A Statewide Effort to Establish an Ecological Reserve System

How and why the Ecological Reserve System Steering Committee was Formed:

Two state agencies—the New Hampshire Department of Fish and Game and the Division of Forests and Lakes—established a committee in November, 1995 to develop a plan for a statewide system of natural areas, or ecological reserves. The Ecological Reserve System Steering Committee represents a variety of interests, and will work with the state's leading scientists on a scientifically sound plan the protects New Hampshire's biological diversity—it's natural variety of plants, animals and ecosystems.

The Northern Forest Lands Council recommended that Ecological Reserve Systems be developed by the states to conserve and enhance biological diversity across the landscape. Support has been received from conservationists, scientists, concerned citizens, and a public-private ad-hoc committee called the Biodiversity Action Group. Because the success of New Hampshire's plan will depend on the voluntary participation of private landowners, the Steering Committee seeks public comment on the conceptual framework that will guide its work over the coming two years.

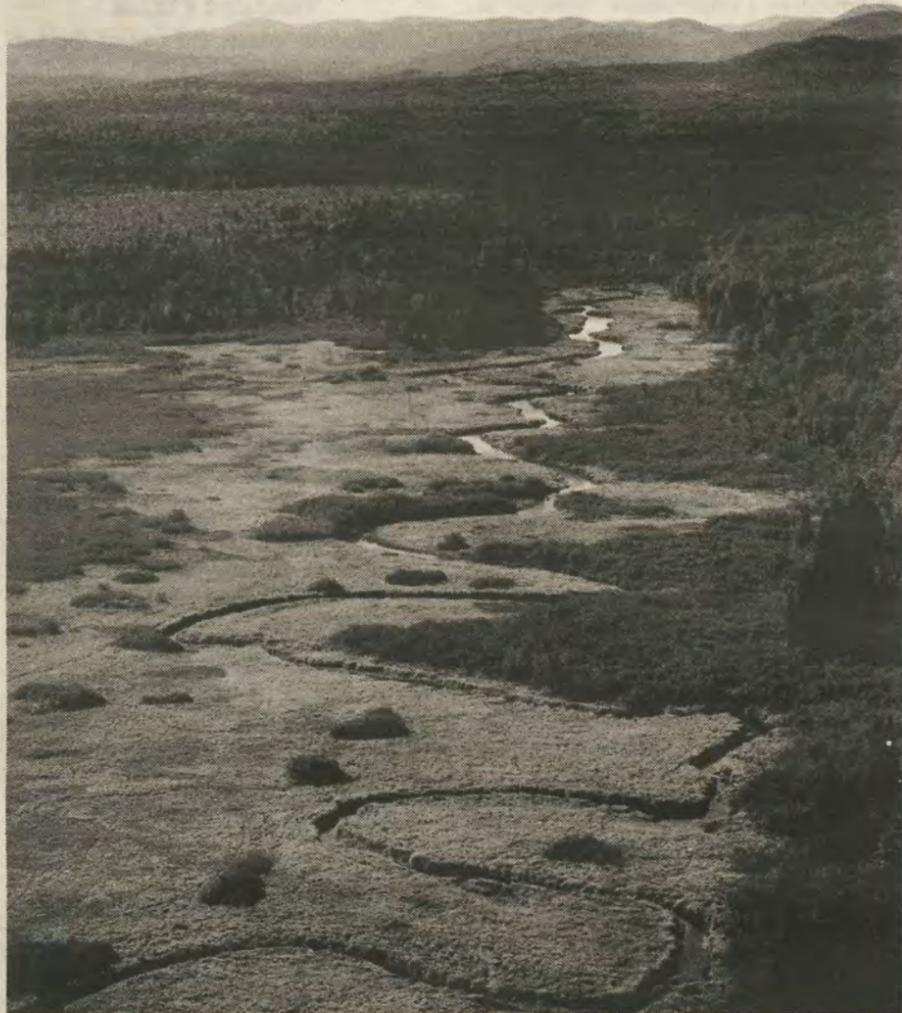
What is Biodiversity?

Biodiversity—short for biological diversity—is a new word for a simple idea: the variety of life in all its forms, and the natural processes that maintains it. Scientists recognize four levels of biodiversity: genes, species, natural communities, and landscapes. New Hampshire has a wide variety at each level, from peregrine falcons and dwarf wedge mussels to northern hardwood forests and pine barrens. A comprehensive overview of New Hampshire's biodiversity, prepared by the New Hampshire Scientific Committee on Biodiversity, will be available this summer. To obtain information about ordering a copy, please write to New Hampshire Fish and Game's Nongame and Endangered Wildlife Program, 2 Hazen Drive, Concord, NH, 03301.

Why is it Important to Conserve New Hampshire's Biodiversity?

In recent years, scientists, natural resource managers, and the general public have grown increasingly aware of the importance of biodiversity both for itself and as a component of stable economies, ecological health, and land stewardship. At the same time, awareness of the threats to New Hampshire's biodiversity has grown. Residential and industrial development, poorly-planned timber harvests, fire suppression, and forest fragmentation may all threaten New Hampshire's natural diversity, depending on where they take place and how they are carried out. Many believe action is needed now to prevent the future loss of New Hampshire's biological diversity.

One way to prevent the loss of natural variety is to manage productive timberlands with care, so that they will remain healthy and economically valu-



Forest and wetlands in northern New Hampshire. Photo © Alex MacLean—Landslides.

able. Standards for sustainable management are currently being developed. However, as part of the sustainable forest management umbrella, there is emerging consensus that some lands should be set aside as wild lands, where human use is restricted and natural processes predominate. Both managed and unmanaged lands are important in the conservation of native biodiversity, and will be important components of the ecological reserve system.

What is an Ecological Reserve System?

An effective system of ecological reserves might contain natural areas of different sizes, distributed across New Hampshire, under both public and private ownership. Management of these areas would focus on the maintenance of species and natural communities native to the area, and compatible human uses would be encouraged.

The Ecological Reserve System Steering Committee will develop of strategy for a reserve system—inclusion of lands in the reserve system will be voluntary.

Guidelines for an Ecological Reserve System for New Hampshire

Following are the guiding principals by which the Ecological Reserve System Steering Committee will accomplish its work: the committee's mission statement, definitions and goals, and operating principles. Comments should be submitted to any member of the steering committee, or to the group in care of Susan Francher, NH Division of Forests and Lands, P.O. Box 1856, Concord, NH 03302-1856.

Mission Statement

The mission of the Ecological

Reserve System Steering Committee is to develop a plan for a system of reserves to help protect the state's rich biological diversity for the long term, and to create awareness among New Hampshire citizens of the need for an ecological reserve system and its benefit to their quality of life. To that end, the committee will:

- Determine the need for an Ecological Reserve System by assessing the status of biodiversity in New Hampshire and the extent to which biodiversity is protected under the current system of publicly and privately protected conservation lands.
- Disseminate the findings of the Scientific Committee on Biodiversity through existing education systems and the development of new programs.
- Provide a blueprint for ecological reserve selection, design, establishment, and management, firmly grounded in the latest and best available science, recognizing that creation of the ecological reserve system will be based upon the participation of public landowners and the voluntary cooperation of private landowners
- Assure a broad range of interests is represented and involved in the planning process.

Definitions & Goals

An ecological reserve system is a complex of areas in a variety of sizes, locations, ownerships and protection, appropriately managed and actively monitored to accomplish the following goals:

- Maintain ecological processes at their natural frequency and spatial scale;
- Perpetuate all elements of native biodiversity at all levels—genetic, species, community, and ecosystem—including different stages of succes-

sion;

- Provide comprehensive representation of physical elements;
- Educate people about the benefits of biodiversity conservation.

An ecological reserve is an area of land and/or water that contributes to one or more of the following system goals:

- Sustain or restore certain species, natural communities, physical elements or ecological processes that are necessary to maintain native biodiversity;
- Provide areas that serve as benchmarks to assess the impacts of human activities and natural global changes, and to demonstrate the benefits of having healthy and functioning ecosystems;
- Contribute to the functioning of adjacent ecological reserves.

Insofar as these goals are achieved, compatible human uses of ecological reserves are encouraged.

Operating Principles

• Build on work already done by the Northern Forest Lands Council, Biodiversity Action Group, NH Scientific Committee on Biodiversity, and others, and avoid duplication of efforts.

• Strive for consensus. Have a designated facilitator for each meeting.

• Meetings will be open for public attendance and publicized as required by NH law. If needed, time for people to comment will be built into the agenda.

• Share draft documents with others and bring feedback on drafts to Steering Committee meetings.

• Use the best available science.

• Seek and accept input from technical advisory groups and the public.

• Coordinate activities with other agencies and biodiversity initiatives.

Ecological Reserve Steering Committee Members

Will Abbott, Science Center of NH
Michael Amaral, US Fish & Wildlife Serv.
Mary Ellen Boelhower, Society for the Protection of NH Forests
Meade Cadot, Harris Center for Conservation Education
William Chapin, landowner
Bob Eckert, University of New Hampshire
Laura Falk, WMNF
Susan Francher, NH Div. of Forests & Lands
William Jackson, Town of Gorham
John Kanter, NH Dept. of Fish and Game
Jim Kennedy, NH Wildlife Federation
Thomas Kiernan, Audubon Society of NH
Eric Kingsley, NH Timberland Owners Association
John Lanier, NH Dept. of Fish and Game
Tom Lee, University of New Hampshire
Patrick McCarthy, The Nature Conservancy
Charlie Moreno, Consulting Forester
Jamie Sayen, Northern Forest Forum
Ellen Snyder, UNH Cooperative Extension
Peter Stein, Lyme Timber
Marjory Swope, NH Association of Conservation Commissions
Donald Tase, Champion International
Jeffrey Taylor, NH Office of State Planning
Jim Taylor, University of New Hampshire
Tom Thomson, Tree Farmer/landowner
Scot Williamson, NE Wildlife Management Institute

Important Report Assesses Status & Trends of Maine's Biological Diversity

New Study Documents Current Biological Crisis & Alarming Lack of Knowledge of Maine's Ecology

by Jamie Sayen

In January 1996 the Maine Natural Areas Program released "Biological Diversity in Maine: An Assessment of Status and Trends in the Terrestrial and Freshwater Landscape." (Hereafter BDIM) This important report, prepared at the request of the Maine Forest Biodiversity Project, documents what is currently known—and unknown—about the native and exotic species, the natural communities, and ecosystem dynamics in Maine. It is essential reading for anyone interested in protecting and restoring biological integrity in Maine.

This article summarizes and dis-

cusses some of the most important findings. A companion article, "Developing an Effective Conservation Strategy in Maine," discusses these findings and the precepts of conservation biology in the context of the Maine Forest Biodiversity Project.

BDIM defines "biological diversity" as "the variety of all forms of life at its various levels of organization—species and their constituent populations and genetic diversity; communities and ecosystems; and the processes by which all of these interact." (BDIM, page v. Note: hereafter only the page number will follow quotations from the BDIM report.)

BDIM is chock full of references—all of which are omitted in this review. To get a copy of this report, send \$25 to: Natural Resources Information and Mapping Center, Department of Conservation, 22 State House Station, Augusta, Maine 04333.

Biological Diversity in Maine is divided into sections for each important taxa and important subject. Here is a

brief summary of each section.

Vascular Plants

Vascular plants are one of the better-studied groups in Maine, although northern Maine is much less thoroughly documented due to large landowners' refusal to cooperate with inventory efforts. Maine is home to "typically Appalachian" species at the northern edge of their range and "typically boreal" species at the southern limit of their range. There are 1432 native and extant species of vascular plants found in Maine today. Twenty-seven of these species (2%) are rare throughout their worldwide range, and, altogether, 254 species are listed as rare, threatened or endangered.

According to BDIM: "Maine's native plant diversity has declined over the past 100 years, as represented by the extirpation of at least 32 species. Further vulnerability is evidenced by the number that are considered rare: 21% of our native flora. Causes include land development, permanent alteration

of water levels in rivers and some lakes, and, in a few cases, indiscriminate timber harvesting." (15)

The report notes that "Maine's largest known population of giant rattlesnake plantain, a rare orchid, disappeared after the cedar overstory was cut in the 1980s." (15)

Exotics are a problem in Maine which has 643 introduced plant species. They have had a greater impact through "habitat usurpation than through genetic dilution." (15)

Bryophytes, Fungi & Lichens

Bryophytes (mosses and liverworts), fungi, and lichens are "frequently overlooked during botanical surveys" but are essential components of natural communities.

"In forests of all types and all ages, bryophytes that grow on rotting logs create the moist microclimate that is often crucial for the survival of young seedlings of various herbs and trees. Bare clayey and silty soils along roads and in areas eroded clean of plant cover are often colonized first by lichens and bryophytes." (18) Studies of the frequency and abundance of liverworts have not been undertaken anywhere in the state. Many mosses in Maine "are believed to be rare or vulnerable." (19)

Fungi interact directly with plants and animals in many ways. One of the most fascinating and least understood is the association between fungi and plant roots, called mycorrhizae: "Ninety percent of our woody plants and even some bryophytes are mycorrhizal ['fungus-root']. In this symbiotic association, both the fungus and the plant benefit (mutualism). In fact, in many cases both partners depend on this association for normal growth. . . . *Ectomycorrhizal* fungi form a mantle of strands (hyphae) on the plant's roots; *endomycorrhizal* fungi penetrate and ramify inside the plant root. Both types of mycorrhizae increase the root's absorption efficiency. Without mycorrhizae, many plants have difficulty absorbing phosphorous even when the element is abundant in the soil." (19)

Although the BDIM report on mycorrhizae stops at this point, studies in old-growth forests of the Pacific Northwest have found that mycorrhizae play vital roles in the health of ancient forests. Studies indicate that clearcuts and pesticides adversely impact mycorrhizae.¹

Lichens are pioneers in primary succession. By extracting mineral nutrients from rocks they play an important role in soil formation. In addition, research by Steve Selva (University of Maine at Fort Kent) and others has "demonstrated the importance of old-growth ('ancient') forests for lichens. Old-growth forests have at least twice as many lichen species in them per unit area as mature forests of more recent origin, and have a disproportionate number of rare species." (20)

Selva has found dozens of species, entire genera, and even an entire order (Caliciales) that are restricted to old-growth forests in Maine.

