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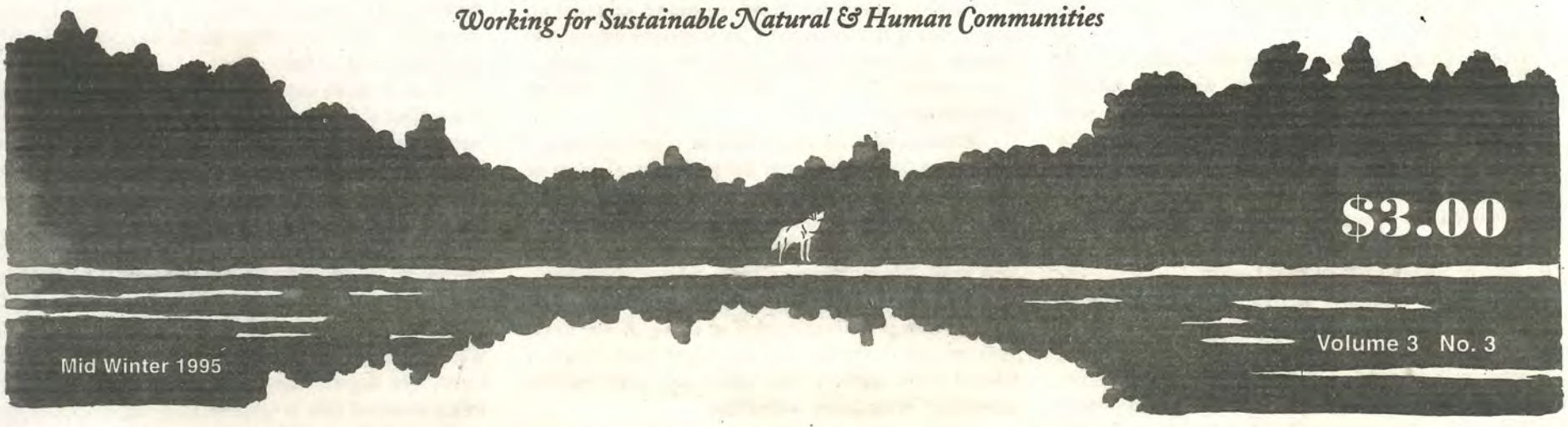

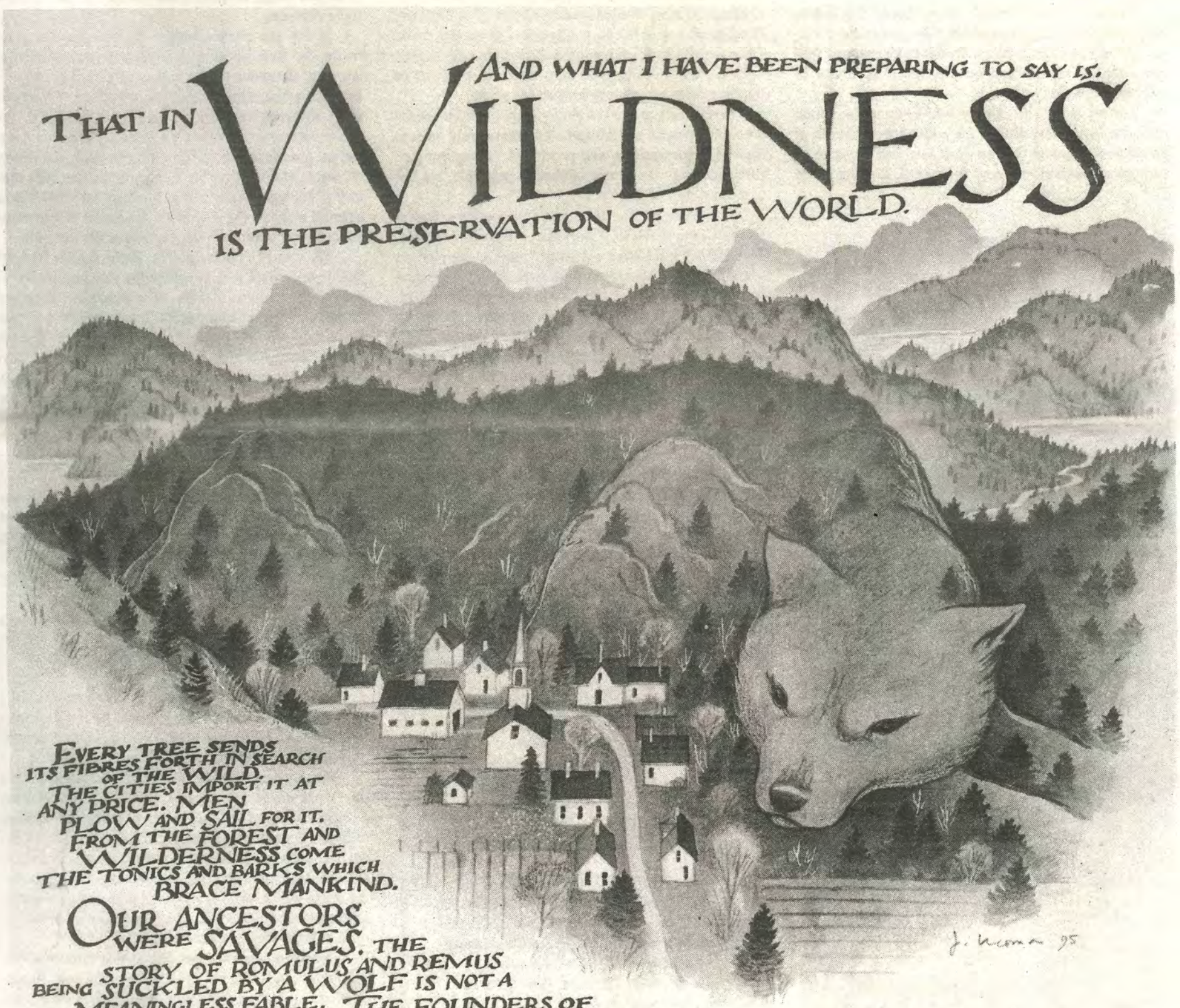

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Wildness & the Children of the Northern Forest

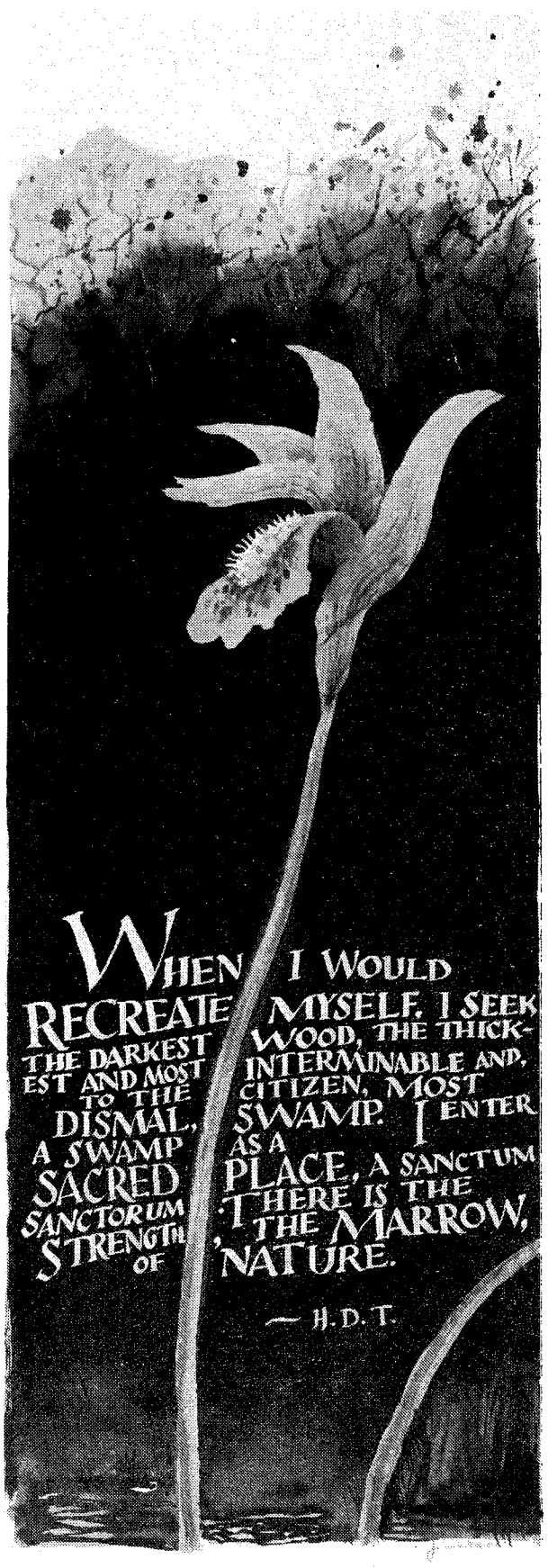
I marvel most at that which man cannot create: the song of the mountain cataract, a flock of feasting swallows skimming over a lake's surface, the cool, damp, spongy floor of the Northern Forest, the wild, evolving dance of life.

In this issue of the ***Forum*** we celebrate wildness—wildness for its own sake, wildness for our preservation, wildness for the preservation of all wild beings. Ecologist Lissa Widoff celebrates the wild cycle of birth, death and rebirth. David Brower reminds us that three and a half billion years of wildness is within us as well as outside us, but, he laments, civilization's insane obsession with growth economics is trashing our wild life-support system.

For those skeptical of Brower's assessment of growth economics, consider the plight of the Atlantic salmon, the North American wood turtle, the lynx, cougar, wolf, wolverine and woodland caribou in the Northern Forest. Or, consider dioxin in lobsters, sport fish, the diets of indigenous fishermen and women, and mothers' milk.

Perhaps you still remain unconvinced that industrial civilization is incompatible with biological diversity. Read Professor Stephen Trombulak's exhaustively documented report card on biological diversity in northern New England.

The crisis is frighteningly real. Fortunately, public dialogue in the last decade has moved from denial to an acknowledgment that we must establish a system of ecological reserves to protect biological diversity in the Northern Forest region. Difficult details and decisions remain to be worked out, but the need for reserves now has general support.



Reserves must be based on sound science, all agree. But is this enough? Can scientists adequately measure, quantify, and protect all elements of biological diversity? Is science the only tool we need to design reserves?

Widoff and growing legions of scientists answer no; science is a central, but not sufficient, element of the strategy to protect biodiversity. In addition to protecting all species and communities and the natural processes native to the region, we must protect wildness itself. We must restore large places for wildness, mystery and the dance of evolution. Scattered, small reserves can protect examples of many, if not most, species native to the region, but as Frankenstein learned to his regret, it takes more than body parts to assemble a living being with a soul.

There are two distinct steps to the reserve design process. Step one is an ecological process: what are the ecological and evolutionary needs of a region? Ecological, not political, reality must guide our work. Once we've identified ecological imperatives—and not before—we must turn to step two, the politics of implementing our ecological reserve system.

Past efforts to protect biodiversity have foundered precisely because politics intruded prematurely on ecological deliberations and produced "compromise" strategies that may appear politically palatable, but fail to protect biotic integrity.

The work of the now-defunct Northern Forest Lands Council (NFLC) provides a classic example. The NFLC performed a great public service in acknowledging the necessity of establishing ecological reserves throughout the Northern Forest region. Unfortunately, it undercut its best recommendation by recommending that states can adequately protect biodiversity, thus effectively denying a role for the Federal government, especially the Interior Department's National Park Service and US Fish & Wildlife Service.

The assertion of states' rights certainly is in vogue today. The NFLC deserves credit for anticipating the way the political winds would blow in November's election. But, the Northern Forests needed a compass, not another weathervane. We needed vision and a commitment to do what was right and necessary, not a surrender to the politics of reaction and anger.

States rights has a wonderful ring to it—and a nasty, mean history. States' rights and property rights were the cries of the slaveholders. In the 1950s and 1960s, defenders of segregation, racism and inequality justified their evil practices by asserting states' rights. In short, the doctrine of states' rights has historically been an excuse for evading the Constitution, for protecting the selfish interests of the few at the expense of the many. And today it is the cry of ecological ignoramuses who place ideology above the common welfare—and survival itself.

I think those closest to the problem are usually best suited to develop solutions. But I also believe in honest accounting, and the current champions of states' rights—whether the recommendations of the NFLC or the Contract on America—have not done that accounting, or have done so dishonestly.

How ironic it is that today's Republicans blame Democrat Franklin Delano Roosevelt and the New Deal for "big government." They're blaming the wrong Roosevelt. It was *Republican* Teddy Roosevelt who engineered the 20th century notion of big government. The Republican Roosevelt understood something essential that is ignored in today's slap-happy embrace of states' rights: **government must be bigger than the large corporations so that it can control their excesses.**

In the age of the Robber Barons and the giant trusts, the Republican Roosevelt saw government as the only defender of the rights of ordinary citizens from the greed, exploitation and corruption of the powerful elites. If he were on the scene today, TR, the trust-buster and our nation's first and greatest environmental president, would have the gumption, the clarity of vision, and the decency to oppose the late 20th century reactionary states' rights ideology for what it is: a shameless move to consolidate the power of the trans-national corporations at the expense of the rest of us.

TR would challenge the Born Again States' Righteous crowd to first reduce the size and power of today's trusts—car makers, oil companies, chemical companies, paper companies, bomb builders. When these trans-national corporations are reined in, then we can discuss responsible ways to shrink the federal government. For now, however, states' rights is a phony cover for environmental and social injustice, not for restoring local control. Abolishing the federal government tomorrow will not bring to Mainers any more local control of the ten million acres of industrial forest that today are owned by absentee corporations.

Today, the states are incapable of adequately protecting biodiversity. They lack the resources, but worse, they are controlled by special interests that wish to undermine environmental initiatives. Consider: New Hampshire's governor proposes eliminating the paltry $70,000 for the NH Natural Heritage Inventory just as we most need its services for reserve design; Maine's new "independent" governor Angus King appoints yet another timber industry executive as Commissioner of Conservation; and Vermont's "local" Northeast Kingdom politicians have gone berserk in the face of a tame proposal advanced by Northeast Vermont Development Association to address the out-of-control clearcutting in the Northeast Kingdom.

Turning reserve design over to the states at this time is the moral equivalent of placing George Wallace and Bull Connor in charge of integrating southern schools. Local control indeed! This is the sort of ill-advised proposal that results from corrupting ecological deliberations with political ideology. I suggest that the states will be worthy of the trust to design reserves after they adopt a Constitutional Amendment along the lines of New York's "Forever Wild" Article 14.

Conservation biologists tell us that large reserves can serve as a "coarse filter" to protect the vast majority of species and natural communities and ecosystem processes. Smaller reserves, targeted at protecting habitat of a rare community or species serve as a "fine filter" and are essential complements to the large, coarse filter reserves. Fine filter reserves cannot, however, protect all native biodiversity and processes; we need both large and small reserves.

The states and private conservation groups such as The Nature Conservancy and the Trust for Public Land have a proven track record for acquiring and managing small reserves, and they should continue to play lead roles in the establishment of fine filter reserves. But neither the states nor private organizations have the

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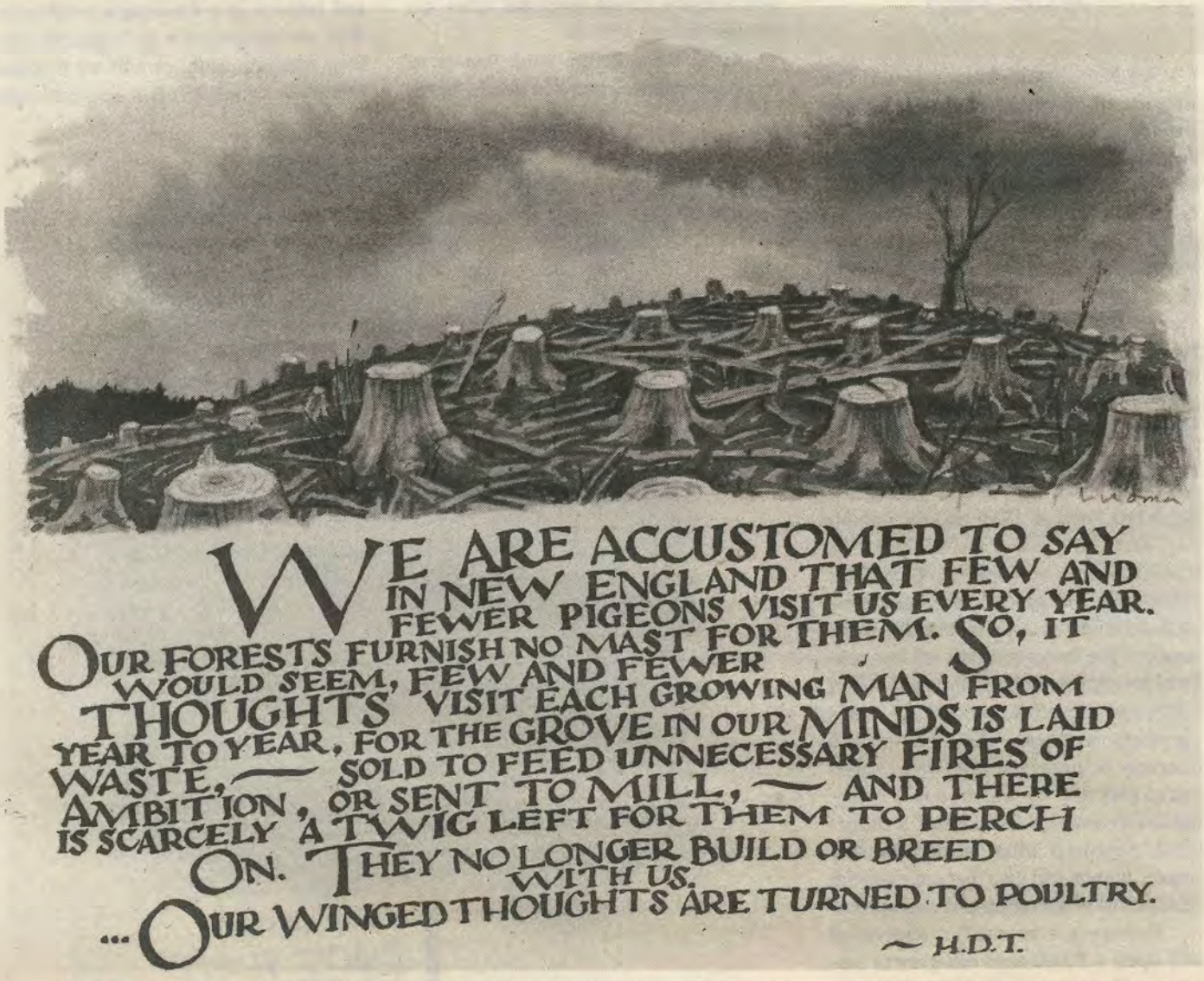
Economic Growth is Just Trashing Three & a Half Billion Years of Wildness

by David Brower

David Brower, former Executive Director of the Sierra Club, founder of Friends of the Earth, and founder and current chairman of Earth Island Institute, has been active in environmental issues for six decades. He made the following remarks on one of his recent visits to the Northern Forest region.



One of the things that impressed me with Thoreau and his remark "In wildness is the preservation of the world" is that I began to think of the importance of it when we realize what happens to the wildness within us as well as the wildness outside. People may not have much experience of wildness outside because they're still stuck in cities with pavement between them and the earth and electric lights at night instead of stars.

But think about what goes on in you yourself—of the miracles that we are able to be; think of all the parts that we have and how complicated they are. If you see the diagram of an ear, you realize that it's impossibly complex and will never work, but it does. In each eye we've got 120 million rods and cones in each retina, and we see creation through this very complicated bit of material, beautifully assembled. Think about how we work, how we operate without having to think—what the subconscious mind does for us, and then remember how that came to be.

It took very little genetic material passed between mother and father to make each individual possible. The minimum genetic material for all the people who ever lived on this planet, some 100 billion, would fit in a sphere a sixth of an inch in diameter. So that's very compressed knowledge.

And how was that developed? It wasn't developed in civilization because there wasn't any in the three and a half billion years this whole effort of life—and the miracle of it—was developed. It was developed in wilderness. That's all there was. There was the pull and haul of trial and error, success and failure of wilderness that made all living things that are contemporary with us possible.

And when you realize that all things that are contemporaneous are in small part three and a half billion years old, then you begin to understand a little bit about the wildness within you and how important it is and how important the wildness outside was in making it work. And here one small part of each one of us is three and a half billion years old.