Status of Biological Diversity in Maine

Estimated or known numbers of species in various taxonomic groups and their status in Maine. Table excludes marine and estuarine species

Taxonomic Level and Group	Status							State of Knowledge
	Native & extant	Introduced	Extirpated	Fed'l List ¹	State List ²	State Rare ³	Endemic	
KINGDOM ANIMALIA								
Class Mammals	54	2	4	2	1(3)	7	0	thorough for species distribution
Class Birds (breeding only)	198	5	2	6	9(22)		0	thorough for species distribution
Class Reptiles	17	0	1	0	4(0)	7	0	fairly well known
Class Amphibians	17	1	0	0	0(3)		0	fairly well known
Class Fish	52	17	?	1(1)	0(2)	10	0	fairly well known
Class Insects	15,000+	10+	7+	1	0(15)	38+	?	few groups fairly well known, majority of orders unknown
Class Crustacea (crayfish only)	4	3	0	0	0	1	0	certain groups fairly well known
Class Arachnids (spiders only)	500+	6+	?	0	0	?	1	not well known
Phylum Molluscs	110	?	?	0	0(4)	3	?	few species fairly well known
Other invertebrate phyla	??	?	?	0	0	?	?	very poorly known
KINGDOM PLANTAE								
Divisions Vascular Plants	1432	643	32+	3	175	254	2	well known, esp. for rare species
Division Bryophytes (mosses, etc.)	550+	0?	?	0	0	1+	?	not well known
KINGDOM FUNGI								
Orders Lecanorales et al. (Lichens)	550-700	0?	?	0	0	?	?	not well known
KINGDOM PROTISTA								
(algae, protozoa)	?	?	?	0	0	?	?	very poorly known

¹Federally listed Endangered or Threatened species only.

²Animals: State Endangered or Threatened species, 1986 list; 1995 proposed additions in ().

Plants: state Endangered or Threatened species: 1989 list plus S1 plants not yet listed.

³Tracked by the Natural Areas Program as rare in the state: rarity ranks of S1-S3

Source: Biological Diversity in Maine, page 10.

¹ Caroline Cox, "Glyphosate: Part 1: Toxicology" *Journal of Pesticide Reform*, Fall 1995, vol. 15 no. 3. Cox, C., "Glyphosate, Part 2: Human Exposure and Ecological effects" *Journal of Pesticide Reform*, Winter 1995, vol. 15, no. 4.

Invertebrates

BDIM succinctly summarizes the state of our knowledge of Maine's invertebrates: "The most important conclusion that can be drawn in considering Maine's non-marine invertebrate fauna is that we are faced with a monumental lack of data. Knowledge even of which species occur in Maine is very incomplete; even more incomplete is any understanding of trends, even over broad groups, on a statewide basis. . . . Even for [the] better-known groups, there is a lack of information on life history, historical abundance, and responses to land use activities or other anthropogenic factors." (23)

"In spite of our increasing knowledge of the numbers of invertebrate species in Maine, statements regarding the general health of Maine's invertebrate populations remain speculative." (25) BDIM speculates that declines and extirpations of invertebrates are most likely due to habitat loss rather than the "normal" long-term population cycling. Very little is known about trends of invertebrate, especially insect, populations which naturally fluctuate a great deal from year to year. Studies of boreal insects have produced important insights about the value of mature forests: "Perhaps the most disturbing finding in terms of biodiversity trends is an apparent elimination, for many years, at least, of species considered to require mature forests." (26) Complicating this issue is the matter of how we define "mature" forests. Studies of boreal forest-dwelling beetles in Maine and in western Canada showed . . . habitat specialists (old forests) recovered more slowly, or not at all, after harvest." (26)

Other findings of invertebrate studies include:

(1) "Habitat generalists can exhibit relatively quick recoveries after an initial decline in abundance, whereas habitat specialists (e.g., old-forest specialists) either require longer recovery periods, do not regain pre-disturbance population levels, or remain absent from the changed areas." (26)

(2) "Exotic species may be favored by increased areas of disturbed habitats. Exotic species may displace native species. . ." (26)

Regarding the spraying of spruce budworm in the 1970s and 1980s, BDIM notes: "Broadcast spraying of insecticides may have important detrimental effects on native invertebrate diversity. Insects, in particular, are susceptible to broad-spectrum insecticides such as those used during portions of the spruce-budworm spray program." (26) A 1980 study of streams impacted by aerial spraying of insecticides to control spruce budworm found "all target macroinvertebrate groups showed initial steep declines with varying recovery rates for several years after spraying." (26) Stone flies and amphipods were totally eliminated and did not return after three years, at which time the sampling ended.

BDIM offers these grim assessments: "Given that relatively few pristine habitats remain in Maine and that the remaining landscape has been repeatedly 'worked' or developed, it is probable that we have already lost a number of our native invertebrate habitat specialists." (27) And, "It is likely, though difficult to document, that Maine's native invertebrate fauna is shrinking rather than expanding." (27)

Level of Knowledge for Non-marine Invertebrate Phyla in Maine

PHYLUM	CLASS	KNOWLEDGE LEVEL
Porifera (sponges)		nothing
Coelenterata (hydras and hydrozoas)		one species reported (1963)
Platyhelminthes (flatworms)		nothing
Nematahelminthes (nematodes)		nothing
Bryozoa (bryozoans)		nothing
Annelida	Oligochaeta (earthworms)	basic species list
	other classes	nothing
Mollusca	Gastropoda (snails)	basic species list
	Pelecypoda (bivalves)	distribution, a few trends for freshwater mussels only
Arthropoda	Crustacea	crayfish distribution known; the other five orders unknown
	Arachnida (spiders, etc.)	spider distribution known; the other three orders unknown
	Insecta	10 orders with partial list or some estimate of species numbers; 17 orders with no data

Source: Biological Diversity in Maine, page 24

Amphibians

BDIM reports: "No long-term monitoring data for Maine are available to document whether amphibian populations have been stable or show any clear downward trends. On a world-wide basis, researchers are reporting dramatic declines in several amphibian populations. Growing anecdotal evidence from atlases or other regional or statewide surveys throughout New England and other states in the eastern United States suggests that at least some amphibian species are showing general population declines over broad areas. In the northeastern United States, for example, 60% of the native amphibian fauna are listed by one or more states as Rare or of Special Concern. Circumstantial evidence points to the cumulative effects of increased acidity, and wetland losses as causes for declines. Other work, however, indicates that amphibian species vary in their ability to accommodate toxics or changes in land use." (30)

A recently published three-year assessment of the impact of forest practices in central and northern Maine by Phillip de Maynadier shows the abundance of amphibians in clearcut areas declines more than two-fold from mature forests.

Amphibians require both aquatic and terrestrial habitats, and disruption of either can have serious consequences. BDIM states: "There is increasing evidence that some intensive forest management practices can be disruptive to local amphibian populations, particularly when microhabitats such as coarse woody debris and leaf litter are degraded." (31)

Reptiles

"It appears that reptiles are facing greater threats in Maine than amphibians." (31)

Fish

"Native fish have been affected by human activities in recent decades more severely than perhaps any other group of organisms." (36) And, except for native sport fish, "the trends of Maine's native fish fauna are generally little-known or poorly-documented." (35) Nine of 52 native freshwater (includes catadromous and anadromous) fish are considered to be rare at some level. The introduction of exotic game species such as largemouth and smallmouth bass, rainbow trout, northern pike, muskellunge, has displaced native species and in some cases has produced hybrids that have "irreversibly changed the native genetic diversity." (35)

Destruction and degradation of aquatic habitat have been caused by dams, pollution, DDT, mercury, dioxin, pond reclamation, and increased access to remote ponds. (35-36) In a later section, BDIM also cites "excessive nutrient input from erosion and runoff." (61) Major culprits are development, logging, especially clearcutting, and logging roads.

Mammals

"Maine's non-marine mammals are better known than most other vertebrates, except perhaps birds." (38) However, BDIM notes later: "Except for selected game species, virtually no data exist addressing mammal abundance and diversity at a landscape scale, and available studies have not tracked species trends for long-term recovery periods." (38) One study found that "insectivorous small mammals showed greater declines than herbivores on herbicided clearcuts." (38)

The extirpation of cougar and wolf are mentioned. However, except for speculating that wolf extirpation may

have played a role in the expansion of coyote, southern flying squirrel, and opossum, there is no discussion about the ecological role of top predators in Maine's ecosystems, nor is there a discussion about habitat requirements of these extirpates. Perhaps this can be attributed to the political decision of the Maine Forest Biodiversity Group to focus on "current" rather than "native" biodiversity. BDIM notes somewhat cryptically: "Size and fragmentation may also affect the relative abundance of lynx." (39) Can't we say more than this? Are the habitat needs of lynx at odds with industrial forestry?

Birds

Although birds are probably the best studied class of animals in Maine, our knowledge is rudimentary, tentative. We know how many species breed or pass part of the year in Maine. There are censuses of increasing and declining populations, but basic questions remain. How does forest fragmentation affect various species? Studies in the Midwest and Middle Atlantic states have documented that some woodland bird species are "area sensitive" and will not occupy small forest fragments. Research on Maine songbirds has not, to date, corroborated this finding. However, BDIM notes, "no data are available regarding area sensitivity of forest raptors in Maine, and there has been limited research on this subject in northern New England and eastern Canada." (48) Later, BDIM warns "[u]ntil the population dynamics and habitat requirements of forest avian predators are understood, it is premature to consider forest avian diversity secure. Some raptors, such as red-tailed hawks, are known to preferentially select large trees for nest sites." (48-49)

Genetic Diversity

Chapter 4, dealing with "Genetic Diversity", may be one of the most important sections in BDIM. According to BDIM: "Genetic variation represents the diversity of information a species has encoded in its genes, or the differences in types and distribution of thousands of genes that occur with each individual. Genetic variation is the foundation of biological diversity." (51)

"Species with greater genetic diversity are more likely to be able to evolve in response to a changing environment than those with less diversity." (51) This takes on more importance in the face of human-caused global climate change.

In the section titled "Factors Affecting Genetic Diversity," BDIM lists: Founder Effects, Genetic Drift, Local Differentiation, Inbreeding Depression, and Genetic Dilution. Space does not permit doing justice to all five factors. However, I have selected quotes from the subsections dealing with local differentiation and genetic dilution to illustrate the importance of preserving genetic diversity in Maine.

Recall that earlier BDIM noted: "Because Maine falls in the transition between the deciduous forest region to the south and the boreal forest region to the north, the state's vascular plants include both typically Appalachian representatives at the northern edge of their range and typically boreal representatives at the southern limit of their range." (12) On page 52 in a subsection

Continued on next page

Developing an Effective Conservation Strategy for Maine

by Jamie Sayen

I: What is the Goal of a Conservation Strategy?

"The goal of any conservation strategy... ought to be to protect and restore biological integrity in a region."

—Dr. Stephen Trombulak, interview, *The Northern Forest Forum*, vol. 4 #3, Mid Winter 1996

In September 1994 the Northern Forest Lands Council recommended that states should, by June 1996, "develop a process to conserve and enhance biodiversity across the landscape." (Recommendation 21) Section "d" of this recommendation stated: "Using scientific assessment and analysis, create ecological reserves as one component of state public land acquisition and man-

agement programs."

A collaborative effort launched by the Natural Resources Council of Maine, the Maine Forest Products Council, the Maine Chapter of The Nature Conservancy, and others had begun such a process in Maine that spring—the Maine Forest Biodiversity Project (MFBP). Early on, the MFBP commissioned an assessment of the status and trends of Maine's terrestrial and aquatic biological diversity. That report, "Biological Diversity in Maine" (BDIM) was released in January 1996 and is reviewed in depth in "Important New Report Assesses Status & Trends of Maine's Biological Diversity" beginning on page 20.

BDIM is a very important document. It is also a very troubling document—for both scientific and political

reasons. The following essay will apply its findings to the debate over how best to design a system of ecological reserves in Maine (and beyond).

BDIM attempts to be scientific and non-political. But politics and biological diversity are not easily kept separate in Maine, or, indeed, anywhere. The Maine Forest Biodiversity Project has struggled with limited success for over two years to find consensus between industrial clearcutters and proponents of big wilderness. The most contentious and unresolved issues are:

(1) *Is there a crisis or a problem with biological diversity in Maine?* BDIM says there is a problem, but no crisis. The timber industry and Maine Forest Service have misused this conclusion to assure the public that there's no crisis—period.

(2) *Should the goal of reserves be to protect "representative" examples of the natural communities of Maine, or should Maine adopt the goal of most conservation biologists and try to protect and restore the ecological and evolutionary integrity of the state?* Thus far, a timber industry "coerced consensus" has focused the MFBP efforts on "representativeness". A central premise of this essay is that the BDIM assessment makes a very convincing case for adopting the goal of protecting and restoring native biological integrity.

(3) *What is the baseline against which we measure the success of the reserve system?* The Northern Forest Lands Council and the MFBP arbitrarily chose "current" levels of biological diversity as baseline. Many conservation biologists argue that pre-European

Biodiversity Assessment

Continued from preceding page

on "Local Differentiation," BDIM makes this important observation: "Local differentiation is also represented by peripheral populations—populations on the edge of a species' range—that are genetically different from populations more central to a species' range. These populations are likely to be pre-adapted to stressful conditions, and thus may adapt to local changes more readily than central populations. The conservation of peripheral populations is important in maintaining genetic diversity within a species and is especially relevant to Maine, where many of our rare species are peripheral ones."

In the "Genetic Dilution" subsection, BDIM writes: Maintaining locally adapted traits, for example in some peripheral populations, is critical to insuring that local populations continue to thrive. In addition, peripheral populations that are genetically distinct from more-central populations may be important to conservation of genetic diversity in the species as a whole." (52)

Some researchers "contend that forest-management practices that produce widespread fragmentation may contribute to reduced genetic diversity in some species. . ." (53) And, finally: "So little is known about the genetic diversity in the Maine biota. . ." (53)

Ecosystem Diversity

Chapter 5 on "Ecosystem Diversity" continues the trend of documenting how little we know about the natural communities of Maine. More distressing, much of what we do know is ominous. Space does not permit comprehensive analysis of this chapter. The following snippets and quotes should convey a sense of the crisis/problem/need for decisive, swift action to protect ecological integrity.

"Most of the known sites for the rarest forest-community types remain without formal protection." (56)

"... Many of the [common forest types] may have been substantially altered from their original condition as a result of past timber harvesting." (57)

"For the purposes of this report, natural forests are defined as forests which are not managed for timber or other commercial products and where natural processes take place with little or no human interaction." (57)

"The available data on natural-forest sites demonstrate that the known examples do not fully represent the forest diversity of the Maine landscape. . . . The information, moreover, is not necessarily representative of forest biodiversity since its collection was opportunistic rather than systematic." (57) A rather tactful way of saying most of the large industrial and non-industrial landowners will not cooperate with the Natural Heritage program and similar biological inventory efforts, thereby denying the public access to the "best available scientific information."

"Freshwater aquatic ecosystems . . . have been less well studied in Maine than land-based communities. Particularly neglected have been open-water communities not dominated by vascular plants but based on phytoplankton as the primary producers." (61)

"A recent assessment of water quality in Maine lakes found 203 lakes in Maine to be 'impaired' in their ability to support native aquatic life." (61)

"... [O]ur understanding of the dynamics of [larger river] ecosystems is rudimentary. Free-flowing rivers, in particular, are considered threatened throughout much of northern North America." (61)

"There remain many unknowns about the plankton and invertebrate components and about ecosystem-level interactions in Maine's aquatic ecosystems." (61)

"Temporary changes in land use, such as relatively heavy timber harvesting, can reduce natural ecosystem diver-

sity by changing the ground flora and fauna, removing the older-forest age classes, and producing a more-uniform landscape." (62)

"... [T]he lowland spruce-fir forest cover type may be intact, but do the remains represent the ecosystem-level diversity of that type? Ecosystem diversity relies on the continuation of natural processes, and when remaining fragments of native ecosystems are so small that natural processes are altered, the ecosystem-level diversity of the landscape is lessened." (62)

"In terms of overall biological diversity, different *ages* of forests—including those that are silviculturally 'overmature'—appear to be as important as different *types* of forests. Managed forests can maintain certain aspects of biological diversity (e.g., early- to mid-successional species assemblages); natural forests are needed for other components of biological diversity, such as certain habitat specialists." (63)

Conclusions

The conclusions of BDIM raise troubling questions about the integrity of Maine ecosystems and about the approach of the Maine Forest Biodiversity Project whose goal is merely to maintain "representative" examples of Maine's natural communities, not to attempt to restore biological integrity throughout the state. Here, briefly, are the "top ten" findings of BDIM (page 71):

(1) We know very little about the composition, structure, and function of



Maine ecosystems. The "scarcity of inventory is particularly acute in northern Maine" where the largest landowners have been quite uncooperative. "The absence of consistent baseline data frustrates attempts to measure trends for almost all taxonomic groups; inference is the primary tool for assessing change."

(2) Compared to Hawaii, Florida and California "present information does not indicate an acute biodiversity crisis in Maine, neither does it support complacency." The claim that there is not a crisis in Maine because the rate of species extinctions does not match extinctions in states suffering the highest rates is silly. What we need to know is: how does the current status of biodiversity and biological integrity compare with natural or pre-European settlement conditions. By that measure, there is ample reason for alarm.

(3) Maine has "steep environmental gradients" and "many species at the edge of their range."

(4) "The number of species is only a partial measure of biodiversity because it masks differences in species composition, ignores population sizes, and does not address ecosystem dynamics." This important point implies—quite properly—that the goal of a conservation strategy should transcend efforts to protect "representative" examples.

(5) Early successional-dwelling species are "generally widespread and abundant." However, "species requiring undisturbed (or less disturbed) forest habitats have become less abundant." More evidence of the disparity between "natural" or pre-settlement conditions and the current situation.

(6) Habitat specialists are "most sensitive" to land use changes.

(7) "Eight of the 25 forest community types in Maine are rare; of the types that are not rare, good natural examples are rare." Currently there is inadequate protection of "natural forest diversity." This should ring alarm bells.

(8) "Older forests of all types are becoming uncommon in Maine."

(9) Aquatic ecosystems in Maine have been "profoundly and adversely" degraded by human activity.

(10) "Prudence dictates that we begin to develop biodiversity conservation measures now, given the data at hand." Amen.

settlement conditions in Maine most closely approximate how nature would "operate in its own way, in its own time, with as little effort on our part as possible." (Trombulak interview) Although BDIM does not offer such an argument, a careful reading of it clearly supports the pre-European settlement forest, not the current degraded condition, as baseline.

(4) *How large should individual reserves be and how large should the ecological reserve system be?* Maine Forest Biodiversity Project spokespeople speculate that the system of "representative" reserves will cover between 2-8% of Maine. However, when we apply the principles of conservation biology and "island biogeography" to ecological reserve design, it is clear that reserves must cover substantially more area—perhaps one-third to one-half of a given region—if they are to realize the goal of protecting and restoring biological integrity.

(5) *When must politics yield to science? When must science yield to politics in the design and implementation of an ecological reserve system?* This may be the most contentious question of all. In Maine, thus far, large, corporate landowners have exerted their political clout to dictate that:

- current, not pre-settlement, conditions will be baseline;
- representation, not ecological integrity will be the goal;
- that scientists are not even allowed to conduct inventories of biological diversity on industry lands.

This reflects two problems: the outrageous political power of the large landowners in Maine, and the confusion in our society about science and political reality.

Without the best available scientific information, responsible policy-making is not possible.

II: The Need for Action in Maine is Clear

"... the worldwide current rate of species extinction is estimated to be at least 1000 times the average rate of extinction of the last 65 million years."
—BDIM, page 1

There is a global crisis in biological diversity and ecosystem integrity. Ecologist E. O. Wilson has written in *The Diversity of Life*: "... humanity has initiated the sixth great extinction spasm, rushing to eternity a large fraction of our fellow species in a single generation." "A complete recovery from each of the five [previous] major extinctions," he writes, "required tens of millions of years. . . . These figures should give pause to anyone who believes that what *Homo sapiens* destroys, Nature will redeem. Maybe so, but not within any length of time that has meaning for contemporary humanity."¹ This is the global context within which conservation strategies must be evaluated.

BDIM documents our current knowledge of the status and trends of biodiversity in Maine. Two findings stand out: (a) we know almost nothing about the species and ecosystems native to Maine: "The absence of consistent baseline data frustrates attempts to measure trends for almost all taxonomic groups; inference is the primary tool for assessing change" (page 71); and (b) we know enough to know we must act swiftly and decisively to reverse current trends such as: the alarming percentage

of "species of concern" (species listed as rare, threatened, or endangered), the loss of nearly all old-growth forests, the high number of exotic species, and the high percentage of freshwater bodies that are not fully supporting of their uses.

The original question posed to the authors of BDIM was: "Is there a problem with biodiversity in Maine?" In the Executive Summary, the authors answer: "Present information does not indicate a biodiversity crisis in Maine in terms of outright loss of species. But. . . neither does present information support complacency." In the "Conclusion" to the full report, the authors are blunter: "YES. THERE IS A PROBLEM." (Capitals in report)

I asked one author what was meant by "crisis." The response was: compared to species loss occurring in Hawaii, Florida, and California, there is no crisis in Maine. Such a comparison is irrelevant. A more useful assessment would compare current conditions to pre-European settlement or natural conditions. As we shall see, by this standard, there is a grave crisis in biological integrity in Maine.

But the semantics of "crisis" or "problem" is unhelpful. We know enough to know we must act boldly, decisively, and without political meddling to protect the species, communities and the ecological and evolutionary processes native to Maine.

As a society, we have followed a policy of erring on the side of recklessness. When developing strategies designed to protect and restore our life support system, this is bizarre. Paradoxically, the more we learn about biodiversity, the more aware we become of our breathtaking ignorance. Research will help overcome some of the gaps in our knowledge, but we'll never know or understand everything. One ecologist, F. Egler, has expressed the problem this way: "Ecosystems are not only more complex than we think, but more complex than we can think." This is not a rationalization for inaction, rather it is a call for a conservation strategy that, if it errs, errs on the side of caution. **The less we know, the more protection we must offer.** As Noss writes: "Options for land conservation, once lost, cannot easily be regained."²

BDIM concurs: "The opportunity to avoid an acute biodiversity crisis in Maine is before us. If we do not initiate

biodiversity-maintenance strategies now, we will be faced with a loss in biological diversity that will be more difficult to address in the future." (page ix)

III: Should the Goal Be 'Representation' or 'Biological Integrity'?

"In terms of biodiversity maintenance, the measure of quality for a natural forest is not just large trees, but integrity and continuity of process. . ."

—BDIM, page 57

The Maine Forest Biodiversity Project has established a goal of creating a system of ecological reserves "designed to represent the state's diversity." In May 1995 the Scientific Panel (SP) advised MFBP that this could probably be done with a system composed of 100-150 reserves that average 6,000-12,000 acres each. This would cover somewhere between 2.8 and 8.4% of Maine.³ This calculation was based upon the SP's rather naive political assessment of what might be permitted by reactionary forces in the state, not by comprehensive inventory of the state's biodiversity, nor by applying the principles of conservation biology to the problem.

When biologists speak of "representation" they do not mean large, evolving systems; they mean an example of indeterminate size. It could be as small as a ten-acre example of an old growth forest remnant.

This past winter, I interviewed ecologist Dr. Stephen Trombulak in the *Forum*. I asked him why he preferred to focus conservation efforts on protecting "biological integrity rather than only on representativeness." He answered: "Representativeness of ecosystems is a component of biological integrity. You can't have a high degree of biological integrity unless you've protected all ecosystem types. But, there's a whole lot more to it than that. You could protect representative ecosystems, but do it in such a way—say for example, have them all represented in tiny little two-hectare reserves—that you wouldn't be able to maintain viable populations of the native species that live in those ecosystems. So representativeness alone doesn't guarantee that you'll have biological integrity."

He went on to say: "If. . . you say, 'We want representativeness, but we want to make sure that it can be maintained over the long-term,' you've

immediately kicked your design goals up to the level of integrity."

The same issue of the *Forum* published Trombulak's article "Biological Integrity as a Management Goal in Forested Ecosystems." In it he wrote: ". . . the protection and maintenance of biological integrity is the most logical choice as an overall conservation goal because it is the only goal that simultaneously considers all levels of biological organization (e.g., genes, species, ecosystems), the processes that link components of biological diversity (e.g., nutrient cycling, predation), and a consideration of the natural conditions within an ecosystem (e.g., the presence of native vs. exotic species.)"

According to Trombulak, the steps necessary to protect and restore biological integrity in a region are:

- (1) All ecosystem types and successional stages should be represented across their natural range of variation.
- (2) Viable populations of all native species should be represented in natural patterns of abundance and distribution.
- (3) Ecological and evolutionary processes should be maintained.
- (4) The biological diversity in the region should be able to respond naturally to change.⁴

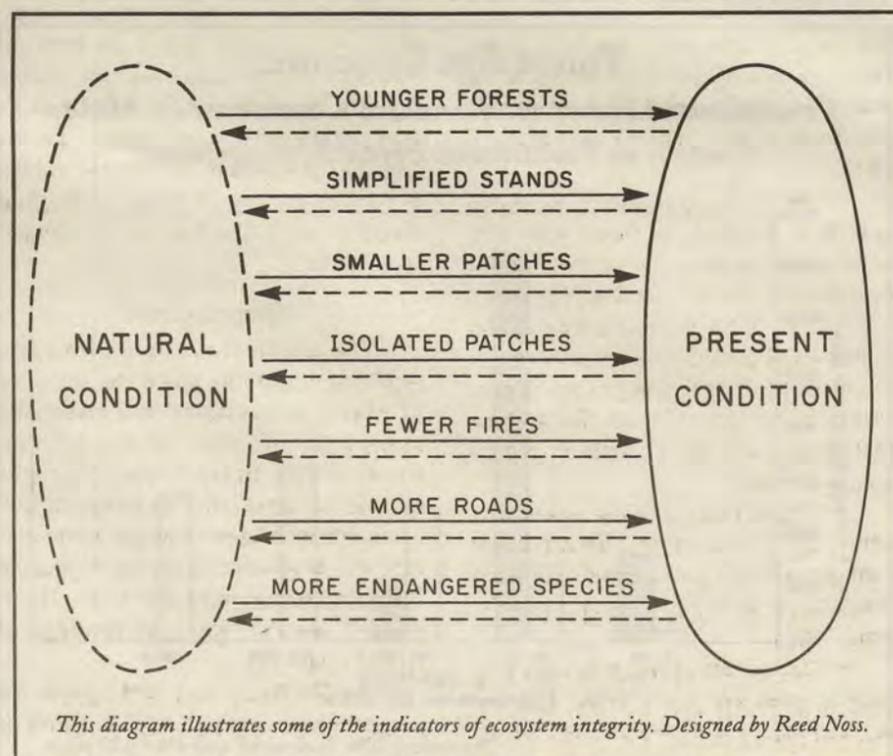
In the *Forum* interview, Trombulak observed: "What we'd like to have is to have nature operate in its own way, in its own time, with as little effort on our part. . . . One lesson that I've learned in studying nature as an ecologist, is that nature has done pretty well for itself over three and a half billion years of the existence of life on earth because it operates on very large scales."

The MFBP goal of protecting "representative" examples of the natural communities in Maine is fraught with problems, not the least of which is that it focuses on the flora, not the fauna. A minimalist approach could settle for protecting small, isolated patches—museum pieces. Island biogeography theory tells us that in time species would be lost from such small isolates. Even reserves that are considerably larger would be vulnerable to large disturbances and natural succession processes. Any strategy that focuses on representation of natural communities must reckon with the dynamic nature of the landscape. What is here today might not have been here 2,000 years ago and might not be here in 200 or 2,000 years hence. Species that are found in association today may not be found in the same associations in the future.⁵

In May 1995 I asked Maine's leading wildlife ecologist if the system recommended to the MFBP by the Scientific Panel would protect the state's ecological integrity. He answered, "No."

The BDIM report, although commissioned to buttress the "representative" approach to reserve design, argues—albeit inadvertently—quite effectively that Maine must establish a reserve system whose goal is the protection and restoration of ecological integrity.

First of all, as noted earlier, BDIM compellingly documents two things: (a) we know very little about the pieces of the puzzle, let alone how those pieces interact; and (b) we know that too many species native to Maine have been extirpated or are at risk, and too many natur-



al communities—even the most common—are severely degraded. Such a region simply can't be healthy. An ambitious conservation strategy is necessary.

On page 55 BDIM notes: "The statement 'twenty-five forest community types are described for Maine is not, in itself, meaningful; what needs to be critically examined is the diversity of process and dynamics and structure and function that these communities represent.' Protecting the processes, dynamics, structure, and function represented in Maine's natural communities requires a goal of ecological integrity, not representativeness.

IV: Natural or Current Conditions?

"Older forests of all types are becoming uncommon in Maine. Older forests support some plant and animal habitat specialists, and presumably support other undocumented specialists. The ecosystem dynamics of old forests differ from those of young forests. Structural complexity, which typically increases as a forest ages, appears to be key for some mammal, invertebrate, and lichen species."

—BDIM "Finding # 8", page 71

A critical issue facing reserve designers is: should the goal be to maintain current levels of biological diversity, or should it be to protect and restore natural conditions? Maintaining current levels means writing off extirpated native species, assuring that old growth and relatively mature stands remain marginalized in scraps and fragments, and accepting the current degraded condition of the Maine landscape. While maintaining current levels of biodiversity may be possible in a reserve system whose goal is to maintain "representativeness," it undermines the goal of protecting and restoring biological integrity.