From the beginning of life on earth there has been no failure in the transmission of life. No failure whatsoever from that beginning to each of us. Lots of things have fallen by the wayside; but we are here after three and a half billion years of generation after generation, eon after eon, epoch after epoch, with that intact in us. But we don't have to be too proud of it because everything that's alive around us can make the same claim!

But all this was put together in wilderness and the people who evaluate wilderness as the number of people who visit it, or how it makes them feel better, or gets them in better shape, or whatever the common idea is—it's just like evaluating the Mona Lisa by weighing the paint. Wildness is much more important than that. That is where it's at. It is the basis of all living things on the only planet we know of that has any life on it. We treat it as if it were of minimal importance, and it's more important than anything else.

The obligation we have now is to reassemble in our own thinking some of the kinds of thought processes that went on in indigenous people who could run their form of civilization for millennia. We can't run ours for a century or two without trashing the place.

The industrial revolution has just about run its course—two and a half centuries. We can't go on the way we've been going on. Our leaders don't realize that yet. Our institutions haven't quite picked up on this, but the numbers are pretty startling.

In my lifetime—that's 82 years—the world has used four times as many resources as in all previous history. We can't keep doing that. The population has gone way beyond the carrying capacity of the earth. We can't keep doing that. The overconsuming industrialized nations are putting far more impact on it than the vast numbers of other people. Just in the last 20 years there's been enough new man-made desert and soil destroyed by other means—pavement, reservoirs, chemicals, accelerating erosion by wind and water—to equal the cropland of China and India and enough forests to cover the United States from the Mississippi River to the Atlantic seaboard.

And our institutions think that can go on. Our administrations now do. Both parties do. They're all talking about you've got to have economic growth without realizing what it costs wildness. Growth is just trashing wildness—everywhere we look. You can't continue this. That's the message that needs to get carried around more broadly, more widely, and understood.

As far as I'm concerned, the nicest two words that ever came into any bill of legislation are what set aside the Adirondacks—"Forever Wild." Forever Wild should be the theme for everything civilization does. It needs to be surrounded by places that are forever wild, where we do not try to mess with something we've only begun to understand.

We need these patterns out in nature. We need them left intact so we'll know what to do about them, how to at least try to get back in balance so that as a species we can continue and not go down the tube as so many others have. We're just about doing ourselves in because we have lost our respect for the way nature works.

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Forum, POB 6, Lancaster, NH 03584. Thank you.

Wildness Means Good Work

by John Davis

Wildness, for me, means responsibility. For I roughly equate wildness with goodness, and nature and nurture have conspired (for a change) to make me feel compelled to uphold the good. *Good Wild Sacred*, as Gary Snyder implied with his unpunctuated title for a recent book, are one and the same.

I try to uphold the good, the wild, and the sacred in two big ways and many small ways. The small need no mention here (minimizing consumption, buying only conscientiously ... the same little "sacrifices" the rest of you make). The big are (1) ***Wild Earth*** & The Wildlands Project and (2) Hemlock Rock Wildlife Sanctuary.

Wild Earth is the voice for The Wildlands Project, which is the North American Wilderness Recovery Strategy. Our goal is to make North America wild and healthy again, through mapping, research, advocacy, education, and other means to expanding wilderness.

From an individual's perspective, ***Wild Earth*** and Wildlands Project work is necessary, but not sufficient. We help save habitat but seldom see tangible results. Thus, more personally satisfying to me is my eastern Adirondacks land: 45 acres of Beaver pond, swamp, transition forest, and rock—which I've named Hemlock Rock Wildlife Sanctuary. My self-appointed role here is as guardian. I bought the land to preserve it (the timber is valuable and would likely have been cut; the land is developable, being near Lake Champlain, and would likely have been subdivided). With the help of biologist friends, I plan to inventory species and biological communities here, and hope its protection will help maintain habitat linkage between Coon Mountain and Split Rock Mountain—both of which are likewise protected, by Adirondack Land Trust, Open Space Institute,

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Wildness~A Metaphor of Human Fate & Destiny

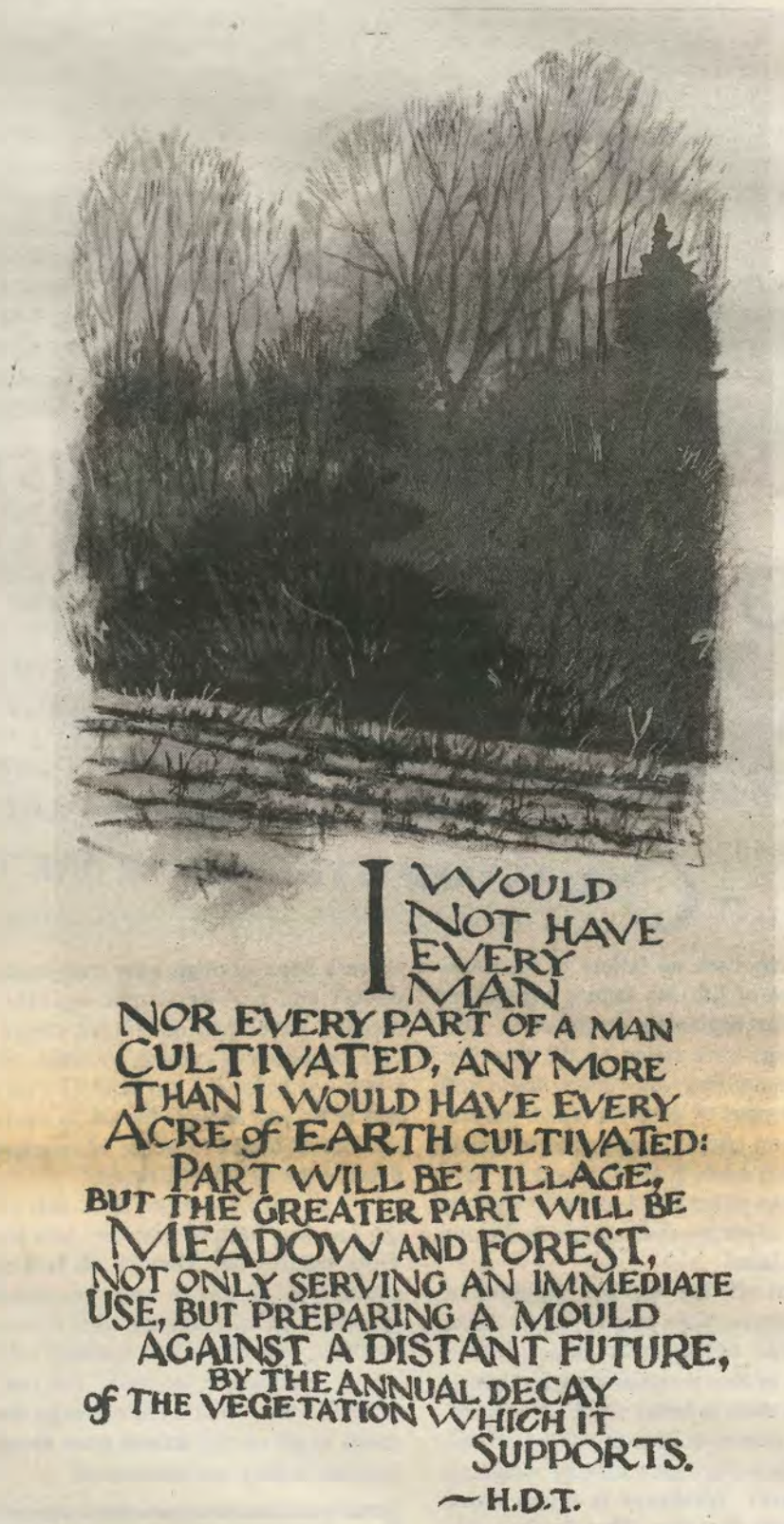
by Lissa Widoff

To My simple human mind, the essence of wildness is chaos. Chaos, defined not as a random arrangement of nature, but as profound complexity with barely discernible patterns of natural order. Layer upon layer of small unpredictable events may lead to an overall pattern of predictable parameters and character, but any one small event has the power to transform all others. Nothing can be fully predicted. No thing can be really controlled or understood.

My own impressions of wildness are inextricably linked to a very specific place. I think of my summer research at Big Reed Pond in 1986 and the numerous occasions since then when I've hiked there alone or with others. This 5,000-acre old-growth northern New England forest is not a laboratory, it is a teacher. The lessons taught are not confined to science. In fact, the methods of science are insufficient tools for learning about wildness. They may offer a doorway to understanding and experience, but are by no means a path. Scientific analysis is in itself a reductionist approach, often lacking the reverence, humor and awe that are essential elements of observation and experience.

Imposing a scientific, analytical will upon a 5,000-acre old-growth forest can be a humorous experience. Marking transect lines through a thirty acre blowdown of three-foot diameter cedar trees, stacked upon themselves like pick-up-sticks, and walking tightrope style along the suspended limbs may be scientific method, but it is also a circus act. Trees as audience. Scientist as performer. This, to me is wildness. It is not only the majesty of a massive opening in the forest created by the convergence of natural phenomena—wind speed, tree age, and soil depth, to a point beyond the capacity of circumstances to maintain the status quo, it is the lesson that in wild places, the dimension of time is continuous. There is everything all at once. Generalizations are difficult. Rules don't apply. Or at least the rules we brought in here with us.

In a forest, in the wild, just as in human existence, there is death, birth, and renewal in a time space continuum. Will we observe this as a natural, perhaps absolute truth, or will we manipulate these forms to fill a sanitized conception of life? If the essence of wildness is chaos, then its source is death. Death not as an ending, but beginning. The elemental understanding that everything which lives also dies. We must experience death if we are to understand life in a metaphysical sense. So is it true in wildness. Death must be present, accepted and even alive in its manifestation. The rotting corpse of a tree, the dank and sour smell of a still pond, the crumbling dust of an aging trunk. Are these signs of senescence to be eradicated in our false hope of everlasting youth/existence, or are they creatures of reverence and power because they still exist in death, feeding their own slow decay and next generation of life?



Perhaps we need a postmodern science for old-growth forests. One where chaos is a form that need not be analyzed further, but is an indicator of health and wholeness. Predictors are useless. Analysis falters. Truth is experienced, not measured. To me, experiencing the wild is reflecting upon these broad patterns and impressions resulting from a dynamic interplay of natural forces. It is the whole, not the parts. It is acceptance of mystery, darkness, and death; not necessarily understanding the process.

Is wildness then a metaphor of human fate and destiny? That which lacks order and reeks of death, must be controlled, subdued, and broken down into understandable bits of fact, form, and function? The night must be cleared into day, the chaos brought to order? Is management an attempt to unravel the complex web of wild nature into discernible function and interrelated units? An ecosystem. A forest. A swamp.

It is the disorderly fashion of the unkempt, senescent forests, the organic smell of rotting wood and soil, that creates the chaotic impression of waste and death, while being the very source of life. Renewal. Hope.

Lissa Widoff is an ecologist who has worked for The Nature Conservancy, the State of Maine, and is presently on Gulf of Maine issue for a group of community foundations.

THE ADIRONDACKS~FOREVER RE-WILD

by Michael G. DiNunzio

It has been said that wildness is a lot like pornography; it's hard to define, but you know it when you see it. Well in this case I don't subscribe to that "eye of the beholder" theory. Unless the eye belongs to a wolf, grizzly, or similar expert on the subject.

Unfortunately, there are precious few areas in this country which still meet the rigid criteria for wildness employed by wolves and grizzly bears. This fact has prompted some to declare that wildness is an anachronistic concept and that its restoration is an exercise in futility. Perhaps. But some of us have pledged to help guard and perpetuate a legacy of wild stewardship that has been handed down through four generations of New Yorkers.

A century ago, following decades of resource abuse and exploitation, the citizens of New York took matters into their own hands. They wrested control of the state-owned Forest Preserve in the Adirondacks and Catskill regions away from the corrupt mis-management of bureaucrats and wrapped those lands within the protective aegis of the state constitution. That bold move, borne from a sense of outrage and frustration, stands today as a testament to a modern people's determination to protect a portion of their wild heritage in perpetuity.

According to the New York State Constitution, virtually all state land within twelve Adirondack and four Catskill counties must be "forever kept as wild forest lands." Hence the term "forever wild." Instead of defining wildness, the constitution treats the subject in a negative way, stating that the Preserve shall not be leased sold or exchanged. Timber on these lands cannot be removed or destroyed. This form of "hands off" wildland management is actually a very conservative approach, which avoids the so called James Watt syndrome whereby conniving bureaucrats manage to dismantle environmental protection mechanisms. It also avoids the well- intentioned bumbling of land managers who follow the winds of theory in vogue at the moment.

Not surprisingly, the hands off school of management has worked very well. I recommend it to those who cast about in search of a programmatic solution to their wildland protection mechanisms. Bear in mind that congress and state legislators can change laws overnight. That is a very scary thought these days. The New York State Constitution can only be changed by the actions of both legislative houses during two consecutive legislatures, followed by a vote of all the citizens at a general election. This system of safeguards has kept the original 1893 language intact and has limited the number of successful amendments to a bare handful of site- specific changes. Needless to say, scores of unsuccessful protection-gutting amendments have been proposed by various lawmakers over the years. Most of those lawmakers represented the residents of Adirondack and Catskill communities.

Until the science of conservation biology advances far beyond its present state, I urge others to adapt the New York model of ultra- conservative, non-manipulative protection of wildlands. Somehow, it seems appropriate to advance such an agenda as conservative forces now take the baton of leadership throughout the nation. More important, the peregrine falcons, bald eagles, moose, and other Adirondack natives which have recently returned to their rightful home in the Park provide all the evidence I need to prove the efficacy of our grand experiment in wildness.

*Michael G. DiNunzio is the Adirondack Council's Director of Research and Education and a frequent contributor to the **Forum**.*

Wild Atlantis~Down But Not Out

by Ron Huber

A wild Atlantis that once graced the submerged archipelago dominating the northwestern Atlantic—the Grand Banks, Georges Bank, Brown Bank, Jeffrey's Ledge, Stellwagon Bank and a host of other sunken massifs—is foundering. Yet a rekindling of mankind's ancient awe and respect for the sea's wild residents raises a glimmer of hope for a re-wilding of this barely known, but badly abused, 100,000 square mile ecosystem.

Three centuries of aggressively applied inappropriate technology, especially the bottom trawl, or 'dragger', has transformed the landscape ecology of this extraordinary, poorly mapped region. Where once the vast submerged plateaus, rolling plains, rugged canyons and towering seamounts hosted shallow and deepwater ecosystems as interactive and productive as those of any forest, an eerie stillness reigns. Atlantis has suffered trophic cleansing.

Long ago this catastrophe was foretold. "The employment of a trawl, during a long series of years, must assuredly act with the greatest of prejudice towards the creatures of the sea," wrote Cornishman James Bellamy in 1842, in his book, ***Guide to the Fishmarket***. "Dragging along with force over considerable areas of marine bottom, it tears away, promiscuously, hosts of the inferior beings there resident, bringing destruction on the multitudes of smaller fishes; the whole of which, be it observed, are the appointed diet of those edible species sought as human food."

"...An interference with the economical arrangement of creation, of such magnitude and of such long duration," Bellamy warned, "will hereinafter bring its fruits in a perceptible diminution of those articles of consumption for which we have such great necessity."

Thus did Bellamy describe the beginning of the mechanized destruction of the marine ecosystem that once inhabited the 60,000 square mile sunken plateau known as the Grand Banks of Newfoundland.

One hundred and fifty three years later, thanks to the continued and increased use of the ground trawler, the 'economical arrangement of creation' on the Grand Banks and its sisters lies in disarray. Vast sponge forests, sea anemone meadows glittering with juvenile fishes, centuries-old wormcastle labyrinths, a great wilderness—rarely more than two to four feet tall—that stretched for thousands of square miles—all this has been ground away by relentless dragging.

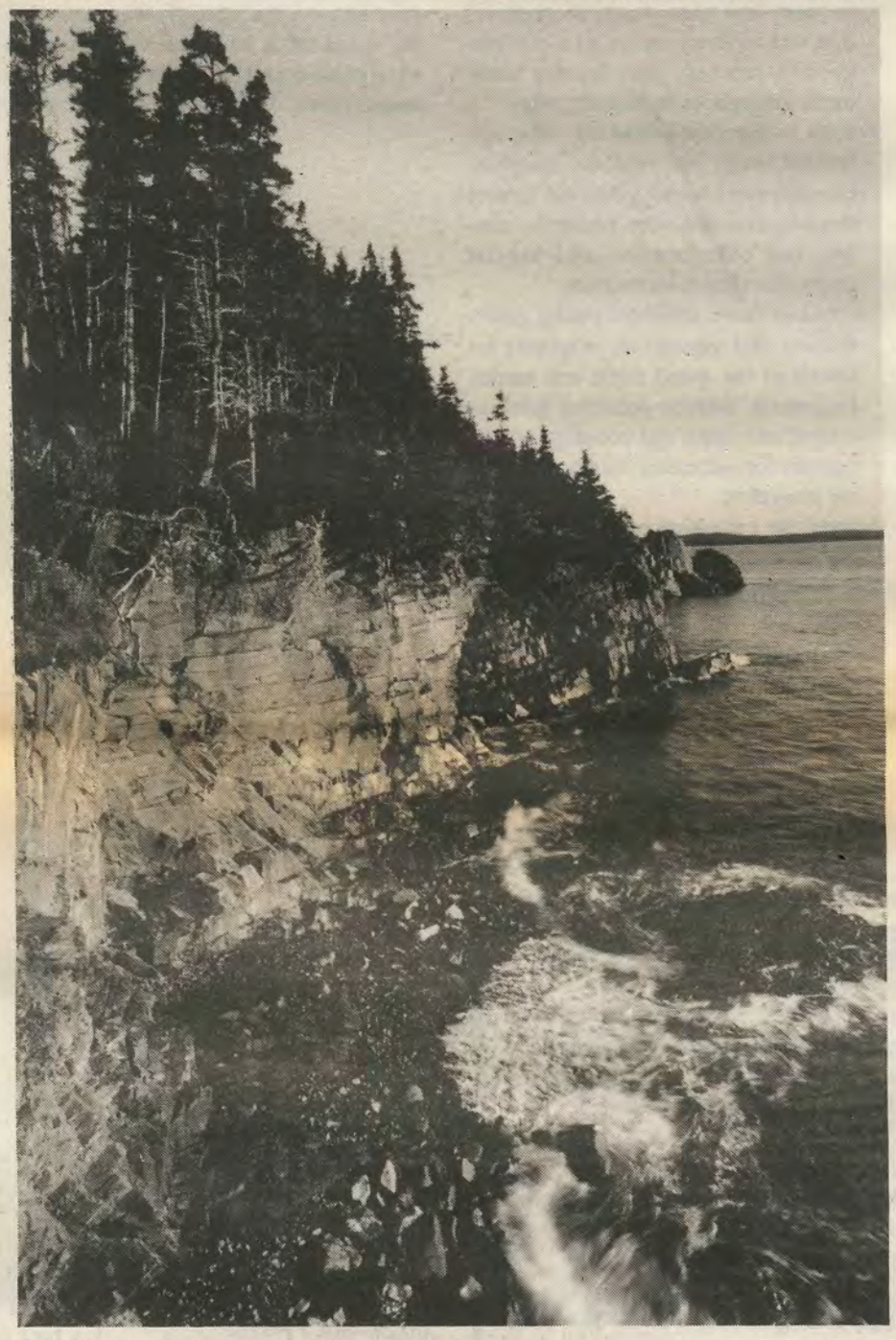
Imagine a large boat towing two bulldozer blades 100 feet apart across the seafloor, with a funnel-shaped net bag chained in between. The blades and chains gouge and scrape the seafloor, raising a storm of mud, sand, and bottom life unable to move out of the way. Panicked fish trapped between the two debris clouds flee forward until exhausted. They then tumble into the bag where they are squeezed together into a suffocating sausage of fish, invertebrates and debris.

Onboard, the now dying 'catch' is sorted through with small sharp picks. Undersized and undesired fish and other species are unceremoniously shoveled overboard, while the remainder head to the processing deck.

Most of the 20,000 square mile seafloor of Georges Bank is treated thusly up to four times per year. Ditto for the Grand Banks and other islands of Atlantis. Clearcut AND plowed.

***

In response, Neptune is shape shifting before our very eyes. The bony fishes, lords of the North Atlantic for millions of years, having been vanquished, now their cartilaginous cousins have reoccupied their ancient dominion, quickly and easily filling the eco-niches of once-top predators like cod, haddock and flounder with ray-like skates and spiny dogfish (small schooling sharks). The Northeast Fisheries Science Center reports these creatures now constitute 71% of the biomass of the banks, with the small, fleet fishes like mackerel and herring making up most of the remainder.