The character of the pre-European settlement forest of Maine is not well-known; however researchers, using a variety of ecological, paleoecological, and historical records, as well as studies of remaining fragments of old growth stands in northern New England, eastern Canada, and the Great Lakes region, have given us a picture of a natural forest vastly different than the current "industrial" or "working" forest. There was a much higher proportion of late successional tree species such as sugar maple, beech, spruce, and a lower percentage of early successional species such as paper birch, aspen, red maple, balsam fir and white pine than exist today.⁶

Ecologist Craig Lorimer studied the forests of northeastern Maine in the 1970s and concluded that 84% of the pre-European settlement forest was older than 75 years, 59% was older than 150 years and an impressive 27% was older than 300 years. He called the 75-150 year old stands "immature climax forests"; stands 150-300 years as "mature uneven-aged climax forests", and those older than 300 years as "all aged climax forests." (Lansky, *Forum*, Vol. 4#4, Mud Season 1996; Lorimer 1977) Forest researchers Robert Seymour and Ronald Lemin found around 1980 that 93% of the Maine forest was younger than 80 years.⁷

Forest ecologist David Publicover described the pre-settlement forest for the New Hampshire Forest Resource

Plan's Ecological Assessment. Regarding natural disturbance openings in the forest canopy, he wrote: "Runkle (1982) determined that undisturbed eastern hardwood forests throughout the northeast were characterized by small-gap regeneration patterns, with less than one percent of the land area in openings greater than 0.25 acres in size. DeGraaf and Miller (unpublished draft) state that 'the center of the eastern deciduous biome was relatively stable, influenced predominantly by small-scale disturbances such as gaps formed by the fall of individual trees and small fires on dry ridges.'"⁸

Studies of catastrophic natural disturbances suggest major hurricanes and fires are infrequent. Major hurricanes in inland New England have occurred about once a century, affecting different areas in each case. Publicover writes: "Return intervals for catastrophic disturbances in the spruce-fir region of northern Maine have been estimated at 1,150-1,400 years for hurricanes and 215-800 years for fires."⁹

Current "disturbances" from logging are a far cry from this: 2,000 square miles of Maine have been clearcut since 1980. Today average rotation age is under 50 years, and size of clearcuts can legally reach 250 acres.

The release in the spring of 1996 of the "Preliminary Results of the US Forest Service's 1995 Inventory of Maine's Forests" shows not only that current conditions are radically different from natural conditions, but that the gap is widening. (See Mitch Lansky's analysis of the 1995 Inventory on page 10.)

Publicover lists four additional characteristics of the pre-settlement forest: "First, the pre-settlement forests characteristically contained large amounts of standing and down dead wood in all stages of decay. This dead wood (especially the larger sizes) provides important habitat for a wide range of species (DeGraaf et al. 1992) but may be missing from many stands (especially those that have regenerated from agricultural areas or clearcuts). Tyrrell (1994) estimated that it would take 350 years for this component to reach steady state levels in a hemlock-hardwood forest in Wisconsin. Second, the forest floor of pre-settlement stands has a high degree of local topographic diversity (pit-and-mound) due to root pulls, decayed stumps and logs, etc. This topography creates microsites for a

wide range of seedlings and herbaceous plants. Intense land uses (pasturing, plowing, or heavy skidding) have leveled forest floors and eliminated this small-scale diversity from many areas. Third, well-developed and generally undisturbed organic forest floors served as important sites for nutrient cycling and retention and provided critical protection against soil erosion. Fourth, the increased presence of humans throughout the forest (both as residents and visitors) has greatly decreased the remoteness of these forests, affecting those species (especially large carnivores such as cougar and lynx) which do not co-exist well with humans."¹⁰

The dominant practices of industrial forestry—large and frequent clearcuts, reliance on heavy machinery that compacts the soil, extensive use of whole tree harvesters, and plantation forestry that entails use of herbicides—assure that these vital and poorly understood qualities of the natural forest will remain largely lost, and hopes for a "kinder, gentler" forestry in the "matrix" that surrounds the "representative" reserve museum pieces is so much whistling in the wind.

The BDIM report offers many important insights into the value of mature and old forests. Here is a sampling:

- Research has "demonstrated the importance of old-growth ('ancient') forests for lichens. Old-growth forests have at least twice as many lichen species in them per unit area as mature forests of more recent origin, and have a disproportionate number of rare species. The taxa that are largely restricted to old-growth forests in Maine... include dozens of species, entire genera, and even an entire order (Calicales)." (BDIM, p. 20)

- Findings on "the response patterns of invertebrates to disturbances: . . . Species within and among taxonomic groups exhibit varying population responses to the same perturbation. Habitat generalists can exhibit relatively quick recoveries after an initial decline in abundance, whereas habitat specialists (e.g., old-forest specialists) either require longer recovery periods, do not regain pre-disturbance population levels, or remain absent from the changed areas." (BDIM p. 26)

- "Studies of boreal forest-dwelling beetles in Maine and in western Canada showed. . . : habitat specialists (of old

forests) recovered more slowly, or not at all, after harvest."

- A 1994 study "found that of 1487 species of plants, invertebrates, and vertebrates considered rare in Sweden, virtually all were 'dependent on specific elements in the habitat, which were all characteristic of old forests. For invertebrates, in particular, attributes typical of older forests such as dead and dying woody material (vertical and horizontal) were critical habitat components.'" (BDIM p. 27)

- "Recent research indicates that red spruce has the lowest genetic variability of the spruce species found in the eastern United States. . . . However, a comparison of genetic variability in relict 'old-growth' versus widespread second-growth red spruce stands found that old-growth stands had higher genetic variability (measured as percent polymorphic loci and number of rare alleles), reflecting the absence of harvest pressure in their development." (BDIM p. 53)

- "To evaluate the status of genetic diversity in Maine one must consider what genetic diversity exists here; what has been lost; what has been protected; what will be the likely future trends." (BDIM p. 57)

- "To understand the effects of current management on forest diversity requires some reference for forest diversity in the absence of management. Natural forests can provide these reference points." (BDIM p. 63)

- "... fragmentation has been accompanied by a simplification of forest structure, as harvesting and shortening rotations have reduced stands' natural complexity. Complexity is expressed in layered canopies, different tree sizes, standing and downed dead trees, coarse woody debris, etc." (BDIM p. 67)

- "Structural complexity provides habitat for plant and animal specialists—even if these are lichens or arthropods rather than more high-profile vertebrates—that are absent or infrequent in structurally simple, or younger forests. Structural complexity within a forest develops as overlapping generations of trees occupy a site and respond to natural disturbances. Shortened rotations, whether in response to market forces or other factors, eliminate that process and keep the forest structurally simple." (BDIM p. 68) And yet, the Scientific Panel insists that this simplified forest structure in the "matrix" will do such a good job of protecting biodiversity that reserves can be very small and isolated!

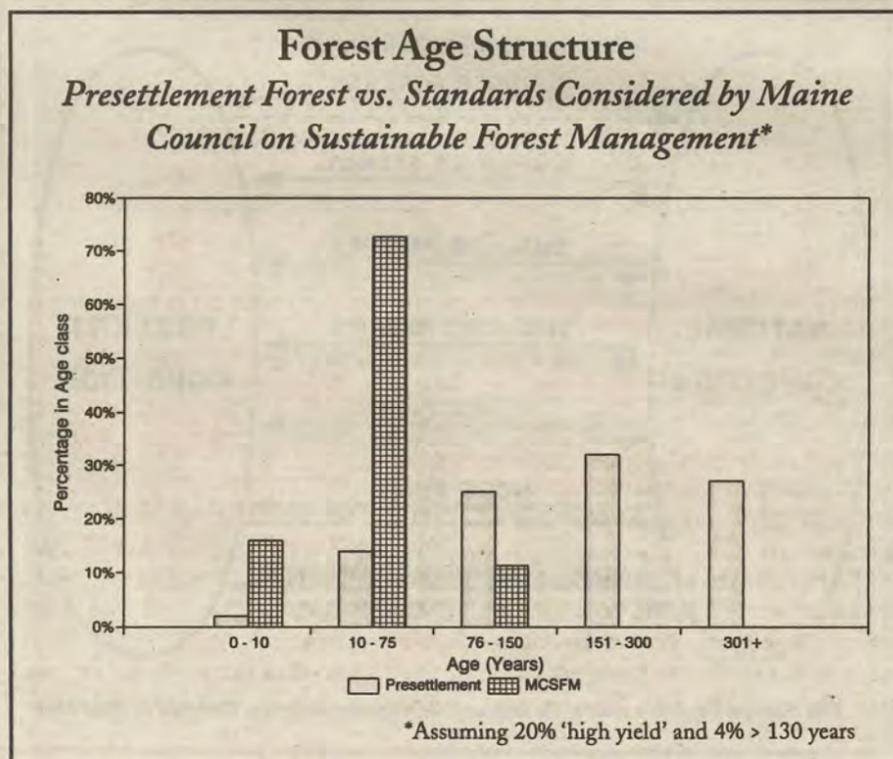
A final point: focus on "natural" ecosystem conditions, using pre-European settlement conditions as a guide offers us hope for a vigorous evolutionary future. Resignation to current degraded conditions and establishment of small, isolated reserves promises only extinction, without the hope of new speciation. The dance of evolution disrupted.

V: How Large Should Reserves Be? or Ecosystem Integrity vs. Ecosystem Decay

"This century will see the end of significant evolution of large plants and terrestrial vertebrates in the tropics."

—Michael Soule¹¹

Michael Soule bases this distress-



ing prediction about evolution in the tropics on two factors: (a) the destruction and fragmentation of wild—or natural—habitat, and (b) the inadequate size of existing reserves, including even the largest parks. In designing a reserve strategy for Maine, for the Northern Appalachians, or for North America, we must focus special attention on two complementary issues: (1) size of reserves, and (2) the nature of human activity outside the reserve system.

A system of sufficiently large, connected, buffered reserves in a matrix of responsibly managed, non-reserve lands may offer hope that Soulé's prediction is pessimistic. A system of small, isolated reserves, even in a matrix of well-managed lands probably vindicates Soulé.

Soulé, a founder of the discipline of conservation biology figures prominently in a wonderful new book about why extinctions occur and what it will take to protect evolutionary integrity—**The Song of the Dodo: Island Biogeography in an Age of Extinctions** by David Quammen. Quammen has performed a great service by making the often complex theories and literature of conservation biology and island biogeography available to the conscientious lay reader. He weaves a spellbinding adventure story of the evolution of evolution theory, the role islands have played in the development of evolution theory, and why we must heed the lessons of island biology when designing ecological reserve systems.

Ecosystems are intricate networks of relationships: predator-prey; flowering plants and their pollinators; fruiting plants and animals that disperse their seeds, for example. If you remove one of the species in this network, all sorts of consequences—intended or not—occur. Remove enough species and ecosystems unravel.

Quammen illustrates this with the example of Barro Colorado, an island formed by the Panama Canal out of the tropical forest. Once isolated from the surrounding forest, it was too small to support large predators, even though they had been present before flooding created the island. When predators disappear, prey populations explode and overeat the island's vegetation. Populations of birds and insects dependent of that vegetation decline and lose their viability on the island. As more and more species disappear, the ecosystem decays because extinctions are not counterbalanced by immigrations of new species to the island. By 1970, 45 species of birds had disappeared from Barro Colorado.

A similar dynamic is at work when well-intentioned people establish small ecological reserves in a matrix of intensively managed land. Rare species suffer extinction and overall species diversity falls. As reserves grow older, they grow more isolated in a matrix of managed earlier-succession land.

The findings of island biogeography inspired ecologist Jared Diamond to propose several principles of conservation biology:

- A reserve newly isolated will temporarily hold more species than its equilibrium number—but that surplus of species will eventually disappear, as relaxation to equilibrium occurs.
- The rate at which relaxation occurs will be faster for small reserves than for large ones.



Much of the 10-million acre "Industrial Forest" of northern Maine looks like this. According to the Maine Forest Biodiversity Project, this is the "matrix," that is supposed to sustain biodiversity and biological integrity in conjunction with a system of tiny, isolated ecological reserves. Photo © John McKeith.

- Different species require different minimum areas to support an enduring population.

Diamond then offered a set of "design principles" for a system of ecological reserves:

- A large reserve can hold more species at equilibrium than a small reserve.
- A reserve located close to other reserves can hold more species than a remote reserve.
- A group of reserves that are tenuously connected to—or at least clustered near—each other will support more species than a group of reserves that are disjunct or arrayed in a line.
- A round reserve will hold more species than an elongated one.¹²

In Maine, in the northern Appalachians, in North America, and throughout the world, we need many large, connected reserves in a matrix of land that is managed in an ecologically sustainable manner.

There are several important reasons why a system of large, connected reserves are necessary to assure long-term ecological and evolutionary integrity:

Evolution: The evolution of mammals, E. O. Wilson writes, requires continents: "... the contemporary mammals of the world are primarily the products of three great adaptive radiations, and three only. The reason is that it takes an entire continent to spawn a mammalian radiation."¹³ Insects can evolve on an island, but Wilson doubts mammals could have ever evolved on islands. This is not a welcome message in an age of habitat fragmentation and extinction.

Large Natural Disturbances: Landscape-scale natural disturbances such as catastrophic wind storms, fires, and insect and disease outbreaks can devastate small reserves. Noss recom-

mends that "a core reserve should be large enough that only a small part of it is disturbed at any one time."¹⁴ This not only protects a reserve against catastrophic damage, it also protects the integrity of the natural disturbance processes across the landscape. On July 15, 1995 a dramatic wind storm clobbered 1,500 square miles—almost one million acres—in the Adirondacks and northern New York state.

Climate and Environment Change: There is growing scientific consensus that dramatic global climate change brought on by the activities of industrial civilization is occurring. This so-called "global warming" will affect different regions in different ways. If Maine and the northern Appalachians face significant warming patterns in the coming decades, temperature-sensitive vegetation will need to migrate north (or uphill). In 1988 Dr. Malcolm Hunter proposed the establishment of north-south migration corridors to mitigate the crisis faced by slow-migrating tree and plant species. Hunter suggested using the Appalachian Trail as one corridor.¹⁵ Another, complimentary strategy is to establish reserves as large as possible so that species have some opportunities to migrate within reserves, and are not forced to cross an intensively managed matrix that presents a hostile environment.

Protect Entire Watersheds: A reserve that protects an entire watershed will be more likely to protect ecological integrity than small reserves that protect only fragments of that watershed. The entire St. John River watershed in northern Maine (and a portion of southern Quebec) is an example of a watershed that should be protected in one large reserve.

Wide-Ranging Species and Extirpates: Restoration of viable popu-

lations of native species that have been extirpated or are very rare—wolves, wolverines, cougars, lynx and caribou—requires millions of acres of wildlands in a wilderness reserve system. Noss writes: "... viable populations of large carnivores and migratory ungulates cannot usually be planned for in individual reserves, but rather only in networks of reserves within and among regions."¹⁶

Current Condition of the Managed 'Matrix': Even where the managed lands outside core reserves are managed sustainably and compatibly with the goals of the reserve system, reserves must be large for the reasons outlined above. Where management of the "matrix" lands is incompatible with reserve goals, then reserves must be substantially larger and well-buffered from destructive human activities such as: large clearcuts that are converted to monoculture plantations and then sprayed with herbicides; most development and road building; and agribusiness and farming that is dependent on pesticides and petrochemical fertilizers.

Current forest practices and development policies in Maine and the northern Appalachians are inadequately regulated and are generally incompatible with the goals of a reserve system designed to protect long-term ecosystem integrity. The proposal of the Maine Forest Sustainability Council in early June that encouraging millions of acres of monoculture plantation forestry constitutes a central element of "sustainable" forestry reinforces the need for extremely large reserves to protect against such destructive industrial forestry.