Quoddy Head, Downeast Coast of Maine, the easternmost part of the United States. This photo © by John McKeith appears in ***The Great Northern Forest****, published by National Audubon Society, Sierra Club & The Wilderness Society.* *See page 13 for more information.*

Should we even try to restore King Cod to his throne? Nature may be perfectly happy to manifest in this simpler form, better able perhaps, to withstand humankind's predation and habitat wrecking technology. Some say yes calling for an overwhelming assault on Clan Cartilage, in the hopes that *Gadus morhua* & friends will re-inhabit a re-emptied Atlantis.

But others think this approach to fisheries management is the equivalent of performing brain surgery with a pick-ax. One long-time observer of the American fisheries warned: "We cannot 'manage' ocean ecosystems." "All we can do," he said, "is try to limit humankind's assault on marine ecosystems", from saltmarsh to seamount. Perhaps Neptune will put his domain together again in a way to our liking. Perhaps not.

Twenty years ago, after successfully teaming up with commercial fishers to block oil and gas production on Georges Bank, scientists and environmentalists failed in a bid to have Georges Bank declared a marine sanctuary. The alliance with the commercial fishers collapsed, and there has been bad blood ever since.

But now, with Atlantis scoured, the time has come to renew the old alliance. To create non-extractive reserves on the banks. To quash attempts by developers and industry to foul the waters and destroy the wild fish and invertebrate nurseries dotting the coasts of Maine, New Hampshire, and Massachusetts.

For this to occur, we must find common ground with the fishers again. With a new Dark Age settling over Capitol Hill, (already the key fisheries committee in the House of Representatives is slated for elimination), we must adopt a holistic approach that accepts Homo piscivore, land-based marine predator that he is, as an integral part of the northwestern Atlantic marine ecosystem. Thus honored, the small commercial fishers may again rise to the battle, armed with legal standing, and an intimate knowledge of the marine world, and humbled by the knowledge of their part in bringing about the present catastrophe.

Together we may, as Jimi Hendrix prophesied a quarter of a century ago, restore this ruined marine wilderness to an "Atlantis full of cheer!"

Ron Huber directs the Coastal Waters Project, POB 1811, Rockland, ME 04841. Tel (207) 596-7693.

Conservationists Sue To Protect Critically Threatened Atlantic Salmon

January 20, 1995—Two conservation organizations and two individuals have filed a lawsuit to require the US Fish & Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to rule on whether to protect the Atlantic salmon as a "threatened" or "endangered" species under the Endangered Species Act. The agencies were required to issue a ruling by October 1, 1994 in response to a petition filed by the plaintiffs, but failed t do so. The lawsuit would compel the agencies to issue a ruling within 30 days.

The plaintiffs include RESTORE: The North Woods, the Biodiversity Legal Foundation, Jeffrey Elliott, an instructor at Plymouth State College, and Charles FitzGerald, a citizen of Dover-Foxcroft, Maine.

Over 300,000 Atlantic salmon once returned to approximately 28 rivers in New England. Today, salmon return to less than 15 rivers. the lawsuit contends that fewer than 2,000 Atlantic salmon returned to New England rivers to spawn in 1994. This was a 33 percent decline from the 3,000 fish that returned in 1993.

"Wild Atlantic salmon are on the verge of extinction in the United States," said David Carle, Associate Executive Director of RESTORE: The North Woods. "We need the U.S. government to finally make a decision on our petition so we can start working with the USFWS and NMFS in developing a recovery program for the species."

For More Information Contact: *RESTORE: The North Woods, POB 440, Concord, MA 01742.*

Articles on the Atlantic salmon have appeared in several issues of the ***Forum****. See: Volume 1 #4, volume 2 #2 & vol. 2 #3, and volume 3 #1.*

Petition Filed for Listing North American Wood Turtle as Endangered Species

On December 27, 1994, RESTORE: The North Woods, Steve Garber, Ph.D., Joanna Burger, Ph. D., James Harding, Carl Ernst, Ph.D., Sheila Tuttle, Jeff Davis, and the Biodiversity Legal Foundation filed a petition with the United States Fish and Wildlife Service (FWS) to list the North American wood turtle (*Clemmys insculpta*) as a "threatened" species in the United States. The petitioners contend that the species is biologically threatened due to a dangerously low population, over-collection for the pet trade, continued habitat destruction, and inadequate government habitat-protection programs.

The wood turtle is a long-lived, intelligent animal, found as far south as Virginia, north to Maine, and west to Minnesota. The species was once abundant throughout its range; in the 1800s, one person reported seeing over 100 individuals during an afternoon walk in central Massachusetts. Today, the wood turtle is classified as a species of special concern throughout much of its range. With the population much reduced from former levels, the wood turtle is extremely vulnerable to further habitat loss and fragmentation, collection, logging and other resource extraction, toxic pollution, and other activities.

Reasons for the Decline of Wood Turtle Populations

The petition documents a number of reasons for the declining populations including:

*over-collection for the pet trade, biological supply companies, and export;
*habitat destruction and fragmentation from logging and development;
*significant predation by "edge species" such as raccoons, skunks, cats, and dogs that thrive in fragmented habitats.
*toxic pollution—including dioxins, mercury, and pesticides—and siltation from industry, agriculture, forestry, and municipalities;
*the inadequate authority of federal and state agencies to enforce compliance with laws including collection permits;
*inadequate state and federal funding for habitat protection programs; and
*a lack of public education and involvement in wood turtle protection programs.

Benefits of Listing the Wood Turtle

The listing of the wood turtle as "threatened" under the Endangered Species Act would greatly strengthen federal and state protection programs. Among other benefits, it would:

*mandate and encourage the preparation and implementation of a comprehensive recovery plan for the wood turtle throughout its historic range;
*result in increased funding—through federal, state, and regional cooperative agreements and additional federal funding sources—for research, census, law enforcement, and habitat acquisition and maintenance;
*stimulate more effective public information and education programs on behalf of the wood turtle and turtles in general, thereby reducing human-caused mortality and building public support for increased funding of critical programs;
*curtail the collection of the species for the pet trade and export; and
*increase protection and restoration for other federally endangered species such as the bald eagle, dwarf wedge mussel, Shenandoah salamander, furbish lousewort, and northeast bulrush.

Conclusion

The petition contends that action is needed now to prevent the continued decline and possible extinction of the wood turtle. According to an article in the journal ***Conservation Biology,***

"Early intervention is critical to the success of endangered species recovery efforts. Yet our analysis indicates that most species, subspecies, and populations protected under the ESA are not receiving that protection until their total population size and number of populations are critically low."

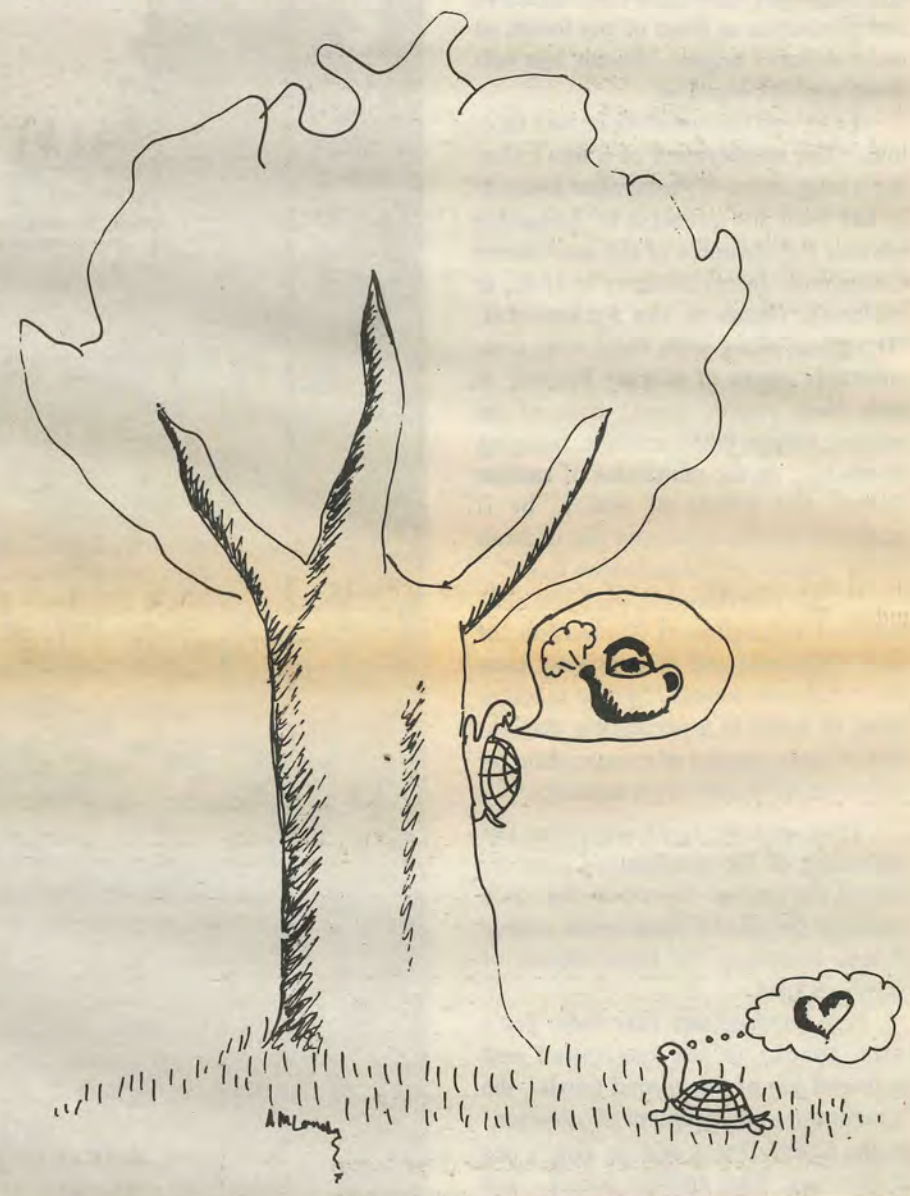
If species are listed as "threatened" or "endangered" before the situation reaches a crisis stage, government agencies have many more options for protecting them. Moreover, the social and economic costs are likely to be lower.

The wood turtle is one of the least protected and most imperiled native turtle species in the United States. Our current knowledge strongly suggests that the wood turtle has been sliding toward extirpation in the United States for many years. The species appears to be prone to extinction from both short-term and long-term environmental fluctuations and habitat alterations. According to Dr. Steve Garber, an expert on wood turtles and one of the petitioners:

"We are certain that extinction is where wood turtles are headed, and without adequate protection of the animals and their habitat, and proper management that insures their survival, wood turtles will surely disappear in their entirety from the landscape."

Petitioners are requesting that the Fish and Wildlife Service list and protect the wood turtle as "threatened" under the Endangered Species Act, and designate "critical habitat" to provide for successful hatching and rearing of wood turtle.

The Fish and Wildlife Service has 90 days to rule on the merit of the petition.



Wood Turtles

Clemnys insculpta

Selected quotes from article by Peter A. Cross, Maine Department of Inland Fisheries and Wildlife in The Amphibians and Reptiles of Maine, edited by Malcolm L. Hunter, Jr., John Albright, and Jane Arbuckle, Bulletin 838, Maine Agricultural Experiment Station, University of Maine, July 1992, pgs. 108-111.

"Admittedly, you may never actually hear a male wood turtle whistling from a tree branch to a female passing below, but conceivably it *is* possible. The wood turtle is not only one of the most terrestrial of North American turtles, but it is apparently somewhat arboreal, too. Most people would react to the idea of a climbing turtle with outright disbelief, but wood turtles are reported to be "accomplished climbers" and even have been seen climbing a chain link fence. Also at odds with our perception of a turtle, this species is known to be vocal, emitting a noise resembling a whistling tea kettle during courtship. . .

"Wood turtles appear to have a courtship ritual which may include a dance of sorts. This dance has been observed for several hours prior to actual mating, which takes place in the water. The dance involves the two partners approaching each other slowly with necks extended and their heads up. When they are close to each other, they lower their heads and swing them from side to side....

"Unfortunately, the wood turtle's past popularity as a pet may have contributed to local population declines. Ernst and Barbour reported on Tinklepaugh's experiment of running a wood turtle through a maze and finding its learning ability to be equal to that of a rat. This turtle may have an intelligence and environmental awareness well above that of other herps.... The wood turtle is not tolerant of pollution in its environments. This, along with loss of riparian habitats, would further stress a depleted population and help explain their increasing scarcity.

"Various mammals may consume the eggs and young on land, and fish and other aquatic vertebrates are capable of taking young in the water. Adult turtles, however, are probably very resistant to most predatory attacks. Their reported land speed of .3 kph (.2 mph) is hardly representative of an animal that flees its enemies, and no serious predators to adults are known. Wood turtles are reported to be long lived in the wild, with 58 years mentioned for one in captivity."

Good Work

Continued from page 3

Adirondack Nature Conservancy, and the New York Department of Environmental Conservation.

Protecting the Sanctuary means enacting some rules... and accepting some limitations. Five guidelines should ensure Hemlock Rock the chance to regain old-growth status relatively quickly (as the land has already enjoyed several decades of benign treatment): 1. No machines; 2. No guns; 3. No traps; 4. Fishing only for exotics (if any are present); 5. Firewood gathering only within 50 yards of existing cuts (the public road and powerline, mainly).

Being guardian of the Sanctuary also means saving as much money as possible (though the initial purchase will keep me in debt for awhile), with the intent of adding to the Sanctuary if nearby private lands go up for sale. Obviously, the more acreage in the Sanctuary, the more wildlife it can serve.

In short, wildness for me is bedrock. It is wilderness; it is Nature unfettered and unaltered; it is the source and measure of all value; it is goodness. Therefore, it calls forth responsibility: Each of us must do our part to protect and restore wild land and life in our own region and beyond.

John Davis is editor of Wild Earth *and board member of The Wildlands Project. When not in the Adirondacks, he lives across the lake with his cat Shadow in the shadow of Camel's Hump, Vermont.*

338 Groups Tell EPA to Ban Dioxin Now

Activists from 338 groups have signed on to the following letter that was hand delivered January 12 to Carol Browner, Administrator of the U.S. Environmental Protection Agency. The overwhelming support gathered by the National Wildlife Federation is testament to the public's unwavering demand for action in phasing out known sources of dioxins. To allow the process to drag on as it did with lead and DDT would be highly irresponsible.

We the undersigned 338 organizations and individuals representing millions of citizens across the country wish to express our views on the EPA's recently released Draft Health Assessment of Dioxin and Related Compounds. . .

The United States Environmental Protection Agency (EPA) has undertaken a comprehensive reassessment of the public health threat posed by dioxin (2,3,7,8-Tetrachlorodibenzo-p-dioxin) and related compounds. On September 13, 1994, the EPA released a draft of this reassessment for public comment. The undersigned groups submit the following comments and recommendations as part of that public comment process. . .

The science clearly demonstrates that dioxins are a serious threat to human health and the environment. We expect that the EPA will respond to the legitimate and scientifically documented concerns of our members about the public health threat posed by dioxins and phase out dioxins from known sources. The time has come when we can no longer debate whether a phaseout of dioxins is necessary. We must now begin the process of implementing a phaseout.

I. The Science is Clear that Dioxin is a Significant Public Health Threat

A. Dioxins disrupt the endocrine system causing many serious health effects to reproductive, immune and nervous systems. We agree with the EPA's characterization of the public health threat posed by dioxins and related compounds based on the relevant scientific studies. These studies indicate that dioxins and related compounds have the ability to disrupt the endocrine system and thereby cause serious health effects in several bodily systems. These effects include improperly formed reproductive organs, impaired immune systems, and learning and behavioral disorders. These effects have been clearly and dramatically observed in birds, fish, and mammals. These chemicals are threatening in large part because they bioaccumulate through the foodchain. How can humans at the top of the foodchain not be similarly affected? In fact all population trends suggest that infertility due to low sperm counts and endometriosis, and chronic immune system diseases are increasing.

The findings about these health effects are even more disturbing because they affect those who are most vulnerable—our children. Parents exposed to dioxins and related chemicals often escape these health effects. However, their children who may become exposed through the placenta and breast milk at critical stages in development can be irreversibly affected. A child can receive up to 12% of its lifetime exposure to these chemicals in the first year of life, when its body's organ systems are most vulnerable and least able to combat toxins.

B. Dioxin is a potent carcinogen. We agree with the EPA's conclusion that the weight of evidence indicates that dioxin is a potent carcinogen. In recent years, there have been allegations that dioxin is not as toxic as previously thought and that the cancer risk posed by dioxin had been overstated. In fact, these allegations were one of the reasons EPA undertook this comprehensive reassessment of the health threats posed by dioxin. The draft reassessment reaffirms that dioxin is the most carcinogenic substance ever tested. It is scientifically linked to recent significantly increased rates in many cancers, such as soft tissue sarcoma, liver and lung cancers.

C. Science indicates that there is no margin of safety with dioxins at current levels of exposure. Dioxins and related compounds pose a health threat at very low levels, even levels which may be unacceptable using current technology. The science and EPA's report indicates that dioxins are linked to these serious health effects at or near the body burdens most Americans have today. In addition, through the process of bioaccumulation minute quantities of dioxins build up exponentially as they move up the foodchain. Therefore, even small amounts pose serious health threats for animals at the top of the food chain, like humans. Finally, natural hormones, which send chemical signals from one part of your body to another, act in minute quantities to regulate a great many processes in the human body. Therefore, synthetic chemicals which disrupt this delicate process can have dramatic consequences.

Certain highly exposed subpopulations in particular must be protected against any additional exposures to dioxins and related chemicals. These include pregnant women, and populations which eat more fish than the average American, such as Native Americans and subsistence anglers who fish out of contaminated waters.

II. Dioxin must be phased out from known sources now.

A. Ban the start-up of new incinerators or the expansion of existing incinerators that burn chlorinated garbage and require source separation of dioxin-producing waste at existing facilities. Incinerators are the largest identified sources of dioxin. Incinerators generate dioxins largely as a result of burning PVC plastics and other chlorine based products. EPA should immediately halt issuance of permits for new combustion facilities and on permits for expanded capacity at existing incinerators that burn chlorinated garbage. EPA should modify all existing permits to require source separation to phase out the input of chlorinated wastes or products that result in the generation of dioxin.

B. Phase out the use of chlorine in the manufacture of solvents and poly vinyl chloride (PVC) plastics. Dioxins are formed both in the production and the disposal of chlorinated solvents and PVC plastics. Since PVC plastic is the largest single use of chlorine, it is not surprising that it results in more dioxin production during its lifecycle than any other product. Fortunately, alternatives exist for most major uses of PVC plastics, such as packaging, pipes, siding and hospital supplies. For many uses requiring the characteristics of plastic, non-chlorinated plastics can be used. PVC siding can be replaced with aluminum or wood. Traditional materials like copper or galvanized steel can be used instead of PVC pipe. Finally the best alternative to PVC packaging is less or no packaging.

We urge an immediate phase out of short-life uses of PVC, such as packaging, toys, and, where appropriate, medical supplies, and a longer term phase out for all other uses of PVC plastics. [Exceptions may be made for certain medical uses.]

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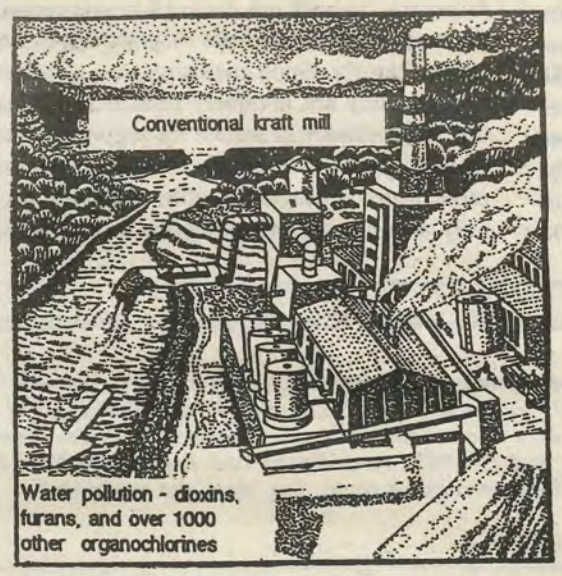
Chlorine Free Paper

Preserving Paper Making Jobs and Protecting Workers' Health and Our Environment

What's Wrong with Chlorine Bleaching?

A by-product of the kraft paper making process is dioxin, a toxic substance that has been linked to cancer, infertility and problems with physical development in children. Maine's seven kraft paper mills employ chlorine based agents in the bleaching process.



- **56% of all toxic chemicals released to Maine's environment in 1991 came from our seven kraft mills.** (Source: EPA Toxic Release Inventory)
- **Maine lobsters, shellfish and other marine life are contaminated with dioxin.** (Source: State of Maine testing programs)
- **The storage and transport of chlorine bleaching agents pose a serious threat to workers and communities surrounding the mills and along shipment routes.** (Source: Maine Chemical Inventory forms)

What is the Alternative?

Totally chlorine free (TCF) paper making technology is in use in California at the Louisiana Pacific kraft mill as well as several Scandinavian plants. These mills produce paper of comparable strength and brightness to any chlorine bleached paper. None of the hazards associated with chlorine bleaching exist with this paper making process.

Maine People's Alliance

65 West Commercial Street, Portland, Maine 04101-4631. Tel. 207 761-4400.

Ecological Health of the Northern Forest

by Stephen C. Trombulak

*[Adapted from "Ecological Health and the Northern Forest", in press in the **Vermont Law Review**, spring, 1995]*

One of the more contentious debates that occurred during the work of the Northern Forest Lands Council was over the need to develop recommendations to improve the ecological health of the region. At almost every public meeting associated with the NFLC someone would offer their opinion that the ecological health of the region was either excellent and therefore ought not be an issue, or abysmal and ought to be a high priority for action. Despite the heat surrounding this debate, data to evaluate these statements were not presented. Yet this issue did not have to be debated in the dark. Data collected by state and federal agencies could have been summarized to give a general picture of the condition of biological diversity within the region. The data are not perfect. Some elements of ecological health, such as changes in carbon fixation or soil chemistry, have not been studied on a regional basis. For other elements, data are not available for the Northern forest alone, but are reported for entire states. Despite these limitations, however, enough data are available to at least create a starting point for meaningful and informed discussions about conditions in the region.

Patterns of Species Diversity

The dimension of ecological health most commonly thought of is that of the status of species. Several different species-level parameters can be evaluated.

Rare, threatened, endangered, and extinct species. In general, species are assigned to categories based on the number of individuals or populations recorded in recent history. Such measures are of great interest because they are inversely related to the probability that the species will persist for a given length of time. Not all species that are listed should be considered a problem for ecological health; some species are naturally uncommon, and extinction is a process that predates the evolution of humans. Yet, we are not sufficiently skilled yet to know which species are rare for natural reasons. Therefore, these lists represent the minimum number of species identified by conservation professionals as being of concern and an index to the status of species-level diversity.

Each state has its own procedure for evaluating and listing such species, so comparisons among states must be made cautiously. In Vermont, species are listed as either rare, threatened, or endangered (Table 1). The percent of the total number of native species in each group that are listed ranges from 10% (birds) to 46% (reptiles and amphibians). Furthermore, six species of animals are known to be extinct in the state (Arctic char, timber wolf, wolverine, elk, caribou, and passenger pigeon), along with 95 species of plants that are known only from historical records.

Maine created several additional categories of conservation status (Table 2). To simplify analyses, I have combined the categories of Special Concern, Watch List, Indeterminate Status, and all Candidate and Nominated species into the single category of Rare. Species listed as Probably Extirpated (i.e., not seen within the last 20 years) are combined with those listed as Endangered. The pattern is similar to Vermont; the percent of the total number of native species in each group that are listed ranges from 6% (conifers) to 33% (ferns and allies).

Maine also lists 11 animal species as extinct: Labrador duck, peregrine falcon, Eskimo curlew, great auk, passenger pigeon, loggerhead shrike, sea mink, timber wolf, caribou, mountain lion, and timber rattlesnake. Of the 192 plant species classified as endangered in Table 2, 93 of them are categorized by the State of Maine as Probably Extirpated.

Like Maine, New Hampshire uses several additional categories for the status of plants. I combined species that have the status of Endangered or the rank of Critically Imperiled, Historically Known, and Believed to be Extinct under the category of Endangered. Species with the status of Threatened or the rank of Imperiled were combined under the category Threatened. Species with the rank of Very Rare or Local, Possibly in Peril, or Uncertain were categorized as Rare (Table 3). Percentages range from 19% (conifers) to 28% (flowering plants). New Hampshire lists animal species of concern only as threatened or endangered, and therefore percentages are not directly comparable to those calculated for Vermont and Maine. Extirpated species include the mountain lion, wolverine, timber wolf, caribou, and passenger pigeon, along with 10 species of plants believed to be extinct and 43 known only from historical records.

Tree species. Available data suggest that only a few tree species are in decline. The two most notable are American chestnut and American elm, which have declined due to chestnut blight and Dutch elm disease, respectively.[1] Balsam fir has shown repeated declines as a result of cyclical peaks of spruce budworm. Trends in population size for balsam fir throughout Maine from 1975 to 1985 showed a 57.6% decline in pure softwood stands and 30.1% in mixed woods.[2]

Breeding birds. Few animal taxa have been used as extensively as indicators of ecosystem health as have birds. Although no currently-available data set on birds is ideal for assessing long-term trends in populations, one of the best is the Breeding Bird Survey conducted throughout the country by the U.S. Fish and Wildlife Service. Since 1965, established road transects in each state have been surveyed, and the number of breeding birds of each species censused.

Data are available for each species in each state in each year, and also as population trends from 1966 to 1991.[3] Trends are described in each state by plotting the average number of breeding birds of each species against year and calculating a least-squares (linear) regression. Regression equations based on fewer than 14 transects are difficult to interpret due to small sample size. Species for which sample size is adequate are divided into three groups: no significant change in population size (i.e., the slope of the regression equation is not significantly different from zero, $P > 0.05$), significant increase in population size (the slope is significantly greater than zero, $P < 0.05$), and significant decrease in population size (the slope is significantly

Table 1. Number of species listed as state rare, threatened, or endangered in Vermont.
(Sources: ***Vermont's Rare, Threatened and Endangered Plant Species***, Nongame and Natural Heritage Program, Agency of Natural Resources, July 1989; ***Vermont's Rare, Threatened and Endangered Animal Species***, October 1989.) Values in parentheses following some of the totals are the proportion of the known native flora or fauna. (Sources: DeGraaf, R.M., and D.D. Rudis. 1983. ***Amphibians and Reptiles of New England***. University of Massachusetts Press, Amherst. See text for references for plants, fish, birds, and mammals.)

	Rare	Threatened	Endangered	Total
Mosses	0	0	2	2
Ferns and allies	14	7	3	24 (0.31)
Conifers	1	1	0	2 (0.13)
Flowering plants	295	83	19	397 (0.30)
Invertebrates	22	2	0	24
Fish	15	4	1	20 (0.26)
Reptiles and Amphibians	12	2	3	17 (0.46)
Birds	25	2	8	35 (0.10)
Mammals	3	1	4	8 (0.15)

Table 2. Number of species listed as state rare, threatened, or endangered in Maine (excluding marine reptiles and mammals).
(Sources: ***Elements of Natural Diversity--Rare, Threatened and Endangered Plants***, Maine Natural Areas Program, Department of Economic and Community Development, March 1994; ***The Official Who's Who of Rare and Endangered Wildlife in Maine***, State of Maine.) Values in parentheses following some of the totals are the proportion of the known native flora or fauna. (Sources: See Table 1.)

	Rare[a]	Threatened	Endangered[b]	Total
Ferns and allies	7	6	10	23 (0.33)
Conifers	0	1	0	1 (0.06)
Flowering plants	86	69	182	337 (0.25)
Fish	4	0	0	4
Reptiles and Amphibians	4	2	2	8 (0.23)
Birds	39	1	8	48 (0.12)
Mammals	13	1	0	14 (0.25)

a: includes species that are recorded as Special Concern, Watch List, Indeterminate Status, Candidate, and Nominated Species.
b: includes species that are listed as Probably Extirpated.

less than zero, $P < 0.05$). Further, to help interpret any patterns observed, I categorized each species with respect to its primary habitat type and its pattern of seasonal movement.[4]

Several results emerge from these data for Maine, New Hampshire, and Vermont, but three in particular are of special interest. First, most species showed no significant change in population size when considering data during this time period (Table 4). The percentage of species that showed no change ranged from 55% (Maine) to 37% (New Hampshire).

Second, some species showed significant decreases during this time, ranging from 17% (Vermont) to 13% (New Hampshire) of the state's avifauna. To assess regional-scale patterns for species declines, I determined for which species there was evidence that declines were regional, rather than local. To do this I excluded the species which showed declines in one state and increases or no change in another. Only seven species show region-wide declines from 1966 to 1991, and there are no obvious ecological or behavioral correlates that unite these species.

Third, almost the same can be said for species that show a region-wide increase from 1966 to 1991, with the exception that four of the six species in this group show a strong positive association with human-modified environments. (These four are among only 13 that fall into this group in the Breeding Bird Survey data from these three states.)

Assessing the status of species in the three-state region combined decreases the likelihood that population trends would indicate a change, and is thus an extremely conservative measure. Surprisingly, given the sampling method employed, these data seem not to be biased by the ecology of the birds. One could hypothesize that species that prefer habitats away from roads (e.g., forest interior species) would be over-represented among species with insufficient sample size, but this seems not to be the case.

This data set has several limitations. First, the group of species for which there is sufficient sample size is significantly biased towards perching birds ($P < 0.001$) suggesting that non-perching birds are found less often where the transects occur or are less readily sampled by the techniques employed. However, neotropical migrants, the group of birds most commonly cited as being in decline in North America, are among the perching birds, so the data set appears sufficient to sample that group.

Second, the data are biased towards breeding birds. To evaluate other patterns, other data sets, such as the Christmas Bird Count, must be used.

Third, the trends are restricted to the 1966-1991 period. No earlier data are available. Also, combining these 26 years masks the possible existence of trends that have only recently begun. For example, if a species shows no change from 1966 to 1979 and then begins to increase or decrease; the combined data set might show no significant change, although the change is real but recent.

Fourth, species that are rare, threatened, or endangered in these states (Tables 1-3) do not offer sufficient sample sizes to provide trends; therefore, birds that are already of some serious conservation concern will not contribute to this data set.

Mammals. With the exception of game species, population trends of few mammals can be assessed. As mentioned above, several species of large carnivores and herbivores are actually or ecologically extirpated from all or part of the region, including mountain lions, lynx, timber wolves, wolverines, pine martens, caribou, and elk. Some species or species groups are in decline, including all species of bats[5], and New England cottontail and bobcat.[6] Many other species may be increasing locally, including deer, moose, coyote, and beaver.

Care must be taken in interpreting the ecological consequences of population declines or increases, however. The geographic distribution of New England cottontails in New Hampshire, for example, has decreased from 60% to 20% of the state. They prefer edge and successional habitats, which themselves are in decline due to a return of forests following large-scale clearing during the last century. It seems probable, therefore, that New England cottontails are in large part returning to natural densities from unnaturally high levels. Also, deer are probably at population densities far in excess of what is natural, which, since they are keystone herbivores, will have consequences for entire plant communities.

Long-term monitoring programs on all other nongame species of mammals need to be established to determine the overall status of mammalian species.

Amphibians. Species in this group are considered to be in decline globally based on drastic population reductions and extinctions at many different locations. Data from the Northern Forest region are sparse, however. Based on their studies at Hubbard Brook in New Hampshire, Burton and Likens claimed that in the early 1970's redback salamanders were the most abundant vertebrate in the northeast.[7] Yet, studies by Andrews and Trombulak in western Vermont since 1990 have consistently failed to document such a result.[8] Whether this represents a regional change or regional variation awaits further study.

Exotic species. Another, less appreciated, dimension of species diversity in a region is the prevalence of exotic species. Although one might think that the introduction of exotic species would be good for biological diversity, because it increases the number of species in the area, in fact the introduction of exotics is one of the greatest threats to biological integrity all over the world. The introduction of exotics has been linked to declines of biological integrity throughout the world. In the United States alone, just 79 species of exotic organisms have resulted in $97 billion worth of harmful effects since the turn of the century.[9]

No complete list of introduced species has been made for the Northern Forest. However, the prevalence of exotic species can be assessed for a few well-studied groups in areas that include the Northern Forest. Vascular plants are well known at the state level in northern New England. Seymour's extensive synthesis of herbaria collections from New England identifies 2375 species that grow wild (i.e., outside of cultivation) in either Maine, New Hampshire, or Vermont.[10]

Of these 2375 species, 651 of them (27.4%) were brought to the area, either accidentally or on purpose, by humans (Table 5). The percentages vary among plant types, with far more flowering plants having been introduced (28.4%) than conifers (20.0%) or ferns (1.2%). The percentages are similar among these three states, ranging from 26.6% in Maine to 22.7% for New Hampshire. Exotic vascular plants appear to be more common in northern New England in areas with greater levels of unnatural disturbance. Most exotics are described by Seymour as being found in disturbed or human-constructed habitats (e.g., roads, railroads, housing developments), suggesting that exotics are better able to invade communities when they are perturbed from their natural condition. This is supported by the observation that the overall percentage of exotics in southern New England, which has had a

Table 3. Number of species listed as state rare, threatened, or endangered in New Hampshire.

(Sources: ***New Hampshire Natural Heritage Inventory Plant Tracking List***, State of New Hampshire, Department of Resources and Economic Development, Natural Heritage Inventory, July 1994; ***Endangered and Threatened Wildlife of New Hampshire***, Nongame and Endangered Wildlife Program, New Hampshire Fish and Game Department, January 1992.) Values in parentheses following the totals are the proportion of the known native fauna. (Sources: See Table 1.)

	Rare[a]	Threatened[b]	Endangered[c]	Total
Ferns and allies	0	10	8	18 (0.25)
Conifers	0	2	1	3 (0.19)
Flowering plants	28	154	186	368 (0.28)
Invertebrates	---	3	6	9
Fish	---	0	2	2
Reptiles and Amphibians	---	0	1	1 (0.03)
Birds	---	9	10	19 (0.05)
Mammals	---	1	2	3 (0.05)

a: Information is only available for plants. Combines species with the rank of Very Rare or Local (S3), Possibly in Peril (SU), or Uncertain (S?).
b: Combines species that have the status of Threatened (ST) or, if no status code is assigned, the rank of Imperiled (S2).
c: Combines species that have the status of Endangered (SE) or, if no status code is assigned, the rank of Critically Imperiled (S1), Historically Known (SH), and Believed to be Extinct (SX).

Table 4. Population trends for birds in Maine, New Hampshire, and Vermont from 1966 to 1991.

Values indicate the number of species that show each population trend, with proportion of state total in parentheses. Species recorded on fewer than 14 of the transects in a state do not provide sufficient data to assess their trends in that state. Data for other species are fitted to a regression line, and the slope of the line is either significantly increasing (greater than 0.0; $P < 0.05$), significantly decreasing (less than 0.0; $P < 0.05$), or not changing (not significantly different from 0.0; $P > 0.05$). The total number of species listed in each state may not equal the total number of birds known to breed in that state if species were not recorded on any transect.

Status	Maine	New Hampshire	Vermont
Insufficient data	34 (0.21)	55 (0.36)	48 (0.32)
No change	88 (0.55)	57 (0.37)	65 (0.44)
Increase	14 (0.09)	21 (0.14)	11 (0.07)
Decrease	23 (0.15)	20 (0.13)	25 (0.17)
Total	159	153	149

longer history and greater levels of disturbance than in northern New England, is over 30%.[11]

Exotic species in other groups are also well known, including mammals (3 of 58 [Maine and New Hampshire] or 57 [Vermont] terrestrial species are exotic[12]), birds (6 of 407 breeding or wintering in Maine; 6 of 370 in New Hampshire; 7 of 340 in Vermont)[13], and fish (5 of 81 in Vermont)[14]. Total species richness is less well known for most other groups, but they include many introduced species. Especially well documented are species that negatively-impact trees, such as gypsy moth, beech bark scale, pear thrips, red pine adelgid, hemlock woolly adelgid, balsam woolly aphid, chestnut blight, Dutch elm disease, butternut canker, European pine sawfly, and red pine scale.[15]

Gaps in our knowledge. Several taxa are so poorly known in this region that it is currently impossible to assess their status. These include, but are not limited to soil flora and fauna, insects, fungi, lichens, and all aquatic organisms.

Patterns of Genetic Diversity

This is the hardest level of ecological health to assess because it is not amenable to easy inventory and monitoring programs. Further, few baseline data exist for any species, making it difficult to determine what current values of genetic diversity mean.

Genetic diversity is decreased in nature when populations are reduced in size or subjected to artificial selection. It has been argued that species at low population densities are at greater demographic risk (e.g., accidental death of the entire population in a single chance event) than genetic risk (e.g., death from an epidemic due to loss of genetic resistance). If true, genetic diversity in small populations, such as rare, threatened, or endangered species, is of secondary concern.

Genetic diversity in species subject to intense artificial selection ought to be of great concern, however. Population sizes could be quite large, yet the species could be at great risk of extirpation. Whether artificial selection has been intense enough for any species in this region, however, is another matter. Studies of 14 species of hardwood trees, summarized by Li et al.[16], documented total genetic diversity values from between 0.05 (eastern cottonwood) to 0.24 (trembling aspen). Intensively managed species, such as sugar maples, have genetic diversity values well within this range, suggesting that modification of the genome of these species has not occurred.

Candidate species that deserve immediate attention include fish raised exclusively in hatcheries, species subject to hunting or fishing (especially those with size limits), and plant species that experience breeding or selection programs as part of large-scale commercial operations.[17]

Patterns of Ecosystem Diversity & Condition

Forest ecosystems. Conditions in forested ecosystems can be discussed in two general subcategories: tree and non-tree communities. Several different parameters can be used to assess the general condition of the trees, including the total amount of forested area, size and age classes of trees, and overall tree health. Each of these can in turn be evaluated in three general time frames: present in comparison to baseline conditions, long-term trends, and short-term trends.

In all three states, the total amount of forested area is less than it was prior to European settlement (Figure 1). Various estimates place the baseline percent forested area at approximately 95% in all three states. Currently, estimates are 89%, 87%, and 77% for Maine (1982), New Hampshire (1983), and Vermont (1983), respectively.[18]

Over the past 100 years, forested area has increased from historical lows (Figure 1). This has generated a positive trend in this parameter of ecological health. Long-term trends (1952-1987), however, indicate that the forested area has changed little in the past 40 years.[19] Short-term trends have also shown either slight increases or decreases (Table 6). This suggests that the long-term trends are approaching a plateau and that baseline conditions will not be reached in the near future.

Forest area can also be assessed by forest community type. Since European settlement, forest composition has probably changed to some extent. In general, species such as red spruce and American beech have probably decreased and aspen, red maple, and sugar maple have probably increased.[20]

Short-term trends are also of interest. In general, oak/hickory and northern hardwoods groups increased in Vermont while other forest types declined; white/red pine and oak/hickory forests declined in New Hampshire while other forest types increased; and in Maine, spruce/fir, loblolly/shortleaf, and elm/ash/red maple groups declined while all others increased (Table 6). The only trend found in all three states is the increase in northern hardwoods. Similar analyses should be conducted for long-term trends as well, incorporating data from the most recent decade as they are published.

Size and age class structure of trees have also changed dramatically over time. Compared to baseline conditions, there has been a very large decrease in the amount of old-aged and very-large trees. The distribution of old growth forests prior to European colonization is only speculative, but it is reasonable to assume that the distribution was extensive and limited only by the patterns of natural disturbances that moved through an area, such as fire and storms. Lorimer demonstrated that forests in central Maine were subjected to fire once every 800 years and devastating storms once every 1000 years.[21] This suggests that even in the face of natural patterns of disturbance, trees throughout this region had the opportunity to reach great age. It has been suggested that 75% or more of the pre-settlement forests in Wisconsin, similar to those of the Northern Forest region, were in an old-growth condition at any given time.[22]

The most complete inventory of old growth stands in the Northern Forest indicates that current old growth of all types make up less than 0.5% (5 in every 1000 acres) of region (Table 7)[23]. Furthermore, the majority of these stands are small in size (Figure 2); the median size of the stands is only 200 acres (less than 1/3 square mile), and one stand at the Southern Five Ponds Wilderness Area in the Adirondack Park alone is 38% of the total for the entire Northern Forest. Although Davis acknowledges that this inventory is not complete because of a general lack of knowledge of land-use history in many remote and high-elevation regions, especially in New York, it is almost certainly accurate to within an order of magnitude and likely does not exclude any large tracts. Although I agree with her call for more extensive surveys of old growth, I doubt if additional work will change our overall understanding of old growth in this region.