Naturalness: When we speak of protecting the ecological integrity of a state's or region's native biodiversity, we are talking about preserving the wildness or naturalness of that landscape. The landscape can manage itself. "Only the largest, wildest reserves," writes Noss, "can be essentially self-managing."¹⁷

VI: Politics & Science - A Matter of Public Trust

"In order to achieve implementation, you really have to include the public in the design phase, and that can best be done if the public has access to data."

—Interview with Stephen Trombulak

We need the best available scientific data if we are to design reserves that achieve our goals. If the public is only provided some of the necessary data, or if the scientists are not allowed to examine critical issues—such as large reserves and the protection of ecological integrity—then policy decisions are made without the best available scientific information.

Science must play a central, but not absolute, role. As Trombulak says, implementation of a sound science-based reserve design requires public involvement and public support. Once we have a science-based strategy, we must then engage in a political dialogue about design and implementation.

Unfortunately, the large corporate landowners of Maine have refused to permit proper Natural Heritage inventories of their lands, thereby denying scientists and the public access to the "best available scientific information."

When political pressure is exerted on the scientific process, we get muddled science that results in muddled pol-

icy. This has happened in the Maine Forest Biodiversity Project. Although the MFBP claims its reserve strategy is based upon the "best available science," the agents of the large corporate landowners have vetoed fair and honest discussion of ecosystem integrity and the need for large reserves. They threaten to quit the MFBP if certain subjects are discussed. Free and open discussion of all relevant ideas and values is the hallmark of a healthy democracy. Not in Maine.

Many well-meaning members of Maine's conservation and scientific communities are willing to acquiesce to this corruption of democracy and science in the desperate, misguided belief that if we make such concessions to appease the unappeasable agents of the large landowners, maybe they'll permit us to take a few small steps to protect some fragments of land that are "representative" of Maine's natural diversity.

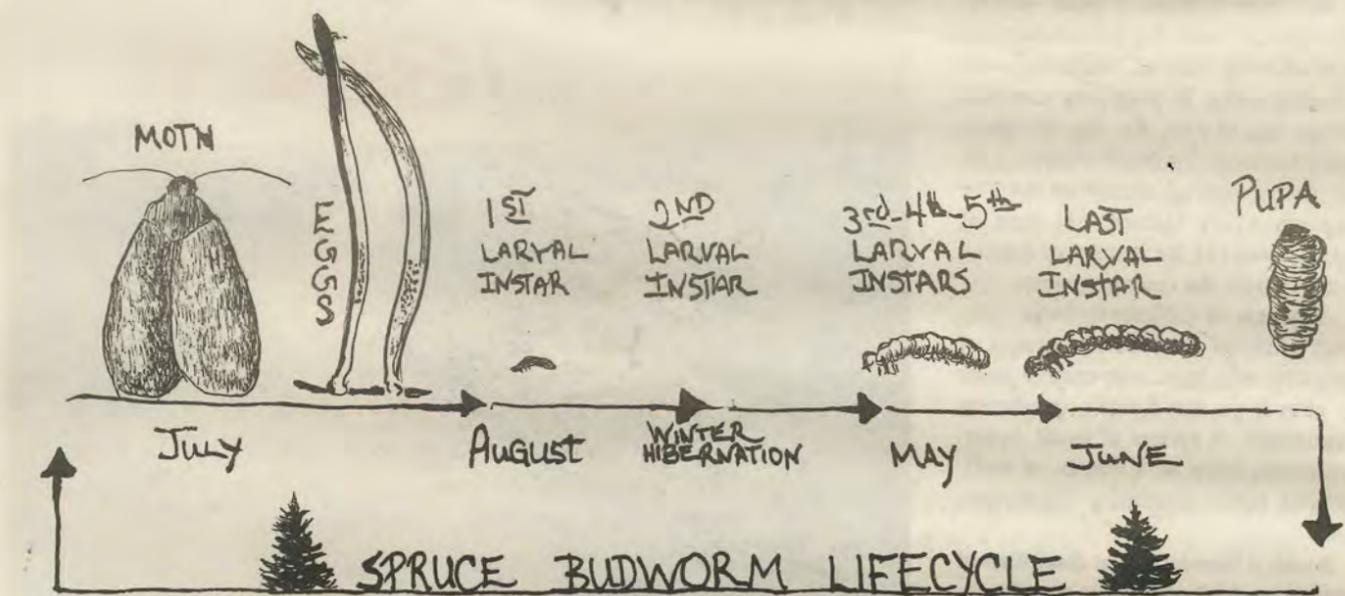
This strategy is fraught with perils: (1) it dooms efforts to protect ecological and evolutionary integrity, while (2) failing to assure that the protected scraps will persist over the long-term. Additionally, (3) it squanders valuable political capital in the fight for an inadequate and inappropriate solution so that (4) there probably will not be the political will to address the root problems any time soon. Further, (5) this strategy is politically naive because it assumes that the nasty political climate in Maine today is set in stone; it fails to account for the fact that political values and power are—like ecosystems—evolving before our eyes and that today's hostile climate can become tomorrow's favorable climate if we stand by our principles instead of allowing others to dictate the terms of debate.

Throwing in the towel on these issues makes it more likely that positive change will be long delayed. What is especially frustrating to those of us who are working to change the current dominant destructive values is that some of these self-professed conservation "realists" are not content with surrendering their own hope, they are actively working to dash ours. Witness Maine Audubon Society's two-year campaign against the proposed Maine Woods National Park and wolf restoration.

The corruption of honest science by timber industry intimidation is well-illustrated by the faith the Scientific Panel on the MFBP places in the ability of "sustainably managed land" to protect the region's biodiversity over time. The Scientific Panel does acknowledge that "the scale of the proposed reserve system hinges on what is probably the least certain [scientific] assumption: . . . that a forested matrix will continue to serve to connect rather than isolate protected areas."

Despite this admission that this assumption is "least certain," the Scientific Panel asserts with astonishing confidence that a bunch of small (6,000-12,000 acres on average), isolated reserves will maintain Maine's biodiversity.

A few days after the Scientific Panel defended this assumption as "science," I flew from Greenville to Fifth St. John Pond. From the northwest corner of Moosehead Lake to the St. John was about a 25 mile swath of clearcuts, with a few plantations mixed in, stretching from horizon to horizon that had been done in the last two decades by



Great Northern (now Bowater) and S.D. Warren (formerly Scott Paper, now SAPPI of South Africa). Maybe birds can navigate from one reserve to another through such a devastated "matrix", but how are salamanders, lichens, and soil microbes to escape that barren landscape?

Because of pressure from the corporate landowners, the Scientific Panel has leapt to the utterly unwarranted conclusion that Maine's actual matrix of industrial clearcuts is so healthy that it will allow us to design minimal-sized, isolated reserves. This is not science. This isn't even responsible gambling. If the MFBP were honest enough to admit that its so-called "science" is really politically-dictated "science", I could respect it for its candor, if not its courage. But to mislead the public that sham-science assumptions are real science and that micro-reserves will protect much of anything for very long is irresponsible.

Corrupting science has a devastating impact on ecosystems and democracy. It assures that the scientific issues will not be adequately addressed, and that the problems will worsen. And, it undermines the democratic process that works only when driven by a well-informed, vigilant citizenry.

The irony of this sad exercise is that by allowing politics to corrupt the scientific process, the MFBP renders itself irrelevant in the quest to address a genuine biological crisis/problem. Since the MFBP has abdicated its responsibility to address the core problems, it assures that the problems will get worse and will return to haunt us with a vengeance. This is a familiar pattern in Maine where industry has sabotaged every moderate effort to develop sustainable forest management practices. This is why we have the "Ban Clearcutting in Maine" Referendum.

Those of us who care about protecting ecological and evolutionary integrity in Maine have given up on the MFBP process. We are putting our energy into efforts that have scientific and political integrity. We want to solve the problem, not paper it over. E.O. Wilson writes: "For the time being, conservation biologists will agree on the cardinal rule: to save the most biodiversity, make the reserves as large as possible."¹⁸

It's a shame that the MFBP and its Scientific Panel have failed to heed two of the scientists' most prescient assump-

tions:

- "Designing reserves to take into account the long-term viability of constituent ecosystems will be less expensive (in the long run) than the cost of intervention on reserves of inadequate size."
- "The opportunities for land protection (quality of sites and economics) are unlikely to increase from generation to generation."

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Conte Reserve

Continued from page 18

property rights cronies did testify in favor of the resolution, either oblivious to the resolution's violation of property rights, or content to violate the rights of citizens with whom he disagrees.

Conte Supporters Testify

Testimony against the resolution focused on the violation of property rights in limiting sales to 500 acres; on the overwhelming public support for the Conte in all four states in public and written testimony; and the inappropriateness of the NH Legislature in trying to override federal legislation with such broad public support.

Tammara Van Ryn of the Society for the protection of New Hampshire Forests dropped a bombshell in her testimony. She said she had been under the impression that this resolution was non-binding, however, the House Clerk's office had informed her that a "House Joint Resolution" (HJR) is sent to the Governor for signature and has the force of law. Thus, she

stated, passage of this resolution would "bind" the State of New Hampshire. Everyone in the hearing was stunned; it is not even clear if King and Pratt understood that their resolution would be binding.

Resolution Guttled

A week later, the Senate Environment Committee met in executive session to amend HJR 22. The committee deleted the section requiring approval of a town meeting or selectmen before citizens of the town could participate in the Conte. It deleted the 500-acre limit. And now the resolution is in no way legally binding. As a face-saving measure for the proponents, it permitted language that urges Congress to restrict acquisition of private property with federal funds to the amount of acreage already specified in the plan's preferred "Alternative D" for the first few years after establishment of the Conte.

Senator King claimed he was satisfied with the compromise, but one has to wonder why he went to such lengths and then settled for so little.

Maine Woods National Park - A Seductive Idea

by Kathleen Fitzgerald

Approximately 200 people gathered on April 27 in Greenville, Maine on the southern shore of Moosehead Lake to discuss the future of Maine's North Woods and the potential economic impacts of a Maine Woods National Park, proposed by RESTORE: The North Woods. The event was sponsored by the Representatives of the Greenville Economic Development Committee.

The forum included presentations from representatives of paper companies, the Northern Forest Alliance, Sportsman's Alliance of Maine (SAM), Governor King and RESTORE, as well as questions and statements from the audience. The mood of the day was set by Deputy Commissioner Shippen Bright of the Department of Conservation, who said, "RESTORE's proposal to create a 3.2 million acre park is, as my friend Sandy Neily has said, an unfortunately seductive plan." There was an echo in the room as John McNulty of Seven Islands Corporation said, "The Park is a romantic and seductive idea." According to Bright, Governor King shares the anti-park sentiment. King said recently, "If the people of Maine want to turn Maine into a large national park, I am not your governor." George Smith of SAM said the Park is a "lousy idea."

Throughout the day, a few themes emerged, explaining opposition to the Park.

Economy-Employment

According to Bright, the King administration believes Maine's economy would show a net loss because of an economic shift—a shift that is too extreme.

He cited a Northeastern Forest Alliance, not to be confused with the Northern Forest Alliance (hereafter NFA), report which shows that Maine's forest-based recreation employment (24,600 jobs) does not exceed employment in forest-based manufacturing (25,740 jobs). The same report, however, shows that in Maine forest tourism provides more jobs per acre than forest manufacturing provides. Contradictory statistics was a theme of the day.

Sandy Neily of Maine Audubon Society, representing the NFA, said that retail and service sector jobs have the highest growth potential.

Jym St. Pierre, RESTORE's Maine Director, and Michael Kellett, Executive Director of RESTORE, reported on their economic findings:

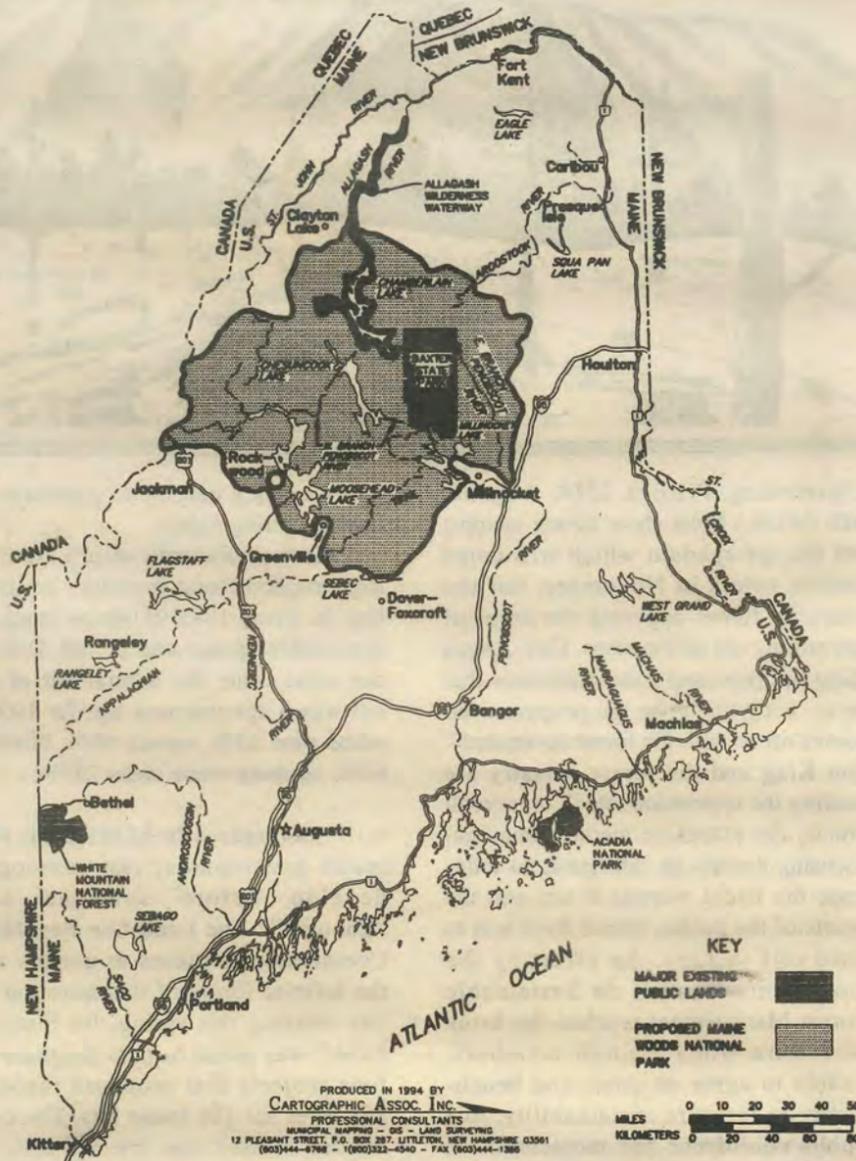
(1) The forest products industry is declining and the economy needs to be diversified to ensure a healthy economy for the future.

(2) The restoration and protection of a healthy forest can be the foundation of a healthy economy.

(3) A national park could help to sustain a strong, diversified economy in the Moosehead region.