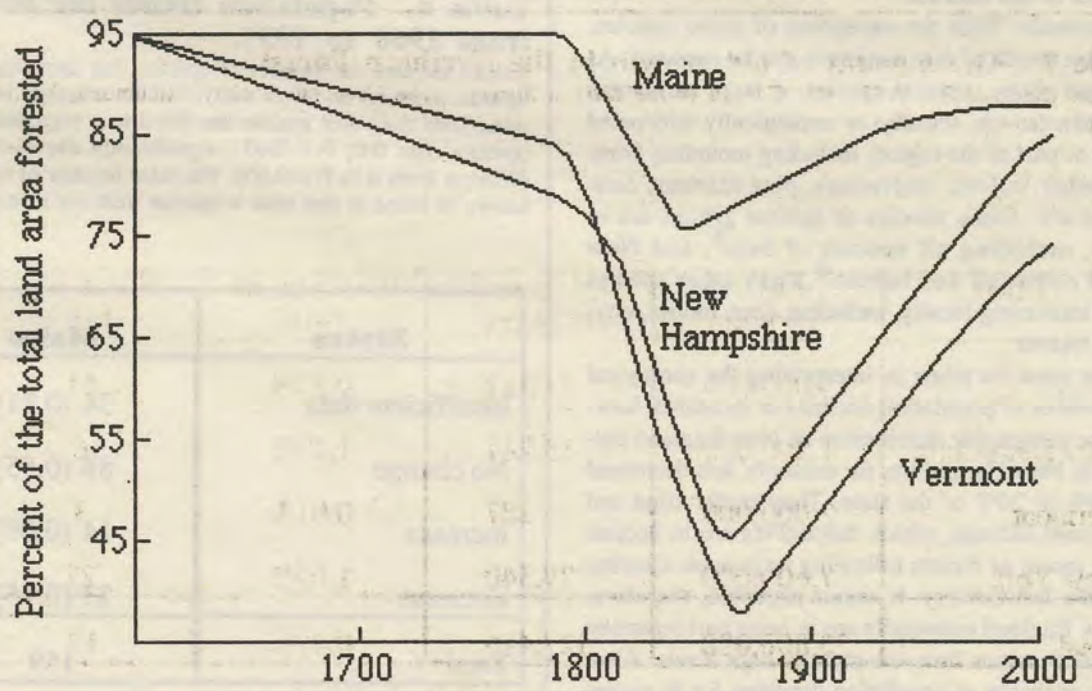
Old growth is a very small fraction of the forests in this region today, never exceeding more than 1.3% (New Hampshire). There is virtually no old growth in the Northern Forest of Vermont. The largest of the three stands is only 150 acres (less than a quarter square mile) in size.

Further, the old growth that does exist is not equitably distributed among forest types. In Maine, for example, the old growth is heavily biased towards balsam fir forests (66% of the total old-growth area for that state, 15 of 51 stands, while balsam fir made up only 6.5% of timberland area in 1982[24]), indicating that existing stands of old growth do not represent native ecosystems across their natural range of abundance and distribution. This bias is probably related to their predominance at higher elevations, which have

Table 5. The number of native and exotic vascular plants grown outside of cultivation in the northern New England states.
(Source: Seymour, F.C. 1982. *The Flora of New England: a manual for the identification of all vascular plants including ferns and fern allies growing without cultivation in New England.* 2nd edition. Phytologia Memoirs V.)

Region	Ferns		Conifers		Angiosperms		All species	
	Native	Exotic	Native	Exotic	Native	Exotic	Native	Exotic
Maine	70	1	16	4	1363	521	1449	526
New Hampshire	72	0	16	3	1309	408	1397	411
Vermont	77	0	15	3	1333	506	1425	509
All three states	80	1	16	4	1628	646	1724	651

Figure 1. Changes over time in the percent of total land area that is forested in northern New England.
(Adapted from: Litvaitis, J.A. 1993. Responses of early successional vertebrates to historic changes in land use. *Conservation Biology* 7: 866-873.)



made them less accessible to harvesting.

It is clear, therefore, that old growth, as a condition of forested ecosystems, is greatly reduced from its natural distribution and abundance. What is less obvious is what further consequences this has for the ecological health of the region. Surveys for old-growth dependent species of beetles have been conducted in only a few places in the Northern Forest region, and these have consistently demonstrated the existence of species present in old growth but not secondary forests.[25] Further surveys for lichens and other groups of insects, and vertebrates have not been conducted as they have in other northern temperate forests, a situation that is in serious need of correction.[26]

Recent short-term trends in forest community types indicate an increase in the average size of trees. In Vermont, there was a 12.8% increase from 1973 to 1983 in the volume of growing-stock trees of all softwood species combined. This increase was due solely to increases in trees greater than 9 inches dbh, since the volume of softwoods less than this size decreased by almost 2.0%. All hardwoods combined showed a 32.3% increase during this same period, with increases in each size class. A similar pattern is seen for sawtimber trees as well.

This pattern was repeated in both New Hampshire and Maine. In New Hampshire, there was a 1.5% increase from 1973 to 1983 in the volume of growing-stock trees of all softwood species combined, due solely to increases in trees greater than 11 inches dbh. All hardwoods combined showed a 30.1% increase during this same period, with increases in most size classes, including all above 15 inches dbh. In Maine, the increase from 1971 to 1982 in the volume of growing-stock trees of all softwood species combined was 1.4%, with the increase due to trees greater than 9 inches dbh. Hardwoods increased by 18.0% with increases in all size classes except 15-17 inches dbh.

Relative to baseline conditions, however, the largest size class (> 29 inches dbh), which comprised no more than 1.1% of all growing-stock trees in 1983, is still much less than in typical old-growth forests.

Age-class condition can also be evaluated at the stand level. In other words, what is the percentage of forests that are in even-aged stands? Presumably, under natural conditions, when fire, storms, or insect damage caused major mortality at a site, the first trees to colonize the area would all be of the same age. However, under most natural conditions younger age classes of trees grow up in the understory, resulting in a general mixed-age composition. Unfortunately, these data are not readily available for the present. Measurements of this parameter would be important for further assessment of forest condition.

Tree size and age are themselves a function of past patterns of mortality. Looking at tree health and mortality in the present also provides an indication of future forest conditions. Several forest stressors exert an influence on trees in this region: disease, herbivory, air pollution, forest harvesting, and climate. A detailed analysis of all of these factors is beyond the scope of this paper, but a few general trends can be described.

First, despite extensive research, acid deposition and atmospheric pollution have not been shown to be causally linked with regional patterns of forest decline, except probably for high-elevation red spruce[27] and eastern white pine.[28] Second, recent assessments of tree health throughout the region indicate that every species present either has had or is likely to have a serious mortality event, primarily associated with some disease or pest organism.[29] Despite this prediction, however, tree health in Vermont generally improved 1985 to 1991.[30]

Conditions of non-tree species in forest ecosystems have been less well documented than those of tree species. Apart from the species discussed earlier that have declined or been extirpated, our understanding of conditions in this aspect of forests is characterized more by what we don't know than what we do. Studies such as Duffy and Meier's[31] on understory plants in the southern Appalachian Mountains are desperately needed in this region.

Aquatic ecosystems. As with their terrestrial counterparts, aquatic ecosystems can be evaluated in numerous ways. Perhaps the easiest is the designation each state gives its waterways under Section 305(b) of the Federal Water Pollution Control Act with respect to its ability to support its "designated uses," which is primarily taken to mean the support of aquatic organisms, drinking supply, and agriculture. Although each state varies with respect to how the data are generated, especially the percent of the waters that are actually monitored, they are broadly comparable (Table 8).

In Maine, the number of miles of rivers that do not fully support their designated uses is 472 (Table 8). Causes for this designation include fish consumption advisories, toxics, pathogens, and direct fish kills. Comparisons to previous years cannot be made, however, because of changes by the state in how rivers affected with dioxin are reported. Over 21% (202,220 acres) of the lake area is only partially supporting of uses (due primarily to nutrient loading, siltation, and toxics), and 160 square miles are not fully supporting of shellfish beds.

Maine has also lost about 20% of its wetlands since colonial times, or 1,260,817 acres.[32] Causes of wetland loss have been development, road construction, pollution, and agriculture.

In Vermont, a similar pattern is seen (Table 8). Almost 41% (2,152 miles) of the assessed rivers and streams did not fully support their uses, due primarily to pollution, siltation, and habitat alteration. The same is true for 63% (33,296 acres) of lakes and ponds (nutrients, siltation, habitat alteration, and exotic plants) and 100% (174,175 acres) of Lake Champlain (nutrients, algae, and siltation).[33] Estimates of wetland loss have not been made over long time-frames, but was calculated to be extremely small (82 acres of 220,000 in the state) in 1990. However, this estimate is based on a small sampling of 530 development projects that year.

Less detail was available for New Hampshire, but similar trends are seen (Table 8). Two hundred and seventeen miles of rivers do not fully support their designated uses, along with 23,037 acres of lakes and ponds, and 18.4 square miles of estuaries.

Table 6. Percent change in the total area for each community type and all forested areas

(Sources: Powell, D.S., and D.R. Dickson. 1984. 1985. ***Forest Statistics for Maine: 1971 and 1982***. U.S. Department of Agriculture, Forest Service, Resource Bulletin NE-81; Frieswyk, T.S., and A.M. Malley. 1985. ***Forest Statistics for New Hampshire: 1973 and 1983***. U.S. Department of Agriculture, Forest Service, Resource Bulletin NE-88; Frieswyk, T.S., and A.M. Malley. 1985. ***Forest Statistics for Vermont: 1973 and 1983***. U.S. Department of Agriculture, Forest Service, Resource Bulletin NE-87.) Time periods are 1973 to 1983 (New Hampshire and Vermont) and 1971 to 1982 (Maine).

Forest Community Type	Maine	New Hampshire	Vermont
White/red pine group	15.2%	-10.3%	-7.5%
Spruce/fir group	-7.3%	11.5%	-5.8%
Hard pine group	---	35.0%	---
Loblolly/shortleaf group	-39.4%	---	---
Oak/pine group	37.1%	117.6%	-16.1%
Oak/hickory group	13.1%	-5.5%	19.9%
Elm/ash/red maple group	-30.9%	39.2%	-4.5%
Northern hardwoods group	2.3%	9.8%	3.6%
Aspen/birch group	55.2%	2.3%	-14.6%
Total, all groups	1.0%	2.6%	-0.2%

Table 7. The amount of old growth in the Northern Forest.

(Source: Davis, M.B. 1993. ***Old Growth in the East, a Survey***. The Cenozoic Society, Richmond, Vermont). Although hers is the most complete inventory available, Davis notes that it is incomplete, especially for the Adirondack Park region of New York. Sizes of reserves are based on estimates from the most rigorous surveys, although some values are still only approximate. For 7 stands of old growth in the region acreage is not known and are therefore excluded from the analysis.

State	Total NF acreage	Old growth acreage	Percent of total	Number of stands
Maine	15,000,000	32,332	0.22%	51
New Hampshire	1,200,000	15,287	1.27%	6
Vermont	2,000,000	287	0.01%	3
New York	7,600,000	79,540	1.05%	27
Total	25,800,000	127,446	0.49%	87

Patterns of Health in Ecosystem Function

Few ecosystem functions have been sufficiently well documented for baseline patterns to be established. We have, perhaps, the greatest information on regional disturbance regimes. Disturbance comes in four general categories: fire, pests, ice and snow, and wind. As noted above, fire occurred infrequently in a given location, perhaps as rarely as once every 800 years in northcentral Maine. Even if fires occurred more frequently in other, drier locations, it is highly likely that the frequency of fire has increased greatly during the last 200 years. Since plant communities are often well adapted to fire regimes, and the presence of individual species can be altered by changes in fire frequency and intensity, additional work on pre- and post-settlement fire regimes is urgently needed.

Also, the prevalence of pests was noted above. It is certain that the introduction of numerous exotic pests in the last century has led to an increase in disturbance due to pest-induced mortality. It is also possible that the frequency of mortality events caused by native

pests, such as spruce budworm, has increased recently due to anthropogenic increases in the proportion of balsam fir.

Wind, ice, and snow also cause mortality, opening up the forest canopy. However, there is no evidence that the frequency or severity of these mortality agents has changed over time.

Other aspects of ecosystem function are much less well documented or understood at the regional level. Long-term studies throughout this area of patterns of carbon fixation, nutrient cycling, and soil formation are called for.

Stephen C. Trombulak, an Associate Professor with the Department of Biology, Middlebury College, Middlebury, Vermont 05753, is co-editor (with Chrisotpher McGrory-Klyza) of **The Future of the Northern Forest**, *which is reviewed on page 13.*

Footnotes

1 Elias, T. S. 1989. ***Grolier's Field Guide to North American Trees***. P. 303 and 230. Meredith Press, New York.

Figure 2. Frequency distribution of sizes of old growth stands in the Northern Forest.

Note that the horizontal axis is plotted as a logarithmic scale. (Source: Davis, M.B. 1993. ***Old Growth in the East, A Survey***. Cenozoic Society, Richmond, Vermont.)

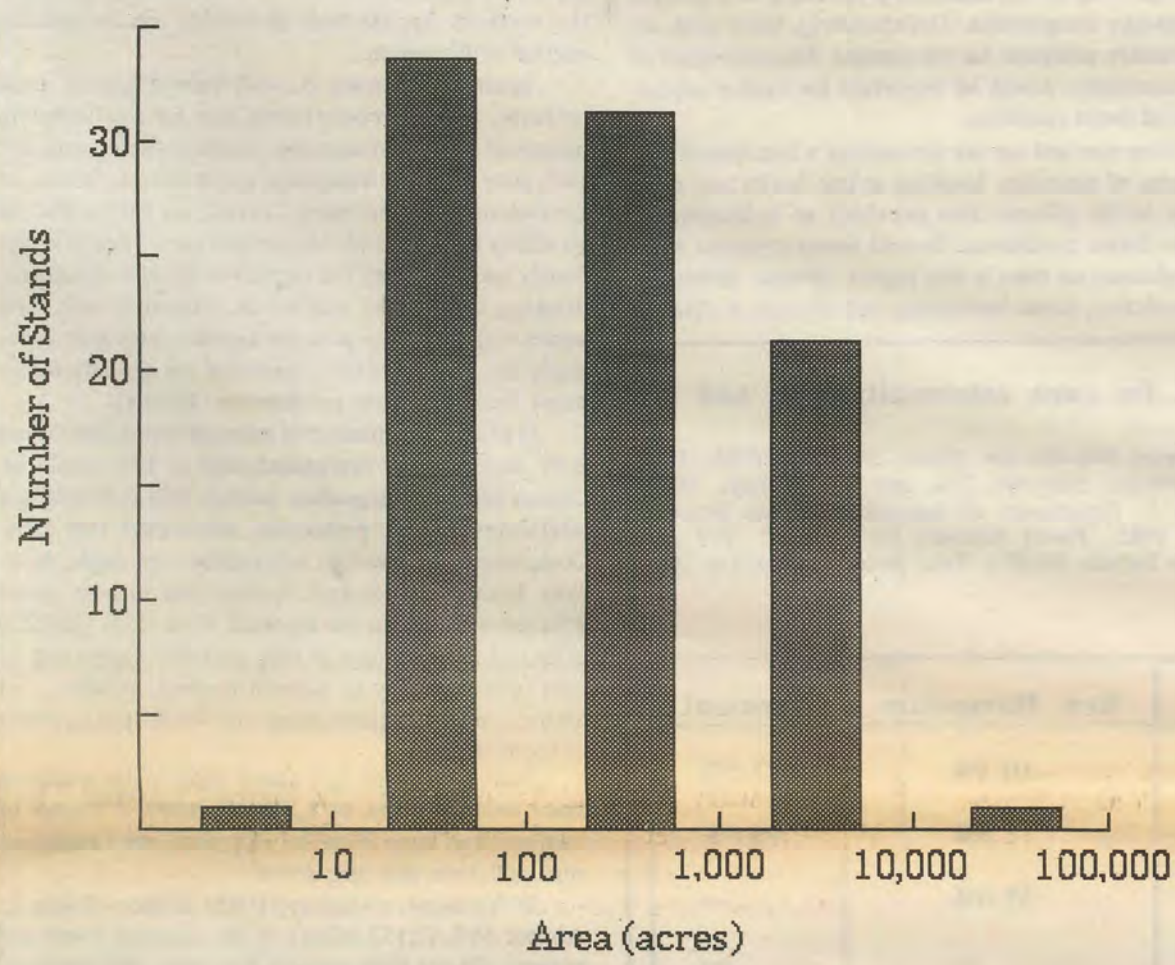


Table 8. Water quality with respect to the water's ability to support "designated uses."

(Source: ***National Water Quality Inventory: 1992 Report to Congress***, Environmental Protection Agency, EPA 841-R-94-001.)

Waterbody Type	Waters Assessed	Fully Supporting	Threatened	Partially Supporting	Not Supporting
Maine					
Rivers	31,672 mi	98%	—	1%	1%
Lakes	958,389 ac	73%	6%	21%	0%
Estuaries	1,633 mi^2	90%	0%	2%	8%
New Hampshire					
Rivers	10,841 mi	98%	0%	1%	1%
Lakes	153,580 ac	85%	6%	6%	3%
Estuaries	28 mi^2	34%	—	—	66%
Oceans	18 mi	100%	—	—	—
Vermont					
Rivers	5,264 mi	59%	22%	15%	4%
Lakes/Ponds	52,851 ac	37%	33%	20%	10%
Lake Champlain	174,175 ac	—	—	46%	54%

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Book Review

The Future of the Northern Forest

Caution: Some Assembly Required!

***The Future of the Northern Forest**, Edited by Christopher McGrory Klyza and Stephen C. Trombulak, University of New England Press, 1994. $19.95 paperback; $40 hardcover.*

Whenever I read a book like ***The Future Of the Northern Forest*** I hope to find a clear picture of sustainable solutions to the forestry issues we face. I never find one. In reality, the most that we can ever expect to find are insights into the puzzle of sustainability. ***The Future of the Northern Forest*** is full of these insights.

It was not the 26 million acre expanse of forest lands in northern New York, Vermont, and New Hampshire, and Maine that drew the attentions of Editors Christopher McGrory Klyza and Stephen C. Trombulak to the Northern Forest. Rather, it was the complexity of the issues facing the region. These issues include ecosystem modifications, disruption of the forest economy, fragmentation, development pressures, and competition between private and public rights. Klyza and Trombulak speculated that if an effective model could be developed to shed light on the underlying issues of the Northern Forest, the model might have application elsewhere.

The Future of the Northern Forest is divided into four parts. Part I is especially important in that it frames the "debate over the relationship between nature and human traditions" and outlines the existing ecological, cultural, political, economic, and ethical conditions of the Northern Forest. Although the perspectives and disciplines of the five chapters are vastly different, each examines the conflicts associated with survival.

Trombulak presents an ecological primer, lists the human impacts that threaten ecological integrity, and stresses the importance of the scientific perspective. Hilda Robtoy, Dee Brightstar, Tom Obomsawin, and John Moody outline the Abenaki perspective of the Northern Forest in a way that made me long for native American roots. Klyza summarizes the political climate, forest industry trends, and development pressures that set the stage for the Northern Forest debate. Stephanie Kaza examines the "ethical polarities" in the Northern Forest and presents six guidelines for clarifying controversies in all levels of human interaction.

Although it is unrealistic to expect clear pictures of sustainable solutions to the Northern Forest issues in a book such as this, the chapter on economics comes as close to one as any. Thomas Carr's understated description of the disparity between market forces and social optimums gets to the heart and soul of the need for alterations in the marketplace. It seems that many of the problems facing the Northern Forest could be addressed through significantly improved accounting methods that compensate forestland owners for their positive externalities and penalize resource abusers for their negative externalities.

Pat II deals with the Northern Forest from the perspective of the public sector. Carl Reidel presents a succinct history of the political processes behind the Northern Forest Lands Study, and John Collins outlines the "workings" of the Adirondack Park. Brendan J. Whittaker's view into local government gives a clear, warm, and personal insight into the many pressures—including property taxes, job loss, and liquidation cutting—that a small community with a 67-minute annual town meeting is experiencing in the Northern Forest. A discussion of the different roles of public and private lands in achieving sustainability across the landscape would have been a strong and welcome addition.

There is remarkable agreement in Part III between Jonathan Wood and Henry Swan of the timber industry and Jamie Sayen and Emily M. Bateson of the environmental community on the needs to respect the carrying capacity of the Northern Forest. However, there is a wide divergence of opinions on what that carrying capacity is. The industry representatives suggest that for the forest to be healthy and productive, it must be managed. They point out that only half of the Northern Forest's annual growth is being harvested and that even more cutting is needed. The environmental community representatives suggest that less management is needed and not more.

As a non-industrial private forest landowner and forester, I am left with two questions. First, should humans or any other species expect to harvest more than half of the annual production of the Northern Forest? And secondly, how did the Northern Forest ever maintain itself without us?