(4) Over-reliance on the forest products industry has weakened the economy and is damaging the resource base.

(5) The Maine Woods National Park would protect the state's distinctive wildlands values which would help revitalize and sustain a healthy economic base, in particular supporting the growing service sector of the



Proposed Maine Woods National Park

Moosehead region.

According to St. Pierre, the average household income in the Moosehead region is \$26,000, compared to \$33,000 statewide—due to lack of a diverse economy. The average household in Piscataquis County earns \$29,958 while the average household income in communities near national parks is \$38,810.

Forest industry jobs have been declining despite the increase in logging because of mechanization and the shift of forestry jobs to other regions. Between 1960 and 1994 total employment in Maine's lumber and paper industries increased by only 27%, while total timber cutting increased by 67%. From 1984-1994, the Greenville region lost 450 jobs. There has been a 53% decline in logging jobs in the area of the proposed park over the last ten years.

The timber industry in Maine today supports half as many jobs cutting a given volume of wood as it did in 1960, even though Maine mills are not fully modernized and cannot compete in the global economy. If they are modernized, still fewer employees will be needed. It's a Catch-22.

The major source of jobs and economic growth in the Moosehead region is the service sector. From 1984-1994 the region saw a net increase of 890 service jobs; this increase offset the loss of forestry related jobs. The number of service jobs created in Maine between 1986 and 1994 was 16 times greater than the number of lumber and paper mill jobs lost. Service sector jobs include tourism, social services, health care, education, and businesses, not just flipping burgers. The MWNP could support 5,000-20,000 tourist-related jobs.

RESTORE looked at other rural communities located near parks and found that they generally had higher incomes, lower unemployment, less poverty, a more educated population, and more professional employees than the timber industry communities in Maine.

St. Pierre also addressed the tax question. Federal law requires the National Park Service (NPS) to make annual payments-in-lieu-of-taxes on national park lands plus "supplemental" payments for at least five years following acquisition of new park lands. If the Park were acquired while property taxes are still at 1996 levels, the federal government would make a \$4.7 million annual payment-in-lieu-of-taxes. This payment would be about \$19,000 more than the property taxes owed on that land in 1995. Over the next five years, the NPS would have to pay a total of \$23.5 million as payments-in-lieu-of-taxes plus supplemental payments totaling at least another \$423.4 million.

Jim Pinkerton of SD Warren said RESTORE's proposed park encompasses about 150,000 acres—approximately 16.5% of his company's land in Maine. He suggested that SD Warren's land office in Greenville would have to close.

Dan Corcoran proudly stated that Bowater/Great Northern Paper's payroll in 1995 in Millinocket, for 1707 employees, is \$105 million. What Corcoran did not mention was that Bowater's CEO, living in South Carolina, made \$1,064,667 in 1995, not including stock options.

Corcoran hinted that a federal park would be too expensive. He said Baxter State Park's operating budget was \$2-\$3

million for a management cost of \$10-\$15 an acre. In 1995 GNP's recreation budget for the West Branch Region was \$500,000, for a cost of \$0.62 per acre. He did not acknowledge that most taxpayers would rather pay more to recreate in pristine forests than in clearcuts inundated with herbicides.

McNulty of Seven Islands Corporation admitted there has been a 40% loss in woods jobs in recent years, adding, "This is a relatively small number if you look at the number of employees associated with the forest products industry in the state. . . Job losses are occurring everywhere—look at AT&T." If McNulty were an environmentalist speaking this nonchalantly about the loss of 40% of the woods jobs in order to protect the health of the forests, he would have been lynched on the spot.

Economic transitions are occurring already. It is our challenge to make these transitions positive. Economic difficulties are increasing without an increase in preserved lands; blame cannot be placed on protected areas. Maine's economy is over-reliant on an industry that is downsizing for various reasons. According to McNulty, "a higher percentage of the Maine population is dependent on forest-related jobs than any other state in the nation." This is something to be wary of, rather than proud. It is not the foundation of a healthy economy.

We must also remember that our economic analyses are incomplete. We are not including the cost to species and Earth. Every economic study and analysis should be required to include an environmental impact study and the cost of damage to the environment. By including the cost to Earth we would quickly see that actions we have declared economically beneficial are not.

Control

There seems to be a great deal of confusion about who controls the Maine Woods. According to Conservation Commissioner Bright, the state controls the land and "relinquishing control of 16% of Maine's landbase to the federal government would be an unacceptable transfer of state control." George Smith believes that the people of Maine own the land: "By giving the federal government control of our Maine woods, Mainers would lose control." Dan Corcoran of Great Northern Paper agrees: "These lands today are Mainers'—managed by Maine people."

In fact, less than six percent of Maine within the Northern Forest region is owned by the public, and only one percent of the land in Maine is protected as Wilderness. Industrial and large non-industrial landowners control 10.8 million acres, while smaller landowners own 3.4 million acres. In contrast, less than 800,000 acres is owned by the public, and much of that is heavily logged by the Maine Bureau of Public Lands. Maine has the largest concentration of industrial ownership and the highest proportion of foreign land ownership of any state.

Jim Pinkerton of SD Warren attempted to refute the common accusa-

Continued on page 29

Maine Woods Watch

by Jym St. Pierre



The Maine Woods is the greatest remaining wildland east of the Rockies. However, today this region is under siege. Maine Woods Watch is devoted to documenting the good, the bad, and the ugly affecting the Maine Woods, with an emphasis on opportunities for citizen action to protect and restore the essence of the region, its wildness.

***Restoration:** That is not only the name of a recent popular movie and music sound track. It is also the theme for some encouraging ecological and economic activity. On April 27, the Greenville Economic Development Committee hosted a day long forum on the economic future of the Moosehead region. RESTORE presented a paper which documented that not only would the proposed Maine Woods National Park be a great environmental improvement over the existing industrial forest, it could also lead the economic restoration of the region. (Contact RESTORE, 7 N. Chestnut Street, Augusta, ME 04330.) Other panelists included the Northern Forest Alliance, major landowners (Bowater/Great Northern, Sappi, Seven Islands), the King Administration, and the Sportsman's Alliance of Maine.

If you are near Acadia National Park this summer, visit the Maine Woods Visitor Center upstairs in the Bowl & Board store on Maine Street in Bar Harbor. Sponsored by RESTORE the center has wildlife exhibits, photo, map and art displays and information about the proposed Maine Woods National Park. A special exhibit on restoration efforts for Atlantic salmon in the Penobscot watershed will be featured at least through mid-July. Tragically, salmon restoration in the Penobscot remains gravely imperiled by the proposed Basin Mills Dam. In fact, the watchdog group American Rivers has named the Penobscot among the 10 most threatened rivers in the nation for the seventh straight year.

Examples abound of how we need to work with, not against, nature. The latest case in point is the flooding of the Grand Canyon. Water released from Glen Canyon Dam in a way that mimics nature's pre-dam spring torrent, is helping the restore beaches and wildlife that have vanished because of 33 years of flow micromanagement. Interior Department officials pronounced the experiment a grand success.

***As Goes Maine?:** The eyes of the nation are turning to watch the ongoing battle of words here over the citizens' initiative to ban clearcutting and set tough new forestry standards in Maine's unorganized areas. (Contact Ban

Clearcutting, PO Box 2218, Augusta, ME 04338.) Polls show strong support for the referendum which will come before voters in November, but the powerful forces opposing the proposal are pulling out all the stops. Gov. Angus King has promised conservationists that he is "not going to be the governor who leaves office with the forest decimated." But King and the forest industry are leading the opposition attack on several fronts. An extensive media campaign, focusing heavily on television, to influence the fiscal worries if not win the hearts of the public, turned from soft to hard sell in June. An effort by the Governor's Council on Sustainable Forest Management reached the brink of failure when council members, unable to agree on goals and benchmarks to measure sustainability, lost public confidence and momentum. A stakeholders group of landowners and mainstream conservationists has been struggling to negotiate a "moderate" but "stronger" alternative to the forestry referendum.

The Sportsman's Alliance of Maine, Small Woodland Owners Association of Maine, the Maine Sporting Camp Owners Association, and the new Professional Logging Contractors of Maine have joined the opposition. The Pulp & Paperworkers' Resource Council teamed with "wise users" to get the Maine Republican Party to go on record against the referendum. Labor failed to get the Maine Democratic Party to take a stand against the referendum, but the Democratic legislative leadership has not been bashful about trashing it. Even groups from New Hampshire, including the Timberland Association and Forest Society, have started jumping into the fray to slam the referendum. Money talks and big money talks big. Six months before the vote referendum opponents have already raised over \$1.6 million (more than 25 times as much as supporters), nearly all of it from the multinational paper corporations. At least they are finally reinvesting in Maine.

Meanwhile, in case anyone was wondering what can happen without adequate forestry rules in place, an impending cut on 1,600 acres in abutting Acadia National Park turned into a temporary political fiasco. Managers of the property would not reveal the mystery absentee owners and at first refused to even share harvesting plans with park officials. Following a week of front page stories, private, national and state conservation officials, desperate not to give the forest referendum proponents a "poster harvest" to flaunt, announced they have convinced the landowner to

delay so they can try to purchase the land or cutting rights.

More preliminary results from the long awaited forest inventory are trickling in. From 1982-95 Maine stocks of marketable spruce and fir fell 31%. At the same time, the annual cut of key softwood species was up: fir 10.4%, white pine 33%, spruce 56%, hemlock 67%, northern white cedar 257%.

***Adventures in LURCland:** How much development can developers develop before someone says "Enough!?" The Land Use Regulation Commission continues to grapple with the infinite forms of that question. At one meeting this spring, for instance, LURC was asked to pass judgment on four projects that proposed rezoning 868 acres for 186 house lots. The commission blessed one, rejected one, and put off deciding on the other two. More recently, a new cluster subdivision proposal was submitted to LURC for 41 lots on a pair of gem ponds northwest of Baxter State Park. In Western Maine the Passamaquoddy Tribe is considering starting a high-stakes bingo operation in Albany Township. LURC rejected a pitch in late March by the Sportsman's Alliance of Maine to ban personal watercraft, better known as jet skis.

As the state and national economies pick up momentum, concerns about sprawl and other too-many-people problems are creeping into conversations for the first time since the last great land rush in the Northern Forest in the late 1980s. The LURC board is still divided over proposed policy changes to its comprehensive plan for Maine's wildlands. (Contact LURC, 22 State House Station, Augusta, ME 04333.)

***Out with the Bad:** Dioxin has caused cancer in every laboratory animal ever tested. It is also linked to reproductive disorders and suppression of the immune system. Because dioxin is discharged by paper mills into public waters across Maine hundreds of miles of rivers and thousands of miles of coastal waters have health advisories warning about eating fish. Finally, at the urging of Gov. Angus King, the paper industry is going to clean up the problem. Maybe. Sometime. Most mills have already cut their dioxin dumping dramatically. Now six paper companies (Boise Cascade, Georgia-Pacific, International Paper, James River, Lincoln Pulp & Paper and S.D. Warren) have agreed to "virtually" end the dumping of dioxin into state waters. Environmentalists praise the commitment but are worried that it lacks a firm timeline and action plan.

More good and bad toxics news:

For the first time the Maine Legislature has fully funded a water monitoring program designed to identify rivers in danger of toxic pollution. The half million dollar project will test five watersheds. Fish from ponds and streams around the former Loring Air Force Base in Aroostook County are contaminated with PCBs. It will cost \$150 million to clean up the old bomber base, about 4,000 acres of which are being turned into a national wildlife refuge.

***Squeezably Soft:** In heady boom times last year a number of pulp and paper mills announced planned expansions. Now profits and plans have softened. 1995 profits were: Boise Cascade \$352 million, Bowater \$247 million, Champion \$772 million, Georgia-Pacific \$1,018 million, International Paper \$1,153 million, Kimberly-Clark \$33 million, James River \$126 million. Among the major companies that operate in Maine, one of the rare losers last year was Louisiana-Pacific which had a loss of \$52 million. First quarter 1996 results for Bowater rose 68%, but for most paper corporations profits were down compared to a year earlier. For instance, Boise Cascade posted a 66% decline, Georgia-Pacific a 79% drop, International Paper a 53% fall. In the face of a weak market, James River shut down its Maine chip and pulping operations for several weeks, Fraser idled its entire mill for nine days, Otis Specialty Paper reduced work shifts, Boise rotated down time on its paper machines, G-P targeted elimination of 20 jobs at Woodland, and Madison took its half billion dollar expansion off the fast track.

Some companies are still charging ahead. Champion is beginning construction of a \$1 million paper testing lab in Bucksport, investment at Chinot in Waterville tops \$5 million a year, Tree-Free has restarted the former Statler Tissue mill in Augusta, and Bowater is using some of its record profits to fund a study of a new pulp mill in the Millinocket area. International Paper's bottom line will not be dented much by \$117,000 in fines the company is paying to resolve alleged violations of air, water and hazardous waste laws at its mill in Jay. In fact, IP just got the 1996 Governor's Award for Excellence in Pollution Prevention. The company has also been named as one of eight facilities in New England that the Environmental Protection Agency will allow to police their own plant. Under the program IP will be able to forgo routine EPA inspections, will have simplified reporting and expedited permitting, and will have amnesty from many pollution penalties in case of infraction.

***Play it again, SAM:** The power struggle within the Sportsman's Alliance of Maine (SAM) continues. Members approved downsizing the group's board from 20 to 13 directors at a contentious meeting in March. Many members feared returning to a smaller board would risk having a quorum of only seven people control the hook and bullet organization. Meanwhile a law suit by 11 directors who resigned last fall aimed at ousting executive director George Smith is still pending.

Efforts to reestablish self-sustaining populations of turkeys has been successful in the wilds of southern Maine as well. With upwards of 4,000 birds in the state, the hunting region for the May season was expanded north this year to Bangor. Over-hunting and destruction of their forest habitat decimated turkey numbers in Maine decades ago. As with bald eagles, peregrine falcons, puffins and other species, recovery of wild turkeys during the past 20 years demonstrates that restoration of wildlife is indeed possible here. Next up, wolves?

Bowater/Great Northern Paper has inked a deal with state natural resource agencies intended to benefit deer in the Moosehead region. The company will maintain cover for food and shelter in

50% of the forest in areas totaling 26,000 acres. In return, the state agencies agree to not zone any additional deer wintering areas for 15 years within 511,000 acres of Great Northern's ownership in the West Branch Penobscot region. The pact is supposed to provide more winter habitat for deer than the 14,400 acres of zoned deer yards currently in the region.

In April, under pressure from the Clinton Administration, Congress finally agreed to end a moratorium on listing any new species under the Endangered Species Act. That means the US Fish & Wildlife and National Marine Fisheries Services can restart their review of the need to list the Atlantic salmon. Last year the agencies proposed to list the salmon as "threatened" in seven eastern Maine rivers, and to study possible listing in four others. In Maine, the King Administration and the state's congressional delegation opposed lifting the listing moratorium. Any decisions on listing the salmon are months away, but it would not hurt to contact the Governor (Gov. Angus King, 1 State House Station, Augusta, ME 04333) and members of Congress (William Cohen and Olympia Snowe, US Senate, Washington, DC 20510; John Baldacci

and James Longley, US House, Washington, DC 20515).

***Politics and Other Mistakes:** In his column of that name in the *Casco Bay Weekly* Al Diamon recently quoted a statement made by Gov. Angus King while touring the Boise Cascade paper mill in Rumford: "RESTORE and the Green Party are part of the campaign to shut down the Maine woods. It's the recolonization of Maine from Boston, and I'm getting a little sick of it, quite frankly." Diamon pointed out that Boise Cascade is headquartered in Idaho and Angus King is a Virginia native.

The Sportsman's Alliance and Pulp & Paperworkers' Resource Council have handed King petitions opposing an evaluation of the proposal to create a new Maine Woods National Park. Apparently the groups do not believe a full study of the benefits and costs of the park idea should be undertaken to give the public full information and a chance to make up their own mind. Rather undemocratic. A recent survey showed that two-thirds of Americans believe establishing new national parks should be a priority.

This spring author Carolyn Chute (*The Beans of Egypt, Maine*) and her

Second Maine Militia (aka Your Wicked Good Militia) took the State House by storm. They distributed a manifesto calling for banning corporations from making political donations and lobbying elected officials. One militia member shouted "People in Somerset County are starving while S.D. Warren is raping the forests with the protection of this Legislature!" The pro-working class, anti-corporate blitz seemed to have little impact on legislators except to annoy them. Chute might have more influence over political reform by reaching people through her razor sharp pen than by tongue-lashing lawmakers, many of whom are already dependent on corporate campaign funding.

A number of the candidates running for major office are continuing to haul in lost of paper money. Susan Collins, for example, who won the Republican US Senate primary in June, has received contributions into five figures from pulp and paper corporations such as International Paper, Georgia-Pacific, and Champion International.

Jym St. Pierre, RESTORE: The North Woods, 7 North Chestnut Street, Augusta, ME 04330.

Seductive Idea

Continued from page 27

tion that decisions about Maine are made from afar. (Did you ever notice that when an out of Maine environmentalist makes a suggestion, he/she is run out of Maine, but when an out of state CEO of a paper company decides to cut jobs or to clearcut a favorite hunting spot, he is thanked?) Pinkerton said his only contact with South Africa, headquarters of SAPPI, owner of SD Warren, is when a South African wants to visit America. Notwithstanding Pinkerton's claims, whether a decision is made in South Africa or in the office in Greenville, it is made by the paper company officials—not the citizens of Maine. Corporate executives make decisions in the interest of profit for the paper company. *They* make the decision to sell, subdivide, liquidate, cut and run. . . not the people of Maine.

An overwhelming fear and paranoia of federal control hovered over Greenville High School. Corcoran said, "RESTORE is simply the latest attempt at federal inroads. We have a long tradition of saying thank you, but we'll do it ourself."

The fear of the feds is about relinquishing control. Ironically, a federal Park would give Mainers greater control over the North Woods. Kellett stressed that national parks are owned by the public and some national parks have advisory committees involved with the planning and management of the park.

The state does not have the resources or will to assure ecological preservation in the Maine Woods. Bright said that there are a number of Maine-grown initiatives that will address the coexistence of recreation and the forest products industry. He listed bureaus, funds, commissions, agencies and alliances working on reports and studies. As one area wag has noted, "If we had a dollar for every meeting held or every study done, we could have bought a nice chunk of Maine by now."

Recreation

Smith exclaimed, "Hunters are being forced onto less land and can not afford to lose any land now open to hunting and trapping. . . Other recreational pursuits, especially snowmobiles, would also be forced out of this large area." Kellett explained, and RESTORE' Park brochure clearly shows, that hunting and snowmobiling would be allowed in the preserve portion of the Maine Woods National Park and Preserve. False portrayals were another theme of the day.

The Park would ensure public access—because the public would own it. Kellett stressed that the values of the Maine woods which we cherish today are not secure, and that a Park would permanently protect these values. As long as the woods are in the hands of paper companies, access can not be guaranteed.

Developing recreation and tourism jobs is a key part of diversifying Maine's economy. An outdoor guide said his company takes clients to Labrador and other spots for "real wilderness." The beauty strips of Maine are not going to provide recreation and tourism jobs—the Park could.

Misinformation

A mock Wildlands Project vision map was passed out at the forum, and Ray Campbell of the Fin and Feather Club exclaimed that RESTORE would be taking away your families' fish, trees, fowl. . .

Smith said, "It [the Park] would be the death of the Maine Woods for us, the sportsmen. The end of hunting and trapping. Timber harvesting, jobs, free access, and our heritage."

The dissemination of false facts, ideas, and visions is a major problem. Paper companies and other anti-wilderness organizations are doing a dynamite job of inundating the public with incorrect information. Conservationists must counter this with the truth. When people see the facts, they realize the Maine woods are not OK, as many people still

believe, and that change is needed to ensure a viable future for all species.

Visions for Maine's Future

Throughout the day, people presented their vision for the Maine woods. Maine Audubon's Sandy Neily said the Northern Forest Alliance has identified five areas in Maine which are deemed valuable. Neily says, "Within these five areas there is going to be harvesting, multiple use, and multiple management. Some parts of these parcels might be so special that they definitely should not be harvested, but that doesn't mean that harvesting wouldn't take place in a significant amount. . . The point of having preserved lands or lands with special management plans is to help preserve the mix—the balance."

According to conservation biologists, the role of reserves is not to maintain Neily's "balance"; it is to help protect and restore the ecological richness and native biological integrity of a region. Ecological reserves must be protected as wild, off limits to resource extraction and development.

George Smith said, "I believe your future lies with a return to the past when your economy was dependent on the exceptional natural resources." We all agree with George. However, he is missing the point: the timber industry has largely degraded the exceptional nature of Maine.

Kellett said, "We are here because there are problems in the Maine woods. We are here to put forth a vision, a national park. It is up to you whether to take our suggestions. It is not a decision we can make. All we can do is raise ideas."

Most of the landowners felt the status quo with slight changes was good enough for the future. McNulty asked if people really wanted millions of people coming through Greenville and the glitter that comes with a national park. This is an important question, and St. Pierre addressed it when he said the Park would attract a great deal of development that would have to be managed wisely.

RESTORE succeeded in presenting a vision and a message that preserving areas does not result in economic devastation. On the contrary, protected areas can ensure economic health. However, regardless of the economic reasons to support the park, people should support a national park for ecological reasons.

My vision for the Maine woods and the Northern Forest starts with a 3.2 million acre Park in Maine. This is not, by itself, enough to restore the ecological integrity of the region, but it is a start. I envision a park connected by wildlife linkages to wilderness reserves throughout the Northeast, throughout North America. My vision is of a network of wild connected reserves where nature can fully heal itself, where species can roam freely across the continent, and where humans resume lives in respect with the wild.

David Brower once said, "When you've reached the end of the abyss, the only rational thing you can do is turn around and take a step forward." The Maine Woods National Park is the first step in the right direction.

Kathleen Fitzgerald is the Greater Laurentian Region Wildlands Project Coordinator. She can be reached at: POB 457, Richmond, VT 05477; tel. 802 434-3279.

Economic Study of Proposed Maine Woods National Park Available

To get a copy of RESTORE's study of the potential economic benefits of the Maine Woods National Park, "Gateway to a Healthy Economy: The Proposed Maine Woods National Park and Preserve and the Future of the Moosehead Region of Maine." contact: RESTORE: The North Woods, 7 North Chestnut St., Augusta, ME 04330.

The Adirondacks - Vanguard of the Wilderness Idea

by Bob Koch

Yosemite Valley and Yellowstone were both designated as Parks before the Adirondack Forest Preserve was created in 1885¹. These parks—like the Forest Preserve—were not set aside to protect wilderness, but as recreational and commercial resources. Wilderness preservation was only a by-product of more pragmatic utilitarian objectives. But, it was in the Adirondacks where the wilderness idea would bare fruit and set the precedent for a national wilderness policy.

The Forest Preserve was originally established to protect the watersheds of New York City and to ensure an adequate supply of water for the state's canal system. A change in ideology was set into motion when the recreational rationale for wilderness preservation—the primary factor for establishing the two western Parks—lead to the redesignation of the Preserve as the Adirondack Park in 1892.

Two years later, the "forever wild" clause granted Constitutional protection to the public lands within the Adirondack Park. The McClure Amendment, unanimously approved by the delegation, guaranteed permanent preservation of the wilderness resource. For the first time in American history, the *concept* of wilderness was used as the primary justification for its preservation. The seed of the wilderness idea took root in the Adirondacks: it was where wilderness preservation began.

Bob Marshall was one of the most vigorous and influential advocates of wilderness preservation of this century. He wrote extensively about the virtues of wilderness, was a founder of The Wilderness Society, and conducted the first comprehensive survey of remaining American Wilderness in the mid-1930's. His bond with wildness was formed, and indelibly refined, during the 20-odd summers of his youth he spent wandering through the Adirondacks backcountry; his love for those woods motivated him to champion the wilderness preservation movement.

Howard Zahniser, a friend of Marshall's and executive director of the Wilderness Society, was the primary author of the 1964 National Wilderness Act. He drafted much of the original bill in 1956, and made numerous revisions over the next eight years, in his small cabin in the heart of the Adirondacks. Zahniser used the forever wild clause as



Wakely Pond at the base of Wakely Mountain. Photo © Bob Koch.

the model for legislation that eventually preserved fragments of wilderness nationwide.

The idea of wilderness branched out from the mountains of New York to propagate the national preservation of wilderness. The Adirondack wilderness legacy, along with the wildlands we have preserved, is a cultural heritage we can bequest to future generations.

The Adirondack Park—a checkerboard of public and private lands—encompasses approximately six million acres in the northeastern part of New York State. Public lands account for about 42 percent of the Park and are classified into nine different categories. The Adirondack Wilderness System is comprised of sixteen designated areas and totals just over one million acres, or roughly 17 percent of the total Park land base.

The fact that the forever wild clause has remained essentially unchanged for over a century² indicates continued support for the preservation of wilderness in New York. Today, the Adirondack region still offers the

opportunity for the citizens of New York to continue their role as vanguards of the wilderness idea. There are remnants of wildlands in the Adirondacks—a patchwork of private properties and public lands not yet designated with a capital W—that could complement the present Wilderness System.

The Adirondack Council published the most comprehensive study to date of the remaining wildlands within the Park that should be considered for inclusion into the Adirondack Wilderness System. The second volume of the Council's *2020 Vision*, set forth 16 recommendations to protect the integrity of the natural ecosystems within the Adirondacks. Among these recommendations were proposals to create three new wilderness areas—the Bob Marshall Great Wilderness, the Boreal Wilderness and the Wild River Wilderness (see "The Potential for expanding the Adirondack Wilderness System"). Designation of these potential areas would increase the

Adirondack Wilderness System from 1,039,000 to 1,377,000 acres—from 17 to 23 percent of the total Park land base.

The proposed Bob Marshall Wilderness—over 400,000 acres of unbroken habitat in the northwestern section of the Park—was identified by Marshall as one of the prime remaining roadless remnants during his 1935-36 wilderness inventory. John Mitchell recently referred to this region as "the biggest catch-of-five-star, blue-ribbon" backcountry east of the Boundary Waters and north of the Everglades. The proposed Boreal Wilderness encompasses 73,300 acres of unbroken subarctic evergreen forest. The boreal biome (spruce/fir forests and sphagnum bogs) is not represented in any other units of the present-day Adirondack Wilderness System. The proposed 72,000 acre Wild River Wilderness Area affords the opportunity to establish a riparian-based wilderness of 48 miles of wild and scenic rivers. Such an option exists nowhere else in the nation east of the

Components of the Adirondack Wilderness System

Area	Acres
Blue Ridge Wilderness	45,736
Dix Mountain Wilderness	45,208
Five Ponds Wilderness	94,758
Giant Mountain Wilderness	22,768
Ha-De-Ron-Dah Wilderness	26,528
High Peaks Wilderness	192,685
Hoffman Notch Wilderness	36,231
Jay Mountain Wilderness	7,100
McKenzie Mountain	37,616
Pepperbox Wilderness	14,625
Pharaoh Lake Wilderness	45,883
Pigeon Lake Wilderness	50,100
Sentinel Range Wilderness	23,252
Siamese Ponds Wilderness	112,524
Silver Lake Wilderness	105,270
West Canada Lake Wilderness	156,695

Wilderness and Natural Disturbances in the Adirondacks

A primary benefit of protecting wilderness is the preservation of large habitats in their natural state. This "wilderness bank" treats wildlands as a form of ecological capital which allows for various options in the future.

Natural disturbances occur at multiple spatial and temporal scales. These range from frequent canopy gaps created by treefalls, to large tracts of extensive blowdown. The hurricane in November of 1950 and the microburst in July of last year are indicative of periodic larger disturbances in the region. Natural disturbances permit a flush of resources—such as moisture and sunlight—that promote regeneration and growth. These moderate disturbances naturally enhance landscape complexity and species diversity—a form of ecological interest to the wilderness bank—but *only* if the area is large enough to tolerate such disturbance regimes. Shugart and West (1987) estimated that landscapes need to be 50-100 times larger than the largest disturbance in order to maintain the "shifting-mosaic steady state" of a mature ecosystem.

Designated wilderness and ecological wilderness are not necessarily synonymous. If wilderness is to be preserved as a biological and cultural heritage, rather than merely a recreational resource, the natural disturbance regime and regenerative requirements of the Adirondack wild lands need to be considered. To do otherwise would be analogous to intentionally depleting the account that we inherited without considering the value of the wilderness bequest for future generations.

Maine BEP to Hear Appeal of Kenetech Windpower Permit in July

by Pamela Prodan

Kenetech Windpower Inc.'s deteriorating financial status has delayed a superior court appeal of the Maine Land Use Regulatory Commission (LURC) decision to rezone fragile and remote mountains in Western Maine for windpower development. However, on July 24, 1996, Kenetech Windpower will face an appeal challenging a time extension of another environmental permit.

Background of DEP Permit

Two years ago, in January of 1994, the Maine Department of Environmental Protection (DEP) quietly issued a DEP permit to Kenetech Windpower Inc., under the Site Location, Natural Resources Protection, and water Quality Certification laws. In January of 1996, as the two-year permit was about to run out, Kenetech applied for, and DEP staff approved, a time extension of the permit. In February, Friends of the Boundary Mountains appealed that decision. The Board of Environmental Protection (BEP) will hear the appeal at its July 24 meeting in Augusta.

Should Maine Give Permits to Bankrupt Companies?

The appeal argues that the BEP should review relevant facts that challenge whether Kenetech can carry out the project as proposed and in compliance with Maine's environmental laws. Public awareness and input will be crucial to the appeal. DEP staff is

expected to argue that the board should not look at any new evidence, and therefore, should uphold the staff's decision to extend Kenetech's permit.