In Part IV John Elder explores the opportunities of a fresh relationship between culture and wilderness, between humans and nature. Trombulak and Klyza summarize the considerable areas of agreement that were expressed from a broad range of perspectives and give readers a few parting suggestions for sorting out the areas of disagreement and assembling the puzzle of sustainability in the Northern Forest.

Like a new puzzle still freshly wrapped in its box, ***The Future of the Northern Forest*** has all of its many pieces. Some readers will be disappointed that the Editors leave the final assembly up to the reader. I am not. My advice is to get a copy of ***The Future of the Northern Forest***, take the time to read the instructions, and try to be more thoughtful than judgmental.

Lastly, assemble your version of the puzzle with care because, as the Abenaki contributors admonished, "Your survival is at stake."

David Brynn lives with his wife Louise and daughters Devon and E. Callie in Bristol, Vermont where they own and operate the Brynn Family Farm. An active woodland steward, David produces Christmas trees, maple syrup, and timber products and serves as the Town Tree Warden. An active woodland ecologist, David is Director of the Addison County Conservation Congress and a member of the Addison Maple Sugarmakers Association, New Haven River Watch, and Otter Creek Audubon. He also works for the Vermont Department of Forests, Parks and Recreation as the Addison County Forester and was field forester for the Vermont Timber Harvesting Impact Study.

New Booklet Celebrates the Wildlands of the Northern Forest

In January National Audubon Society, Sierra Club and The Wilderness Society released an attractive 28-page booklet entitled "The Great Northern Forest: Celebrating its Wildlands." Copies are available from: National Audubon Society, 1789 Western Ave., Albany, NY12203. Tel. 518-869-9731.

"The Great Northern Forest" is a color photo celebration of ten wild areas in the Northern Forest that members of the Northern Forest Alliance have identified as deserving protection in a system of ecological reserves. *(See: The Northern Forest Forum, volume 2 #5, page 9 for more information on these ten special areas.)*

The photograph above is of Dennis Pond in Vermont. It is on the cover of the booklet. All photographs were taken by John McKeith.

Here follow a few excerpts from the brief text:

Our American landscape is blessed with extraordinary beauty...

The Everglades. The Great Plains. The Badlands. The Redwood Forest. The Chesapeake Bay. The Grand Canyon. The Rocky Mountains. This prestigious list goes on to include the Great Northern Forest.

These places suggest powerful notions about what it means to live on this earth, symbolizing the relationship between nature's beauty and abundance, and our own humanity...

The integrity of the Great Northern Forest will be preserved if the following criteria are met:

1. *A major portion of these wildland areas must become publicly owned and remain in their natural state;*
2. *Forest management in outlying sections of these wildlands must meet stringent ecological guidelines; and*
3. *Future human development and large scale commercial forestry must take place only outside the boundaries of these wildlands...*

The Great Northern Forest is a bioregion where we can explore, as a nation, how sustainable land use and environmental protection can work in partnership. While we protect the wildlands, policies for sustainable forestry and local economies must be pursued.

Labor & Enviros Must Join to Defend Both Jobs AND Environment

by Andrew Whittaker

Summary: *A very strong voice was conspicuous for its absence in the recent Northern Forest Lands Council decision-making process. Where was Labor?*

Every once in a while you encounter a story that turns your opinions on their head. Such is what I found in ***Which Side Are You On?*** or, ***Trying to Be for Labor When It's Flat on Its Back***, by Thomas Geohegan (Plume. NY. 1991).

Geohegan is a labor lawyer. He resembles Raymond Chandler's Philip Marlowe, projecting the persona of a literary, yet hardboiled, idealist; he harbors no illusions about himself or his cause, probably keeps an office bottle in the desk, and views everything, including himself, with a detached cynicism that cloaks a heart of gold.

A nice suburban youth who grew up mowing the grass, Geohegan's own experience with Labor started when he was dragged as an observer into the post-Yablonski murder United Mine Workers (UMW) election. (Tony Boyle's goons were attempting to keep black lung pensioners "living" on $30 a month pensions from voting.) From a subsequent stint at UMW headquarters in Washington, he went to Chicago to work in maverick Ed Sadlowski's doomed campaign for presidency of the US Steelworkers. (The union refused to provide the candidate a list of Union members so Geohegan's job consisted of attempting to locate its 1.5 million members—but there was never any doubt the election would be stolen.) His clients in private practice have included workers robbed of pensions in steel mill closures and upstart rank and file beaten by their own union's goons; his career has been defined by the decline of organized labor and given moral poignancy by the worsening lives of the (sometimes) working class.

A one paragraph summary of Geohegan's conclusions about our society sounds overdrawn—but it isn't. America's labor laws are among the most anemic of the developed world. American unions, subsequent to the reign of UMW president, CIO organizer, and overall labor lion, John L. Lewis, have been totally lacking in vision, not to mention democracy, with the result that our unions are, like our labor laws, among the world's weakest.

Most fundamentally, the weakness of labor has helped create the schism cleaving the United States into a nation of haves and have-nots *(see "Local Economies in the Age of the Symbolic Analyst" in* ***The Northern Forest Forum,*** *Vol. 2, #3 for an examination of Secretary of Labor Reich's views on hardening class-lines in the economy).*

Geohegan identifies three major factors in Labor's decline. Beyond the insufficiency of law and the decline of basic industry, there lies the anti-democratic, bureaucratic and visionless Union itself. (He proposes the fascinating argument that John L. Lewis perhaps foresaw the problem of complacency in Labor allying too closely with FDR and the New Deal—eliminating the necessary tension of Labor and State by melding the two in the modern Democratic party.)

Although well-acquainted with the intra-Labor violence which has traditionally been used to eliminate and intimidate rival leaders or rank and file asserting their rights, as well as Labor election fraud, used when all else fails, and the notorious "mafia curse," Geohegan considers the greatest Labor tragedy of all to be Union management's chronic lack of vision.

Labor in the US has consistently and assiduously missed dozens of opportunities to not merely assert or retain power (witness Wall Street's 1980s feeding frenzy on pension funds left unprotected by union short-sightedness) but to actively participate in planning policy for a future for the worker. In effect, Labor's disinterest has killed prospects for Planning; Corporate society is of course happy to go it alone. Content and fat on the economic growth of the '50s and '60s, which swelled union coffers, Labor saw no need to push for a pro-active Industrial Policy to preserve basic manufactures. Now, outflanked by overall industrial decline and transformation of capital, Labor is incapable of stopping a GATT or NAFTA, and in its inability to protect or provide for the worker, may be effectively dead.

We have seen the spotted owl here, and it's a feller-buncher. Photo by Stephen Gorman.

Energy Policy versus Monetarism

Geohegan stumbles across the argument developed by Hazel Henderson, alternative economist and one of the founders of Environmentalists for Full Employment, that environmentalists and workers should be uniting behind investment in renewable resources—energy in particular.

In his brief stint in the Carter Energy Department, Geohegan helped to fashion "the moral equivalent of war"—what was to have been the National Energy Policy Act. Remember that 1979 was a year of economic crisis: high unemployment and inflation, the Iranian oil boycott and OPEC price hikes. Geohegan considers "that damned, horrible year" the last that Labor had to save itself. For what Carter had proposed was an Industrial Policy for energy—the keystone sector of our economy—and was opening the door to the broad concept of Planning.

Carter's National Energy Plan was to have imposed a tax on domestic oil, raising it to OPEC prices, thus squashing demand. Progressivity was to have been introduced into the tax by rebating it on a per capita basis, making the NEP, effectively, what Geohegan terms a "fairly major" income redistribution mechanism. In his view, implementation offered numerous opportunities to ratify the concept of Planning, to preserve basic manufactures domestically and lay a foundation for ***all*** stakeholders to deal with the emergent global economy. Labor, however, joined oil companies and Republicans to kill the bill.

Environmentalists, whatever their opinion of Carter's (nuclear) priorities, did have a stake in the formulation of a domestic energy policy and still do. As Geohegan points out, so do workers. Henderson points to the broad commonality between these interests in ***The Politics of the Solar Age: Alternatives to Economics,*** (Anchor Books. Garden City, NY. 1981.) written at just the time NEP was being killed and the American manufacturing laborer was being sacrificed on the cross of recession-inducing interest rates.

Henderson notes many of the union-busting dynamics of which Geohegan writes from within Labor, and attacks many of the broad misassumptions driving macroeconomic policy in 1981—and 1995. She detects from an early Reagan vantage point many of the problems that dog us today—jobless "recoveries," increasing class division as high wages get higher and low wages lower. Puzzling over the docility of Labor, she views economic policy as an unjoined battle between owners of capital, promoters of revolutionary technology (like the microprocessor), and a broad coalition as yet unformed of "workers, consumers, environmentalists, blacks, women, and all minorities." What has changed?

Henderson places downward pressure on general wages in the context of the declining productivity of capital in a resource-short era. In other words, wages are falling to make up for declining returns from our resource base and increased capital intensivity. One of the general monetary tools that drove the boom of the '80s—inflation steamed out of the system by increasing unemployment—is of course being used again today. The weakness of this device is that, willfully or not, it attacks the wrong problem (and sets us off on the roller-coaster ride of business cycles, profitable for the few, disaster for the many). Henderson presents an analysis of the inflation that prompted Volkerism, and finds that half the 1979 rate of 13% was attributable to oil price hikes. Thus, organized labor, in killing NEPA, got rid of an approach to whipping inflation that would have created jobs unlike the interest rate hikes which of course destroyed them.

The premise that low worker productivity—too many dollars chasing too few goods—fuels inflation has led to a monetary policy akin to the old practice of bleeding a patient to cure him. Henderson identifies the real problem as systemic: an economy based on consumption of declining resources, disinclined to conservation, wedded through established interests to greater and greater investment in technological rather than human capital.

A commitment to full employment will encourage substitution of capital and natural resources for labor. More important than productivity of labor are efficiency of energy and resource; we are better off accepting lower output per worker if the trade-off is for decreased consumption of electricity, less pollution, more recycling, and greater renewability of products. In a nutshell, Henderson pre-sages the concepts of Paul Hawken, with his vision of an industrial ecology (see "Democracy, Ecology & Growth-At-Any Cost Economics" in ***The Northern Forest Forum,*** Vol. 2, #2 for a review of Paul Hawken's book ***The Ecology of***

Commerce).

Opposition to implementing a full-employment, conserving economy has arisen from within labor for the numerous reasons illuminated by Geohegan and others. The symbiosis of cheap energy, externalized costs and rising wages and benefits is the anvil; the hammer has been industry's use of job blackmail to threaten the worker exposed by weak labor law and organization. In ***Fear At Work*** (New Society, Philadelphia, 1991), Richard Kazis and Richard L. Grossman detail the tactics used by industry to turn workers into a forced lobby against environmental and health regulations. They also note that when workers feel secure about their jobs, they are willing lobbyists for these same measures, watch-dogs of the public good. A full-employment economy conceived around job-creating conservation measures is part of their prescription for allying environmentalists and labor into an effective force as well.

Sam Brown practices low-impact, labor-intensive forestry in eastern Maine. See **Forum** *volume 3 #1, page 27. Photo by Mitch Lansky.*

Capital, Labor & Communities in the Northern Forest

Over the past decades we have seen how the decline of labor and increased investment in capital and the introduction of new technologies have played out in the Northern Forest. Among a myriad of effects that include increasingly de-peopled paper mills, consider logging. Paper companies have largely unloaded their own loggers and set "independent" contractors up in business—a maneuver that generally lessens worker power, organized or not. Meanwhile, contractors have increasingly gone to larger and larger equipment, for a variety of reasons, but with the same result: fewer workers in the *field. (And as a footnote:* certain contractors are notorious in my area for shorting workers their pay, particularly those from Canada who don't speak English, while some timber haulers earn *their* reputations for stiffing landowners on shipments of pulp and logs. Such is the atmosphere on the bottom of our economy.)

What is being harvested, however, is worth less and less, relative to investment, so that volume must make up for quality (chips and pulp over sawlogs). So wedded are we to payments on the machine that in cases where we do have a potential sawlog, it may still "go" rather than "grow." Note the impact of the global economy with its huge bargaining power: trees may feed this market, which has little local multiplier effect, and thus rob the local mill or wood worker or future generations of a resource capable of building a stable local economy. Of course what enables this scenario is cheap energy and defanged labor. The end result is an economy employing fewer people, with fewer local benefits, and greater environmental degradation.

But in my neck of the woods the banker still has a big happy grin for our local contractors and frets that a "spotted owl" may shut down the money stream. What he does not realize is that the money stream is already choking down: he makes a big loan that the contractor spends out of area on a huge machine, paying for it by hacking down a local resource. In an ideal world, the banker could be loaning that same money to a hundred small operators who, harvesting more discriminately, adding value, building local production, would fashion a local economy capable of high value exports and providing its own "social security." If I were a banker, I would want such a climate: aren't a thousand thrifty bank accounts better than one large one? We have seen the spotted owl here, and it's a feller-buncher.

Why Bother?

But to go beyond the old concepts of what organized labor is, consider if a new union movement, in concert with an effective federal full-employment act, were to embrace those professionals and small producers generally alien to organization, dubious of spiraling wages and benefits. What if foresters, in other words, were not impelled by economic dictate to abandon silviculture, as they are today? What if small sawmill operators were as potent a lobby as the log exporters? Suppose those with no other resources than the next paycheck or account receivable were suddenly able to bargain, and strike a new social contract with all: consumers, who desire environmentally sound production, capitalists and government, who direct economic and social investment.

Suppose also that in the Northern Forest Lands Council proceedings, Labor had been able to get its due, and place a representative on the Council itself, someone concerned from a jobs point of view that we conserve the resource. Suppose rank and file had attended and spoken at hearings. One surmises that the Council would have emerged with recommendations in the areas of Log Exports and job-creation aspects of logging regulations.

A different scenario however in fact applies to agriculture, railroads, the fishery, and the paper mills themselves today. Just as our farming sector seems to be in perpetual death throes and our fishing is already a corpse, there isn't a milltown in northern New York and New England that feels secure about the future. The breaking of the strike in Jay certainly helped here; more effective has been the instability of the industry, often attributed directly or through innuendo to pollutant regulations. Macroeconomic events of the past 20 years, in any case, have been an effective brake on the demands, concerns, and lobbying of labor.

Traffic on our increasingly de-unionized railroads is a microcosm of the entire dysfunction: chlorine riding on ill-maintained tracks, a once considerable business in canned fish gone not to trucks but **GONE,** like another past source of freight—the Maine poultry industry (not to equate the ecological vitiation of the fishery with the impact of Frank Perdue). Meanwhile, I watch the steady stream of truck traffic on Route Two, the Ho Chi Minh trail of the woods product industry in my area and wonder about the drivers; the gypsy drivers have helped diminish the Teamsters, and with NAFTA, Mexican drivers working for a pittance are on the heels of both.

One could say of course that railroads and highways helped create the mess, labor only sought to cash in on the goods and everyone, except the environment, is only getting what they deserve. Why should environmentalists sully their hands in the ashes of industrialism? A small footnote related by Geohegan, one of many that makes his book a compelling read, deals with this argument. Why in a cappuccino economy should we worry over job loss in basic industry? The labor lawyer himself was struck by the irony of fighting to save the jobs of men who gave their bodies, lives and health to nasty jobs in mines, furnaces and coke ovens. Here in the Northern Forest, the analogy might be to the woodsworkers of yore who looked 60 at 40, all used up. Why bother to fight to save the misery?

The answer comes on several levels. The first and more provisional is that in our society, the alternative to a job is the street: if we kill welfare, we either have to provide jobs, whatever they may be, or accept the shame of joining the ranks of nations with a jobless caste.

The better answer was supplied Geohegan by Ed Sadlowski of the Steelworkers, who said that *nobody* should have to give their lifeblood to their job. Nor should we be donating the environment to the creation of jobs that are death for the soul. We should be forging new social contracts that give everyone a square deal: more than a job, we should be providing intrinsically satisfying work. What could be more satisfying than work which betters our relation to our environment? Self-actualization isn't just for Yuppies.

Here then is where the most useful and revolutionary fusion of environmental and labor activism can force a new discourse and fundamental change in our economic lives. Environmentalists of course are motivated by regard for life—human life, grizzly life, lichen life. Life. By uniting with Labor, the environmental movement can direct attention to necessary broad changes in values, to a re-thinking of what constitutes the good life. This will not mean the high consumption life-style our planet finds unsustainable: the snow machine, the motor boat, the three cars—or the BMW, ski chalet and $26,000 watch. It should mean, however, a healthy and natural environment that is accessible to all.

Conference on Raw Log Exports Sponsored by Labor-Environmental Coalition

by Fife Hubbard

On December 13 a group of carpenters, paperworkers, state and federal government representatives, mill owners, landowners, and environmentalists met at the Ironworker's Hall in Clinton, ME. The diversity at this groundbreaking meeting is testament to the organizers commitment to strengthen communication between forces in labor and environmental activists. Credit for this summit belongs jointly to Dave Johnson and Jym St. Pierre of the Sierra Club, Stephen Perry a representative for the United Brotherhood of Carpenters and Joiners, and Gary Cook representing the United Paperworkers International Union. "Leaders from labor and environmental organizations from Maine have been meeting regularly for the last six months," noted Perry "... we wanted to broaden the circle to bring in mill owners and other concerned with log and chip exports from the state. We wanted to define the problem and come up with solutions we could collaborate on."

In his keynote address, Eric Palola, a resource economist at the Northeast Natural Resource Center of the National Wildlife Federation (NWF), stated, "The Northern Forest Lands Council only gave slight attention to the log export issue in their final report despite steady public concern expressed to them during the course of their deliberations. To take a bit harder view I would suggest that they and others have essentially reasoned against doing anything about log exports by: blaming Canadian subsidies, by defending the benefits of high stumpage fees from exports, and by suggesting that there is a certain inevitability to a world dominated by global trade in which timber is just one of a stream of commodities alongside chopsticks and TV's. This view holds that the future is a place where we should come to expect that preferences over the use of northeast timber will be determined not locally or even regionally, but through a vast global allocation that will inherently be more efficient and make us richer. I think there are problems with this perspective—as you do—which is why we're all here today."

Palola went on to summarize five areas of concern that the NWF has chosen to focus on in its forthcoming report on the log export question.

The Big Picture: Clearly, worldwide trends in wood supply point to greater pressure on northern New England's forests. Wood consumption, Palola noted, has increased about 5% each year since 1960.

On the supply side Palola spoke of two key trends that have helped keep the price of logs high in the export market:

1. Limits on harvesting in the northwest, and various restrictions that range from quotas to outright log export bans in tropical Pacific Rim countries due to previous overcutting have had an obvious effect. "One study, for example, reports that raw log exports from Southeast Asia to Japan, the largest worldwide importer of logs have declined 50% since 1988."
2. There is an "apparent stubbornness of stumpage prices, especially hardwood, to remain high over the past few years even in spite of a major Japanese recession, and several milder recessions in other industrial countries."

This second trend, economists reason, is unique in that it is being driven not by consumer trends such as the rise and fall of housing starts, but by supply constraints. While high prices from supply shortages are attractive to the landowner in the short run, they also portend a negative trend. "My own experience in talking with people in Vermont and New Hampshire," Palola said, "is that they are receiving new inquiries from timber brokers and buyers from all over the place. The guy who owns the hillside behind my house is cutting everything over 8 inches as fast as he can—which basically means it will be another 60 years before anything valuable will be harvested again. I hope current trends don't turn into a regional gold rush or in this case a 'green rush' to skim as many trees as possible simply because stumpage prices are perceived to be a one-time bonanza. If the supply constraint is true, then those landowners who wait may, in fact, see even higher returns in the future."

The Data Problem: To determine exactly how economic trends are effecting the Northern Forest it is crucial that states refine their procedures to track log exports, and that the states of the Northern Forest region determine a way to keep accurate regional statistics so that these numbers will have significance and accuracy across state lines. By strengthening a regional log export tracking network, wood suppliers could cooperate to take advantage of both supply and demand side trends.

The U.S. Department of Commerce Custom Districts, Palola points out, is the closest we have to a regional system. These three districts could be far more useful if they were to: 1) record the point of origin for the log, and 2) end exemption for smaller amounts of wood (valued at or below $2,500, the equivalent of 10,000 board feet) that now cross the border unreported.

Despite problems in log tracking, the NWF contends that we do know the following.

*In both Maine and Vermont (the two states that do the best job of tracking exported wood) 25-30% of the total harvest of both soft and hardwoods are exported.

*Between 1989 and 1993 hardwood log exports increased 3 1/2 times from the Portland, Maine and over four times from the region as a whole.