Among other things, the DEP and the BEP are supposed to ensure that a developer has the financial capacity and technical ability to build and operate the project in accordance with the environmental laws and conditions of its permits. They are also supposed to determine that the project will not adversely affect wildlife and their lifecycles.

Kenetech Would Sell Permits

In May of 1996, Kenetech Windpower, Inc., filed for chapter 11 bankruptcy protection. Even though Kenetech now cannot finance the Boundary Mountains project itself, the company says it is trying to sell the right to develop the Boundary Mountain site. The question is, should Maine be granting permits to another developer? The primary grounds for the appeal are:

- **Financial Capacity:** Kenetech Windpower, Inc., does not have the financial capacity to build and operate the development. As further evidence of Kenetech's incapacity, the company was unable to finance a required bird study that was supposed to start in April in Wyoming.

- **Technical Ability:** Kenetech projects built to date using the same KVS-33 turbines planned for Maine have experienced technical problems such as broken and thrown propellers, drive system failures, and cracks in the transmission housing of machines. These problems were known as early as mid-1994. On Kenetech's Form 10-K filed with the U.S. Securities

and Exchange Commission on April 16, 1996, Kenetech admits that it may never have economic solutions for all the design's failures.

- **Bird Kills:** Kenetech's own migratory songbird studies performed in the Boundary Mountains show that tens of thousands, if not hundreds of thousands of migratory birds would be at jeopardy from the turbines during migration, based on the direction and height birds were observed to be flying. State agencies have never examined these studies because Kenetech refused to release them until after LURC rezoned the mountain areas for development last August.

How You Can Help:

Next month, on July 24, the Maine Board of Environmental Protection (BEP) will decide whether to give Kenetech Windpower Inc., a time extension of its DEP permit. You can write a letter to the BEP. Urge the BEP to deny Kenetech Windpower a permit based on Kenetech's well-documented financial and technical problems.

If you wish to attend the July 24 hearing in Augusta, contact Pamela Prodan at 207-645-9330 in early July for more details about location and time.

Write: Owen Stevens, Chairman, Board of Environmental Protection, 17 State House Station, Augusta, Maine 04333-0017.

DEP Order Number: Kenetech Windpower, Inc., Time Extension, Order #L-18335-26-d-m.

Contributions to support the appeal may be sent to Friends of the Boundary Mountains, P.O. Box 910, Wilton, Maine 04294.

Adirondacks

Rocky Mountains!

Housing starts in the Adirondack Park—at the rate of some 1,200 annually—are three times the rate for the rest of New York. It is imperative that we develop crucial long term cooperative strategies to preserve the remaining wildlands in the Adirondack Park in their wilderness condition. Once wilderness is irrevocably altered, it is wilderness no more. If it is subdivided, punctured with roads or developed, it loses its ecological integrity. If we acknowledge that the sum of the whole is greater than the parts, we should also

concede that the alteration of each wilderness parcel diminishes the ecological integrity by more than the functions provided by the wildlands lost.

Wilderness is more than just a pleasuring ground or a genetic reserve. It is an idea. It is something that shaped us as a society. To preserve remnants of wilderness is an expression of our ability to exercise restraint and a display of our compassion to the larger biotic community. How we treat our remaining wilderness resources will be a measure of our generation's judgment and foresight.

The preservation of wilderness

establishes a bank of options for future generations (see "Wilderness and Natural Disturbance in the Adirondacks"). Each time we permit the wanton destruction of an irreplaceable resource, we not only lose part of the wilderness, we dilute the wilderness idea. We can tend to the seed that was planted in the thin Adirondack soils or we can watch the fruits of our forebears wither from our neglect. We can work together to develop strategies to deposit the remaining wild land into the wilderness bank or we can continue to squander what little is left—which we could have saved—for our own short-sighted exploitation. Get the bank book out and make the choice. We're next in line.

¹ Yosemite Valley was originally established as a State Park in 1864 when a federal grant of the lands to the State of California established the Park "for public use, resort and recreation." Yosemite National Park was not created until 1890; Yosemite Valley became part of the National Park after California receded the Valley back to the national government in 1906. Yellowstone National Park was created in 1872 both as a recreational resource and to prevent the "remarkable curiosities" from private land claims.

² The McClure Amendment was unanimously adopted by the 1894 Constitutional Convention and ratified by the voters of New York State on November 6, 1894. Adopted as Article VII, Section 7, the "forever wild" clause became effective on January 1, 1895. During the 1938 New York State Constitutional Convention, Article VII, Section 7 was incorporated in the new State Constitution as Article XIV, Section 1 in precisely the same language as introduced by David McClure in 1894.

Bob Koch spends a lot of time hiking in the Adirondacks and thinking about the gift of wilderness.

Potential for Expanding the Adirondack Wilderness System

The Adirondack Council's recommendation to create three new Wilderness Areas in the Adirondack Park expressed respect for, and sensitivity toward, established uses of private land. The Council's recommendations emphasized the benefits of working with "willing sellers" and recognized that the acquisition of important private lands would be a century-long objective.

However, given the present rate of development, immediate, decisive and far-sighted action will be necessary if we are to preserve the option of acquiring critical private lands for eventual public ownership.

The Bob Marshall Great Wilderness

This proposal would combine nearly 166,000 acres from three existing wilderness areas—Five Ponds, Pepperbox and Pigeon Lakes—with 214,000 acres of other public lands. With the eventual acquisition of 178,000 of private lands, this 408,000 acre Wilderness Area would be the largest block of undisturbed open space east of the Mississippi River and north of the Everglades.

The Boreal Wilderness

This 73,300 acre tract of Canadian and Siberian taiga (subarctic evergreen forest) could be preserved through the consolidation of public lands and the acquisition of critical private lands. This proposal to preserve low elevation boreal forests in the Wilderness System would include all of the Jordan River, 14 miles of the Raquette and 13 miles of the St. Regis Rivers.

The Wild River Wilderness

With the consolidation of public lands and the long-term acquisition of 27,300 acres of private lands, the Wild River Wilderness would incorporate 48 miles of state designated wild, scenic, and recreational rivers within a single wilderness unit. This region, located in the geographic heart of the Adirondack Park, affords an opportunity to designate a wilderness ecosystem that exists nowhere else in the eastern two-thirds of the United States.

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Maine Forest & Paper Industry Tax Index

"Those cheap bastards just don't like to pay taxes"

(quote from William Butler in
Beyond the Beauty Strip... by Mitch Lansky)

Index compiled by Mitch Lansky

State Corporate Income Tax

- Percent of Maine General Fund from corporate (all companies) income tax, 1988—6.7%.
- Percent contribution of paper industry to corporate income tax—around 7%.
- Percent of Maine General Fund from paper industry corporate income tax, 1988—1/2 of 1%.
- Percent of Maine General Fund from corporate (all companies) income tax, 1996—2.6%.
- Percent of Maine General Fund from paper industry corporate income tax, 1996—2/10 of 1%.
- What the paper industry claims its direct value added is worth to Maine's Gross State Product per year—\$1.1 billion, about the same as the total budget for the state.
- What percent of this value added comes back to the state as corporate income tax—2/10 of 1%

State Income Tax on Paper Industry Employees

- Percent of Maine paper company employees of total employment in 1993—2.8%
- Percent of Maine paper company employees' income of total income—5.6%
- Percent of Maine General Fund from individual income tax in 1996—38%.
- Percent of General Fund from income tax on paper industry employees—2.1%.

Disparity in Wages

- Hierarchy of timber industry annual wages:
 - * paper company CEO —more than \$1,000,000, plus stock options and other benefits
 - * paper mill workers —\$42,709
 - * foresters/technicians —\$23,537
 - * logging workers—\$19,330.
- Ratio of the 1990 salary (not including benefits or stock options) of T. Marshall Hahn, (then Georgia-Pacific's CEO) to the average wage for loggers in Maine—more than 100 to 1.

Various Tax Breaks

- Some sales tax exemptions used by paper industry:
 - * machinery used in manufacture,
 - * energy used in manufacture,
 - * pollution-control facilities,
 - * raw materials used in manufacture,
 - * sale of herbicides.
- Some other useful tax reductions that have been used by paper industry—
 - * capital gains,
 - * accelerated cost recovery,
 - * investment tax credits,
 - * tax credits on waste reduction,
 - * tax increment financing (where municipalities do tax-free investments on infrastructure and other improvements that directly benefit an industry),
 - * Tree Growth Tax.
- What Bowater officials claimed after they purchased Great Northern in 1992—Maine has a bad business climate.
- What the Finance Authority of Maine unanimously granted to Bowater in 1992—\$62 million in tax-free bonds to fund the building of a paper recycling plant in East Millinocket.
- What Bowater did within days of receiving the grant (which saved the company \$2 million in taxes per year)—announced job layoffs.

Tree Growth Tax

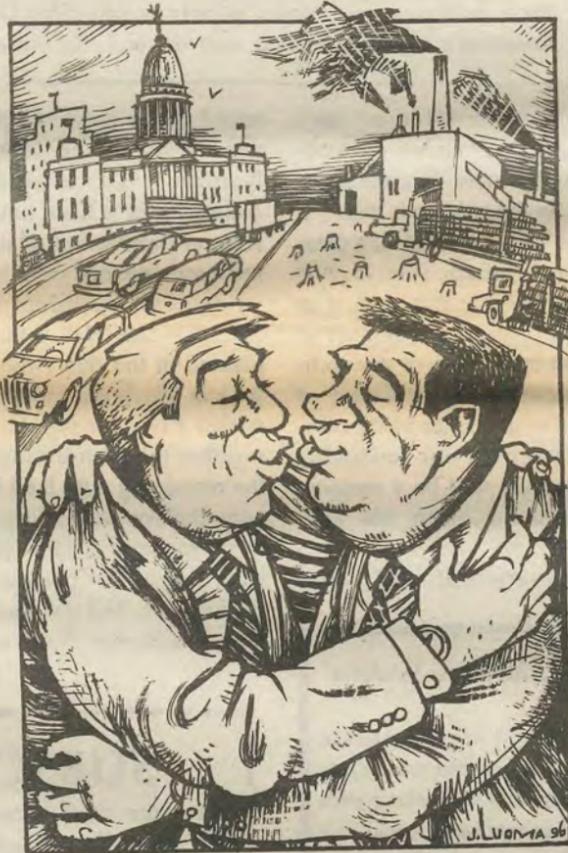
- Average tax per acre under Tree Growth in unorganized territories—around \$1.
- In Washington County, what is worth more: an acre of softwoods under Tree Growth or a cord of spruce-fir pulpwood at the mill—a cord of spruce-fir pulpwood wood at the mill.
- What state gives to towns with a high proportion of land under Tree Growth when there is a major loss of revenues due to lower forest land assessments—partial reimbursements.
- Where money for reimbursements comes from—General

Fund.

- Where most of the money in the General Fund comes from—around 3/4 of the revenues come from the combination of personal income tax and sales tax.
- What the Tree Growth Tax is supposed to do—it is supposed to discourage forest conversion and encourage forest productivity.

Discourage Development?

- Percent of Northern Forest Lands in Maine—60%
- Percent of Northern Forest Lands in 4-state region taxed under current use (such as the Tree Growth Tax) that are in Maine—89%
- Percent of the Northern Forest Lands in Maine in "large ownerships" (over 500 acres)—80%
- Percent of landowners in Maine that own the 80% in large ownerships—1%
- Percent of parcelizations in 4-state region that occurred in Maine (1980-1992)—96%
- Percent of subdivisions in 4-state region that occurred in Maine—91%
- Percent of forest conversion in 4-state region that occurred in Maine—76%



Encourage Productivity?

- What is now required for forest land under Tree Growth—a management plan approved by a registered professional forester.
- Management standards required in the plan—none.
- Key species in townships dominated by paper industry—red spruce.
- Average annual net growth (gross growth minus mortality and culls) of red spruce from 1982-1995 in Maine—43,406,000 cubic feet per year.
- Average annual cut of red spruce in Maine from 1982-1995—126,136,000 cubic feet.
- Cut to growth ratio of red spruce from 1982-1995 in Maine—2.9/1.
- Change in red spruce volume of growing stock from 1982-1995—down 27%.

Federal Tax Rates

- Average federal tax rate for the years 1982-1985 for:
 - * Great Northern—minus 11% (\$427.8 million in profits and \$47.2 million in refunds),
 - * International Paper—minus 10.3% (\$581 million in profits and \$60 million in refunds).
- Federal tax rate for Champion International after it merged with St. Regis in 1982—minus 53.3% (\$300,000 in profits and \$1.6 million in refunds).

- Acres of forest land in Maine owned by foreign corporations—around 2 million.
- Percent of foreign investors in the US that pay no income tax—71%
- Average rate of taxation of foreign corporations—6/10 of 1% of revenues.
- Average rate of taxation for US corporations—around 1% of revenues.
- How much 1/10 of 1% of all corporate revenues is worth—around \$11 billion in lost tax revenues.
- How much corporations paid in federal taxes for every \$1.00 paid by individuals and families in 1954—\$.75.
- How much corporations paid in federal taxes for every \$1.00 paid by individuals and families in 1994—\$.20.
- What would happen to the federal deficit if corporations paid taxes today at the 1954 tax rate—it would go down by two-thirds overnight.

Capital Gains

- What industry argued to the Northern Forest Lands Council—taxes are too high.
- Industry's highest priority for NFLC—reduce capital gains tax (capital gains rates were raised in the Tax Reform Act of 1986 even though maximum tax rates for corporations and the wealthy were lowered by the same piece of legislation).
- Why industry is concerned about capital gains:
 - a) forest landowners can call the cutting of timber a capital gain, rather than income,
 - b) capital gains are taxed at a lower rate than income,
 - c) a certain percentage of capital gains are excluded from taxation.
- Percent of all taxpayers who claim capital gains on their federal income tax forms in a given year—around 7%.
- Percent of all capital gains claimed by the 1/25 of 1% of all taxpayers who earn more than a million dollars a year—32%.

Property Tax

- What industry argued in 1995 to The Commission to Study the Future of Maine's Paper Industry—taxes are too high.
- What the industry would like to see—elimination of the property tax on equipment.
- What S.D. Warren, Great Northern, and Champion and other companies have done recently at some of their mills in Maine—sued the towns to reduce assessment of their mills.

Trickle Down

- What corporations claim if their taxes go up—it will discourage investment and job creation.
- What legislators call it when they reduce taxes for the wealthy and for corporations—"tax reform."
- What hostile legislators call it when attempts are made to reduce some of the tax breaks of the wealthy and corporations—"class warfare" and "corporate bashing."
- When a large corporation or wealthy individual pays less taxes, who makes up for the revenue losses—the rest of us.
- According to a recent study on American taxes, how has the tax burden been transferred over the last 30 years:
 - * From people who can most afford to pay to those less able to pay.
 - * From corporations to individuals.
 - * From foreign investors to American workers.
 - * From multinational companies to medium-sized and small businesses.
 - * From the federal government to state and local governments, whose taxes already fall most heavily on those in the middle and at the bottom. (Barlett and Steele, 1994)

Sources

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