Forest Health: The forests of Maine are in decline. Recent state government studies Palola pointed to have "...openly worried about timber shortfalls, in particular the lack of mature spruce and fir pulp." Gary Cook of the United Paperworkers International reported that, "...the paper companies are now buying saw quality logs for pulp, this is a clear sign of supply shortage."

While precise correlations between raw log exports and forest health are sketchy, it seems obvious that with an expected shortfall of domestically available wood on the horizon, an escalating global demand, and the desire of the legislators in Maine to broaden export channels with proposals such as the Sears Island woodchip export facility, forest dependent communities (both human and non-human) will be squeezed badly.

The Jobs Question: NWF has found that studies conducted in the northwest support three general conclusions in an atmosphere of log export restrictions:

1. "There is a tradeoff between certain types of jobs such as longshoreman versus millworkers that is not proportional due to wage differentials and varying labor efficiencies;
2. "That in the presence of log export controls, the amount of wood cut adjusts to lower levels due to the potential for domestic oversupply, downward pressure on stumpage prices, and lower revenues to the landowner, but , not surprisingly;
3. "The number of jobs in domestic processing went up by 181% in Washington and Oregon. This growth, according to a leading university forest policy group in Seattle, has nearly made up for the losses in log exports."

From this final point Palola emphasized, "This third and very encouraging scenario comes at the expense of landowners who want to sell on the world market, and a few timber brokers, but the benefits to local communities and manufacturers are clear."

The Trade Issue: Regarding the trade of raw logs Palola addressed three issues. First was the current trade with Canada. The U.S. forest products industry routinely claims that Canada protects its wood and paper industries through subsidies creating a climate in which Canadians can afford to pay more for raw wood. However, he was quick to point out that every time the U.S. has attempted to bring the question before international dispute panels, hoping to counteract the effect of Canadian subsidies with US tariffs, the US has lost the case, thus implying that, "...there is more to the subsidy blame game than the US forest products industry might have us believe."

In studying NAFTA, NWF found that log export controls are specifically exempted from trade challenges. This they feel makes NAFTA "irrelevant in terms of undermining the future use of log export restrictions."

Likewise, there are two exemptions under GATT (the "conservation exemption" and the "short supply exemption") that may be used to protect the use of log export restrictions when the resource is deemed "exhaustible".

Without taking steps to restrict raw log exports from Maine and other states in the Northern Forest many culturally undesirable and ecologically devastat

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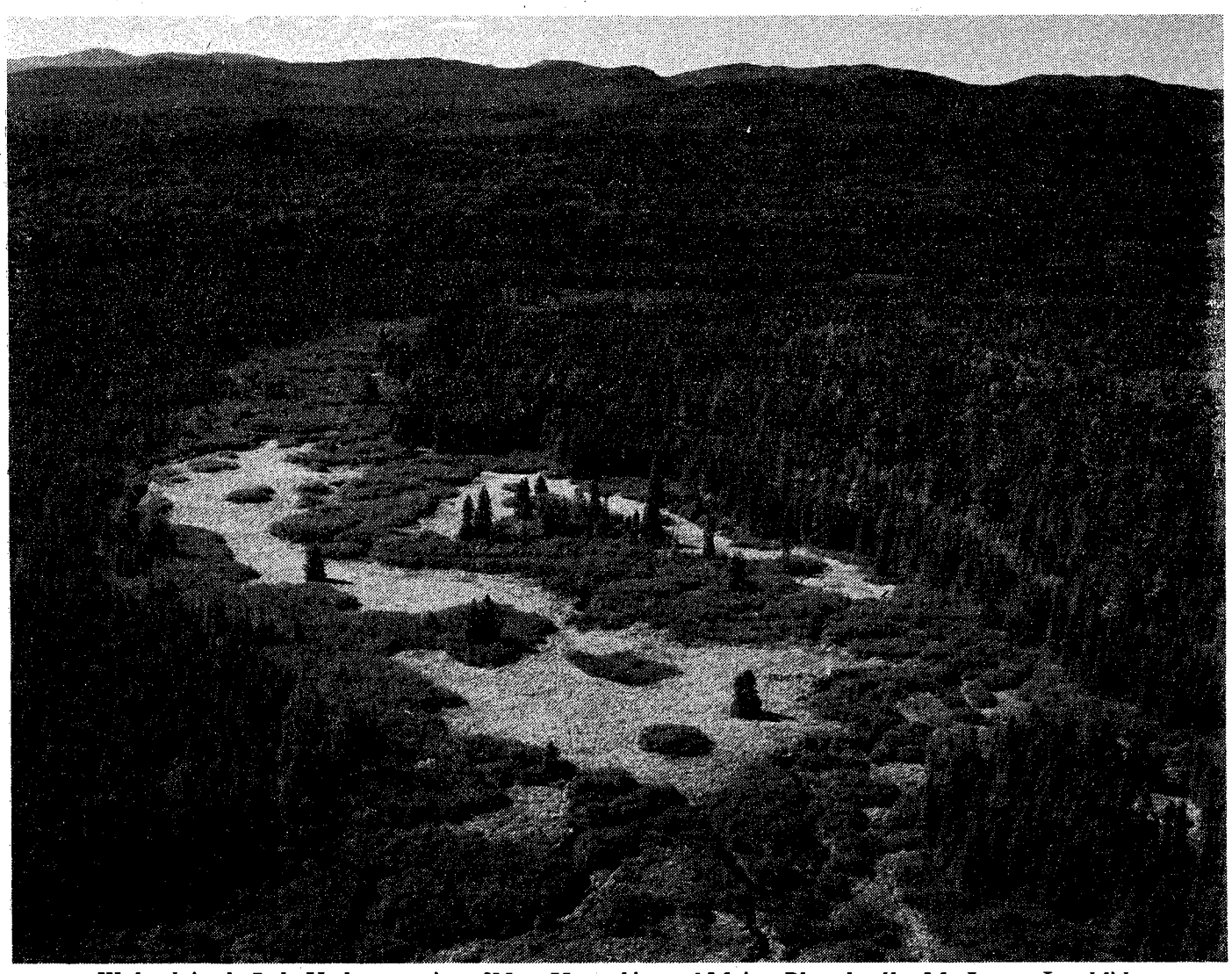
This oak is one of many huge old trees on Sears Island, which is threatened with development of a cargo port to export wood chips. Photo by John McKeith.

The Ecological Paradox: The Ethics of Protecting Wilderness

by Mitch Lansky



Wetlands in the Lake Umbagog region of New Hampshire and Maine. Photo by Alex MacLean—Landslides.

Forestry professors across the continent have discovered a new philosophical problem which they have labeled "the Ecological Paradox." The gist of this paradox is that those who, for the sake of environmental protection, reduce forest utilization in one area of the world, may end up causing more intense environmental problems elsewhere or even globally. Thus, taking timberland out of production for the sake of biodiversity reserves can, under such circumstances, be unethical as it benefits one group at the expense of another.

This argument, apparently, arose out of the debate over spotted owl reserves in the Pacific Northwest. Advocates of this approach suggest that Clinton erred in not having timber supply on the table along with owls and jobs. Where will the timber come from to make up for that which is now "locked up" for owls? One can be sure that the same argument will be made in response to calls for parks or reserves in Maine.

Proponents of this argument state that demand is not static, it is rising. This is due to the fact that globally both population and per capita consumption are rising. Indeed, at current rates of growth, the world population will double within the lifetime of a child born today. While much of the world's consumption of resources is concentrated in a handful of industrialized nations, such as the U.S., Japan, Germany, France, and England, other regions, such as China and Korea, are developing rapidly. As their large populations start consuming more, demand and consumption will be even greater.

There are, proponents claim, only five possible alternatives to cutting wood in owl habitat or other potential public reserves:

*increase cut on private lands;
*increase imports;
*find substitutes for timber for fiber and building;
*increase recycling; and
*reduce use.

None of these options, they argue, are adequate for the following reasons:

Private Lands: Although the total cut in the U.S. is less than total growth, much of the "surplus" growth is on hardwoods. In the Pacific Northwest, the forest industry has already overcut its softwoods, and in the Southeast, which is now the biggest supplier of softwood in the nation, the cut exceeds growth. I need not add that over the 1980s, spruce-fir volume in Maine declined by 31%. A huge reserve of softwoods to supply ever-increasing global demands is just not there on private lands.

Some forestry professors, such as Robert Seymour, at the University of Maine, have advocated intensified management with plantations to increase growth to make up for timber supply lost through reserves. There are a number of social/economic/ecological problems with this approach (see *The Northern Forest Forum*, vol. 1 #2, page 14), but even if this strategy were successfully followed, it would only account for a modest increase in reserves, but would not address increased future resource needs as population and consumption continue to rise.

There is also the problem that plantations, if they work, won't increase yields until 40 years from now. If reserves come on line today, plantations will offer little help in making up for immediate increased needs for timber. To meet today's demands, therefore, the wood will have to come from somewhere else.

Imports: The U.S. is already a net importer of most raw materials for industry—especially essential minerals and metals. Indeed, we are importing, for example, 100% of our manganese, 100% of our strontium, 98% of our bauxite, 79% of our chromium, and 73% of our tungsten. Many of these and other essential resources are being imported from Third World. Most Americans are unaware that we are also net importers of fruits and vegetables, meat and dairy products, fish, and even timber products.

Increased imports can be both a problem to us (due to increased trade deficits) and to the source nation (due to increased environmental damage). Increasing imports of tropical hardwoods, for example, would be a disaster. Two thirds of North American consumption of hardwood plywood is already imported, mostly from Indonesia. Some tropical countries have already dried up as suppliers, after experiencing major ecological damage. Almost all of our softwood imports come from Canada. Canada is already overcutting its timber, even in such heavily wooded provinces as British Columbia, Quebec, or the Maritimes. Scandinavia, another softwood export region, can hardly keep up with European demands, let alone start exporting to the U.S..

It is true that Russia has a huge share of the world's softwood supplies in its vast Siberian forests. The Chinese, Japanese, and Koreans, whose demand for wood products is rising, have also noticed this vast "resource." Russian timber exploitation would proceed at a much greater pace were it not for that country's unstable economy and deficient infrastructure. Environmentalists are concerned that Russia's vast taiga forest is a fragile ecosystem with many endangered species, such as Siberian Tigers. The consequence of trying to preserve biodiversity here, where we have numerous laws and regulations, could mean the destruction of biodiversity elsewhere, such as Russia, where there are few protections.

Substitutes: For building, the major substitutes for wood are steel, concrete, and plastic. In each case the amount of energy required per unit of production, and hence the amount of carbon dioxide spewed into the atmosphere, is far greater for the substitutes than for wood. Wood is also a renewable resource, whereas the other products are mined, sometimes with serious environmental consequences.

Most fiber substitutes for wood are grown on agricultural land. Demand for farm produce is growing. Using scarce farmland, fertilizers, and other agricultural inputs to grow fiber instead of food would not be a wise use of resources. Fiber grows well on trees in areas that have few other competing uses. The consequence of substitution could, therefore lead to increased environmental damage and shortages of other resources, many of which are already being imported.

Recycling: Given current trends of growth of population and consumption, increased recycling would not reduce the need for green wood over current levels, though it might slow the rate of increase. The argument here is that while increased recycling is desirable, it is not sufficient.

Reduced Consumption: Individual Americans may eventually consume less, through increased efficiency and increased recycling, but American population growth will keep aggregate demand increasing. Globally, consumption will, the professors argue, also increase because:

*population will double within 70-100 years;
*developing nations will rapidly increase demand for raw industrial materials; and
*the poorest populations will increase demands for the very basics of food and shelter as their populations grow.

Think Globally? The Ecological Paradox is thus an unexpected twist to the maxim that we should think globally and act locally. It calls for us to exploit our local ecosystems for the sake of the planet. The argument seems logical—and it does raise important issues with which society has yet to grapple. Yet, it can leave one with an uneasy feeling of incompleteness.

Why, for example, is this righteousness being applied mostly to biological reserves? Why aren't the same ethicists chastising with equal vehemence landowners who are reducing the volume, quality, and growth of wood on their holdings through mismanagement? Or how about the loss in trees from real-estate development, roads, or power corridors? After all, the loss in the timber base and the consequences to timber supply are just as compelling in these cases as with reserves. What about the ethics of those who try to increase demands through advertising or by lowering prices through tax breaks, subsidies, or "regulatory relief"? Where is the global guarantee that if we cut more wood here, other nations will cut less there?

While the forest ethicists seem concerned about increasing demands for

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Paradox

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timber, what about the increasing demands for wilderness? Is it more ethical to meet the rising demands for superfluous consumer goods than for wilderness? Even more serious, isn't there something unethical about decimating endangered species or endangered habitats here or anywhere else? While it may take decades to recover from economic setbacks, it may take millions of years to make up for any loss of diversity of species or genetic types.

The Problem

One of the major flaws in this "ethical" argument rests with the premise that population and consumption will continue to grow. This is based on the concept that Trend is Destiny. The projections do not take into account any corrective feedback as resources become more scarce or more expensive. Likewise there is no accounting for a change in direction as social or ecological problems become more severe. These projected demands, we are supposed to believe, are Sacred. No matter how high these assumed demands, and no matter what the social or ecological consequences, society *must* plan to meet them.

For some reason, those making such projections stop at the millennium or 2025, or 2050. If they would continue their projections long enough, however, they would have to conclude the obvious—the trends are not sustainable. The most probable long-term consequence, once limits are surpassed, is a rapid decline in population and industrial capacity. An ever-expanding balloon will eventually pop. We can expect depressions, wars, famines, social breakdown and various other catastrophes.

It may be unethical to preserve our forests at the expense of the Siberian forest. It also may be unethical to preserve our forests only to use less benign substitutes for wood that cause increased global warming. But it is certainly unethical to consume resources now at a rate that will cause suffering, hardships and a loss of biological diversity to future generations. The problem, therefore, is not biological reserves, it is unchecked industrial and population growth.

Building the road to Canada. Photo by Stephen Gorman

Alternatives

Some people have claimed that they are not opposed to growth, they just want it to be regulated or mitigated to make it environmentally acceptable. Such individuals deserve to be confronted with ethical arguments. If the economy is based on the premise of industrial growth without end, then there *is* a conflict between the economy and social/ecological health. If we are willing to admit that there are limits to forests, fisheries, farmland, and resource extraction, then we should, as a society, seek to live within those limits, rather than exceed them. We certainly should not be creating incentives to grow bigger, faster. Mitigating overconsumption does not alter its unsustainability.

We should, therefore, be alarmed at recent initiatives to accelerate the rate of global growth through "free-trade" agreements. One of the promised results of increased "free trade" is supposed to be lower prices. This is because consumers can get products from the regions where production costs are lower. Never mind that the lower costs may be due to less protections against exploitation of workers or of the environment. Lower costs, however, mean increased consumption. Increased consumption means more resource depletion.

What is needed, therefore, is contrary to the major "solutions" offered by our politicians. We need to grow less, not more in the overdeveloped nations. Prices of products should reflect full costs (including social and ecological) and thus be more, not less expensive. We need more protections against trade with countries that have cheaper products because they have fewer protections. This would mean higher, not lower, prices of imports.

We need to see our economy as a part of, and dependent on our biological systems, rather than see our forests, fields, and oceans as mere resources of our economy. We need to learn to live within the limits of these systems, rather than pretend that limits do not exist. We need to develop social/political structures that will allow us to be aware of the consequences of our actions. And we need the power to take responsibility for those actions. This means smaller social units, not larger.

These positions are considered so extreme in our society that they are not publicly debated. People want to believe in the hope of prosperity just around the corner. They want to believe that a technological messiah (bio-engineering, computers, space colonies, fusion, etc.) is coming that will fix all our environmental problems. They want to believe in a market messiah that will instantly adjust to fix any social problem with the magic of supply and demand. They want to believe in a political messiah that will fix all societal problems with new laws or constitutional amendments. As long as we continue in our current direction, however, these mechanisms will just help us wind up where we are headed.

Those raising ethics issues are doing us a favor. They are forcing us to confront the premises of development that are reducing our native forests (and oceans, fresh water, clean air, and healthy communities) to absurdum. Changing the premises of our society will not be easy. But living with the consequences of industrial logic is ethically unacceptable.

Log Export Conference

Continued from page 16

ing trends will continue to gain strength. Angus King pledged as governor-elect of Maine that his administration would work to see that no logs leave the state with the bark on them. This sounds good, but in conjunction with the Governor's support for the Sears Island Cargoport it also sounds a little scary. The port, if built, would represent a public investment of $85 million and would depend on 600,000 tons of woodchips per year for financial viability. Representatives from the Maine Department of Transportation claim that this is a good alternative for underutilized or "junk wood." The question is: is it the best use of wood or is it the most efficient way to export the natural resources of Maine with the least possible value added? Most participants at this conference felt the latter was closer to the truth, and that the Sears Island proposal represents a bad path for the state of Maine to take. For that reason they have introduced two pieces of legislation and proposed an action plan that could help steer Maine away from a future in which the export of raw materials dominate the wood products industry. One of the proposed bills urges Congress to allow all states east of the 100th meridian to regulate the export of unprocessed logs. The other would improve the tracking of wood exports and imports.

Three actions tentatively agreed upon by conference attendees:

*A formal coalition will be established to explore the log and chip export issue;

*An expanded conference will be held to further discuss the issue, to which the press will be invited;

*The coalition will further explore ways to halt the Sears Island project, and the associated public funding.

It was no small feat that this group agreed upon two pieces of legislation. The positive results emerging from the group constitute a parable for the strength of diversity. To succeed in protecting the Northern Forest new alliances must be forged. "...we worked long and hard to arrive at where we are today," said Stephen Perry of the United Brotherhood of Carpenters and Joiners, "After overcoming traditional roadblocks and minefields between the environmental and labor communities, and fending off what I believe to be corporate or bureaucratic infiltration attempts, common ground was explored, goals were tentatively set and a course of action was selected."

Maine Woods Watch

by Jym St. Pierre
&
Michael Kellett

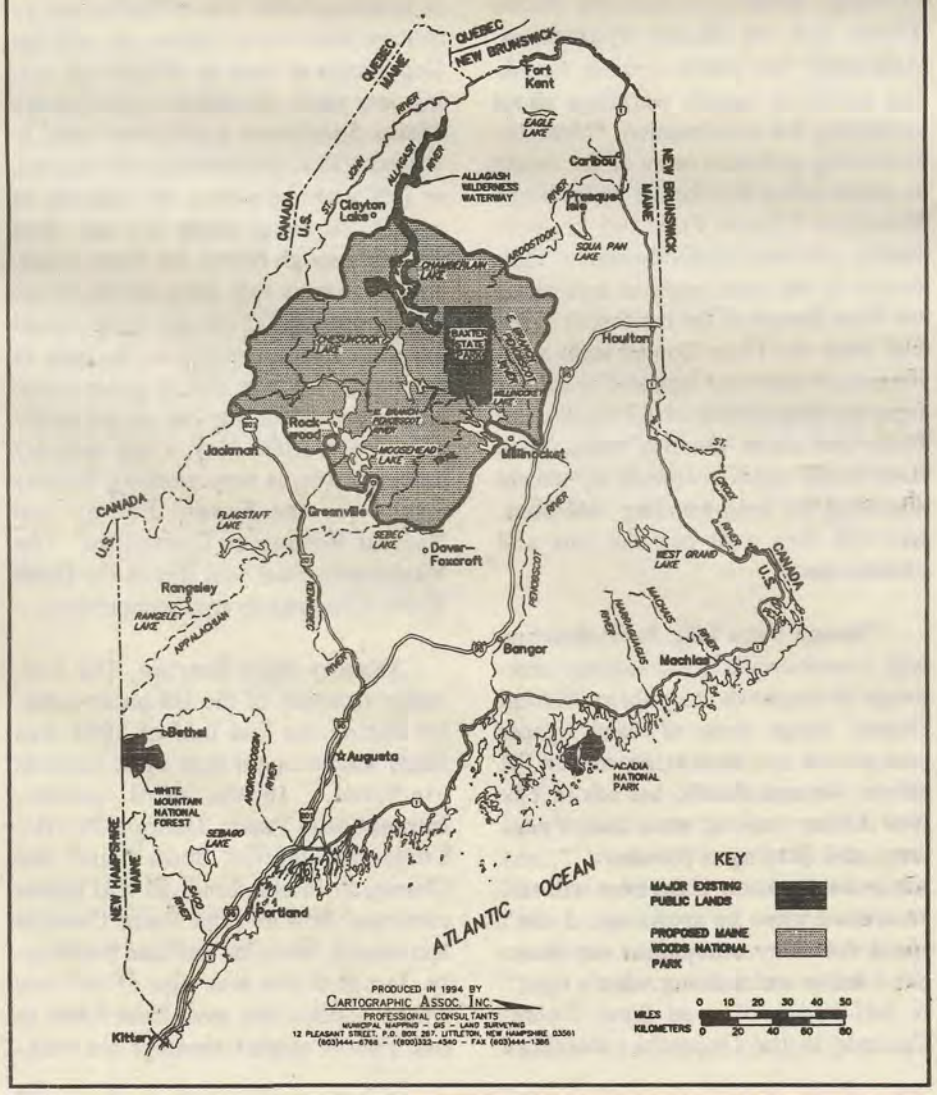
The Maine Woods is the largest tract of wildlands in the eastern United States. However, today this region is under siege. Maine Woods Watch is devoted to documenting the good, the bad, and the ugly in the Maine Woods today, with an emphasis on opportunities for citizen action to protect and restore the essence of the region, its wildness.

***Maine Is On the Move.** But to where? The new political power brokers are forming their power teams and doing their power lunches inside the Beltway as well as in the Paper Plantation state. Perhaps newly elected U.S. Senator Olympia Snowe, who demonstrated limited interest in forest conservation as a member of the House of Representatives, will be more engaged in the issue in the upper body of Congress. Complete figures for the 1993-94 campaign are not in yet, but she made news by ranking third in the country in forest products industry political contributions among the 435 House members in 1991-92. *Maine's new congressional representatives continue to hire staff and some of the choices are curious. Representative James Longley has appointed Floyd Rutherford, former president of the Paper Industry Information Office, as his chief of staff. Longley has also retained Ted Johnston, former head of the Maine Forest Products Council as well as Johnston's wife. Balancing off Longley's team are a number of staff with oil and other industry credentials. *Back in Maine, Governor Angus King has appointed Chuck Hewett as his chief operating officer. Hewett served as executive director of Maine Audubon Society for five years during the 1980s before working with King at an energy development company. For the past three years Hewett has been managing a pharmaceutical company in Ireland. Hewett, known as a centrist environmentalist, is having a major influence on cabinet choices for the King Administration. For instance, he picked Ron Lovaglio to be nominated as Commissioner of Conservation. Lovaglio, while an affable fellow, is a long-time employee of International Paper Company with no serious qualifications for the top forestry and conservation job. **Imagine the day when the Maine Department of Conservation will not be a subsidiary of the forest industry.** *However, for now don't look for much environmental leadership from the legislative branch. The new Agriculture/Conservation/Forestry and Natural Resources Committees include legislators who had such low Maine League of Conservation Voters ratings they nearly flattened the bell curve. *At least they will not know any less about forestry issues than the new number one lobbyist for the Paper Industry Information Office in Maine. Laurel Nelson, a Washington, D.C. lawyer, formerly with the National Food Processors Association and the Health Insurance Association, has been named president of the Maine paper industry lobby group. News reports announcing the appointment admitted Nelson "hasn't been involved in the paper industry." Her first assignment will be to try to salvage a $20 million subsidy to finance environmental improvements granted by the Maine Legislature last year. Governor King says he wants to fund it, but the money is not available.

***It's a Wonderful [Wild]life.** Well, sometimes. Golden eagles are extremely rare in the Northeast. There is only one breeding pair in Maine. A lone golden eagle, which had tried a porcupine meal for the holidays and ended up with its claws full of quills, broke into a home in Sebago soon after New Year's malnourished and desperate for food. The bird scared a dog out of the house before being turned over to a veterinarian for rehabilitation. *Early January saw a couple of other incidences of stressed birds picking on dogs. A great horned owl prayed on a white poodle-Pekingese and terrified residents in Greenville before wardens killed it. A week later another owl attacked a white poodle in East Corinth. Better keep an eye on your white lap Fidos this winter; there are some desperate owls trying to make a living. *The Maine Department of Fish & Wildlife (DIFW) is proposing to amend the list of protected bald eagle sites and to revise the register of state designated endangered and threatened wildlife. (Comments are due in February to DIFW, Station #41, Augusta, ME 04333.) *Other wildlife news involves attraction and repulsion. Attraction: the DIFW wants your thoughts on hunting black bears over bait. More than 2,000 bears are shot in Maine annually, most while eating bait out of a barrel or after being chased up a tree. (Comments to DIFW, Station #41, Augusta, ME 04333.) Repulsion: Johnson & Co. Wilderness Products of Hampden is seeing booming sales this winter of its 100% Predator Urines. About 25,000 bottles of the various fragrances—bobcat, fox and coyote—are sold each year mainly to homeowners to ward off pesky prey critters such as garden-loving deer. Also marketed are hunting scents and lures. How do they get the predators to pee into those little bottles? *Brook and lake trout are the species normally found in Moosehead Lake. It was a big surprise to see a Pacific species, a rainbow trout, pulled from the lake in January. *Previously thought to be extinct, in the 1960s the shortnosed sturgeon was rediscovered and listed as endangered in the Kennebec River. Now studies by a hydropower company suggest the sturgeon population has rebounded to upwards of 10,000 in the Kennebec. *Wood turtle populations, on the other hand, are plunging. To prevent extirpation RESTORE, the Biodiversity Legal Foundation and several turtle experts have jointly petitioned the US Fish & Wildlife Service to list the wood turtle as threatened, designate critical habitat, and curtail collection for the pet trade and export. (Comments to: USFWS, 300 Westgate Center Dr., Hadley, MA 01035.) *RESTORE and other plaintiffs recently filed suit to compel the federal government to decide whether to protect the Atlantic salmon under the Endangered Species Act. The decision from the government is four months overdue.

***No Free Lunch.** Maine's wildlife-related economy is at least a $675 million industry. However, the Maine Department of Conservation receives only a fraction of one percent of the state budget and the Fish & Wildlife Department gets essentially no state general fund revenue. Conservation costs money. With persistent budget deficits and ballooning debt, fundraising ideas are becoming more creative. In late January, the Sportsman's Alliance of Maine (SAM) and Maine Audubon delivered to the State the 53,000 signatures needed to send the Maine Outdoor Heritage Fund initiative to a public referendum vote this year. The MOHF would raise $2 to $4 million a year from a lottery game for habitat protection, endangered species restoration, parks acquisition and management, and conservation law enforcement. *Governor Angus King has endorsed the MOHF. He also wants to raise funds by having the State issue a Katahdin credit card which would provide dedicated funds for conservation programs. *The $10 million bond issue to repair and expand hatcheries which failed last November left SAM's political action committee $11,000 in the hole. That is not stopping the organization from proposing $5 million bond issues this year for fish hatcheries and water access acquisition. *At the national level, a proposed Wildlife Diversity Funding Initiative seeks to generate over $350 million each year for nongame species, nonconsumptive wildlife opportunities and public education about wildlife diversity through a tax on outdoor recreational equipment. The idea is to tap nonconsumptive out-

Proposed Maine Woods National Park



door users who spend two to three times as much on equipment as hunters and anglers. Currently over $350 million is spent annually in the U.S. on a few hundred game species while only $1 million goes to help more than 1,850 nongame species. The Sportsman's Alliance of Maine, which opposed the program, has moved back to a neutral position to study the idea further. The largest opponent in Maine is L.L. Bean, the outdoor gear company. (Postcards can be addressed to L.L. Bean, Freeport, ME 04032.)

***LURCland Becoming Lalaland.** What remains of the Maine Woods has long been synonymous with the ten million acres of wildlands within the jurisdiction of Maine's Land Use Regulation Commission, affectionately known as LURC for short. LURC is experiencing some volatile times. The agency lost its staff director last fall, it is floating in a department run by a lame duck commissioner, and there is growing antagonism among the seven citizen commission members. Compared to the Maine Department of Environmental Protection or most other environmental regulatory agencies LURC has always been lean, and usually well run and user friendly. However, the agency has become vulnerable and the King Administration is considering a reorganization. *Meanwhile, LURC struggles along trying to update its comprehensive plan. Conservationists have been pushing for tighter rules to guide development away from the heart of the big woods and toward existing communities on the fringe. The major landowners and private property extremists are fighting for looser development regulations so they can cash in more easily. A report released for public comment in late January included some stunning statistics. For instance, from 1971-91, an estimated 200,000 acres were divided from larger ownerships, with 97% of this area escaping review through legal loopholes. Since the early 1980s twice as many lots have been created that did not go through subdivision review as lots that did. The shame is that the same amount of parcelization could have occurred with proper oversight in more appropriate locations while the forest was better protected. Hundreds of jobs and millions of dollars of lost value were the result. (Comments on the report are due by February 28 to LURC, Station #22, Augusta, ME 04333.) *For comic relief from its current woes LURC is trying to figure out how to judge the suitability of a proposed adult book and video store called Fantasy 4-Play. *Developers of the mega Boundary Mountains windpower project are stalling. After months of blaming LURC for not swiftly acting on their proposal, Kenetech Windpower is now asking LURC to incubate the application for a while. The unstated reason: Kenetech wants to influence the choice of LURC staff director to tilt the scale back in their favor. *Some areas cannot wait to leave LURC, but some are crying to get in. Townships TA R7 and T1 R7, annexed several years ago by Millinocket to promote development, are likely to leave LURC jurisdiction soon. At the same time, residents in Crystal have voted overwhelmingly to pursue deorganization to save money, which would bring the town into the LURC sphere.

News that former State Senate President Charles Pray has been dumping poisons into the West Branch Penobscot River reminds us just how fragile is the protection afforded our greatest natural treasures. Photo courtesy of Appalachian Mountain Club.

Oops.** A series of accidents at Maine papermills recently has raised safety concerns. A hundred gallons of Biocide leaked into the sewer system at Champion International's Bucksport mill just before Christmas. Fumes from a fork truck battery charger drew hazardous materials personnel to Scott Paper Company's Winslow mill in mid-January. Both incidents were described as harmless. Not so a chlorine leak at Champion's Bucksport mill on January 17, which sent four men to the hospital. *International Paper Company is contesting being named as one of the eight worst polluters in the country for 1994 by a national watchdog group. *Conservationists in Maine and across the country have called on the EPA to ban papermaking and new incinerators that produce dioxin in the wake of a major EPA study that found the chemical can be extremely carcinogenic. *Mercury contamination of a wide range of fish in Maine received major coverage recently in both the ***Maine Times and the ***Maine Sportsman.*** Amazingly few people seem to be taking seriously health warnings about restricting fish consumption. *Most disheartening pollution news of the month is confirmation that former State Senate President Charlie Pray and his wife Nancy poisoned groundwater at their camps in the most popular area along the West Branch of the Penobscot River. For years the Prays flouted state environmental laws and repeated warnings from the Department of Environmental Protection about gasoline leaks. They have finally signed a consent agreement admitting the long-standing violations, but will they ever pay the fine and cleanup costs?

Image Face Lift.** In conjunction with a nationwide forest industry campaign to improve its public "Forest Grump" image, many of Maine's paper companies are mounting major PR efforts. Georgia-Pacific has ads in ***The New Yorker running more than a page long and quoting a forester: "...my son...wants to know if the trees will still be around when he grows up....I can't speak for other companies out there. But I know we're doing what's right." A full-page color ad from Boise-Cascade in the December ***Portland Monthly*** acknowledges: "Our nation needs forests for their own sake, as well as the wood they produce." Bowater/Great Northern Paper's current ads claim: "Protecting and preserving the forest is a top priority at Great Northern—that's why we've always taken the long view." International Paper has bought expansive space in the ***Wall Street Journal*** to tout their recycled paper products and to assure: "We meet the need for virgin fiber by practicing 'sustainable forestry'." IP has gone even further to spruce up its looks. The company sponsors two hunting/fishing television shows as well as the "Color Me Green" TV environmental tips series in Maine. *The paper companies have been trying to be especially nice to the hunting/fishing folks lately. For instance, Boise Cascade is donating $10,000 to SAM for a five year corporate membership. Great Northern has opened a 260-acre Outdoor Classroom. International Paper is working with Trout Unlimited to manage brook trout habitat and with the Department of Fish & Wildlife on roving deer yards. An article in the January ***Maine Sportsman*** asked, but failed to answer, "Is it enlightened self-interest, or just a smoke screen for business as usual?" *If being mister nice guy does not win enough hearts, the forest industry can always rely more on the tough guy approach. There are more forest industry-friendly people in Congress in positions of power than in generations. One appointment that has turned plenty of heads is Mark Rey, a top industry lobbyist, who is now working forestry issues for the Senate Energy and Natural Resources Committee. ***The Washington Post*** said Rey is the Darth Vader of forestry to environmentalists.

Sunny then Stormy.** The economic recovery of the US paper industry during the last half of 1994 was faster and stronger than most analysts predicted. In the third quarter, International Paper, Georgia-Pacific, Louisiana-Pacific, Scott Paper and Champion International all had robust earnings. Bowater and Boise Cascade lost money, but a lot less than previously. James River was one of the few whose bottom line went from black to red. Fourth quarter earnings are trickling in, but it appears even Bowater (over $20 million) and Boise (approximately $26 million) made a profit for the first time in years. ***Pulp & Paper is predicting that pulp, paper and paperboard production in the U.S. will grow faster than the overall economy in 1995. Increasing profits please shareholders but not consumers. For instance, newsprint prices, which have been rising sharply and are projected to be 30% higher this year, are prompting newspapers to slash costs. Watch for thinner newspapers and fewer local and investigative stories. *If the near-term outlook is bright for many paper companies, the long-term picture for the paper industry overall in Maine is shaky. A preliminary report by a consultant to the Commission on the Future of Maine's Paper Industry has questioned the ability of Maine's older, smaller mills to compete for capital investment funds with out-of-state mills, especially South American plants.

***Stormy then What?** Actually the rosy 1995 national projections for the forest products industry cannot mask the tough times many of Maine's companies are going through already. For instance, in response to the global demand for recycled paper the use of wastepaper in making new paper is expanding three times as fast as mill capacity in the United States. Ironically, the tremendous interest in recycled paper has caused a steep increase in the cost of waste paper as a raw material. This jump nearly put one of Maine's largest recycled papermills, Statler Tissue in Augusta, out of business. A $1.5 million aid package was approved by the Finance Authority of Maine in late January as an emergency measure to save the plant from closing. Union officials believe poor management and the effects of the NAFTA and GATT trade treaties are exacerbating Statler's problems. *Another facility, Weyerhaeuser's corrugated products plant in Westbrook, has been losing money and will close soon unless a buyer is found. One hundred sixteen employees are at risk. *Great Northern Paper, Maine's largest landowner, continues to show multiple signs of stress. In December GNP, which keeps insisting it has no interest in selling land, sold

54,800 "nonstrategic" acres to Hancock Timber Resource Group. (In less than two years now Hancock has accumulated a quarter million acres in Maine.) Bowater, Inc., Great Northern's parent, is desperately reorganizing and cutting expenses. The company is assigning more than three dozen staffers in Maine to work full-time for three months figuring out how to slash controllable costs by 40% over the next two years. Watch for more layoffs and land sales. One cost that cannot be cut is a $26,500 fine Great Northern will pay the State to settle a series of major forestry violations, some dating to 1980. *Tax disputes are also rocking papermill towns. Great Northern settled long standing tax appeals with Millinocket and East Millinocket last year, but those communities are still reducing local services to cramp into smaller budgets. Millinocket hopes to attract tourists by creating a new "moose park" and by calling itself the "Snowmobile Capitol of Maine." East Millinocket expects to land a $125,000 grant soon to help finance a variety of businesses that will provide economic diversity. Bucksport meanwhile is spending hundreds of thousands of dollars to defend against a tax challenge by Champion International which wants an abatement of $1.5 million for each year from 1992-94. *Two other paper companies with Maine operations, Georgia-Pacific and James River, are among several being investigated by the U.S. Justice Department for possible antitrust violations.

***More than Paper.** Maine may be best known as the Paper Plantation, but the earliest cutting was for ships masts, lumber and other products. Plenty of wood fiber still goes into forest products other than paper. Georgia-Pacific has installed a new machine to increase output at its Oriented Strand Board Plant in Baileyville. *The J. Paul Levesque & Sons sawmill in Masardis was hit with a $5 million fire the day after Christmas. *A conference in December sponsored by three labor unions and six environmental groups looked at the impacts of log and woodchip exports on job losses and forest health in Maine. Another conference in January at the University of Maine focused on secondary wood processing industries. Maybe we need less talk and more action in Maine to improve opportunities for value-added wood industries. Nadeau and Nadeau Ltd., a Canadian furniture manufacturer with a large market in the U.S., has announced a $1.5 million expansion of its factory just over the border in New Brunswick. Wonder how much of its wood is raw logs exported from Maine?

***Hear that Lonely Whistle Blow.** Maine sticks up like a fat thumb into Eastern Canada. To connect the Canadian Maritime provinces an east-west rail line was built through the heart of the Maine Woods in the mid-nineteenth century. However, in recent years service on the 200-mile stretch in Maine has been wracked by financial troubles. The Canadian Pacific Rail System finally shut down the trains on December 30, but rust had little time to form on the tracks. Within a week the line was sold in two pieces. The western end went to a new U.S.-based corporate partnership called Canadian American Railroad Company. The eastern segment was plucked up by the Eastern Maine Railroad Company, a subsidiary of the Canadian corporate mammoth J.D. Irving Ltd. Freight service on the line is important to a number of forest product firms in Maine, including Georgia-Pacific and Great Northern Paper. *Another paper company, Chinet, will benefit from a new $2.5 million rail-truck intermodal transload facility being built in Fairfield.

***Reservations about Reserves.** Forest economist David Field told the mostly industry crowd at the University of Maine's annual Munsungan Conference that efforts to withdraw lands from harvesting could backfire environmentally and increase costs for wood processors. Such concerns are not slowing down conservationists who are charging ahead with a variety of proposals. *RESTORE: The North Woods' campaign for a Maine Woods National Park continues to gather momentum. *Similar but different proposals to establish ten "conservation priority areas" in the Northern Forest, including five in Maine have been put forward by the Maine Audubon Society and the Northern Forest Alliance. (For copies of these proposals contact Maine Audubon, PO Box 6009, Falmouth, ME 04105 and RESTORE or Sierra Club at the addresses listed below.) *The Maine Forest Biodiversity Project is moving ahead on three initiatives: assessing the status of biodiversity in Maine, completing the design of a state ecological reserves system, and crafting biodiversity-friendly forest management practices. *Environmentalists have their own reservations about a newly revived scheme to tap natural gas reserves off Nova Scotia's Sable Island and pipe it across the Maine Woods. James River Corp. in Old Town and Champion International in Bucksport are two papermills that are among potential customers. *Timber cutting has resumed within Mount Blue State Park by Timberlands Inc. which has logging rights dating to a 1966 land swap with the state. In previous winters the cutting has been protested by forest activists.

***Spare that Tree.** Amid the endless talk about diversifying our economy from over-reliance on forest products, tourism often gets badmouthed. Yet the statistics prove it should be a big part of our future. A new study has found that while Maine's economy was contracting from 1988-93 sales grew steadily for food (17%) and lodging (30%). Visits to Acadia National Park were up 10% in 1994 over the year before. Last spring Maine spent a mere $327,000 to promote tourism. Even that meager investment returned $37 million in visitor spending and $2.4 million in taxes. The lure of the Maine Woods remains powerful. Rangeley used a $54,000 grant to coax an additional $460,000 in spending from Massachusetts tourists. This year Maine sporting camp owners are setting up a toll-free phone line and getting free exposure in one and a half million L.L. Bean fly-fishing catalogs.

***Gaining Ground.** Yes, conserving land is good for the environment and good for business. The Land for Maine's Future program has bought 53 miles of recreational trail on an abandoned Bangor & Aroostook Railroad corridor in northern Maine. *The U.S. Fish & Wildlife Service is still bidding to get 6000 acres of undeveloped forest and wetland for a national wildlife refuge at the former Loring Air Force Base in Aroostook County. *Two Forest Legacy projects that would protect several thousand acres in the Maine Woods with conservation easements are on the fast track and two more potential projects are in the wings. However, they may be left by the wayside if Congress rescinds the $20-plus million dollars appropriated for the Forest Legacy Program but as yet unspent. *A Draft Environmental Impact Statement released by the Federal Energy Regulatory Commission recommends that Great Northern Paper Company be required as part of its hydropower relicensing to protect all shorelands around the Ripogenus impoundment. The company is fighting the idea. (Comments to FERC, 825 N. Capitol St. NE, Washington, DC 20426.) *New Brunswick is interested in two international trail projects, a Fundy Trail Parkway and a hiking path to link to the Appalachian Trail, but Maine officials seem uninterested.

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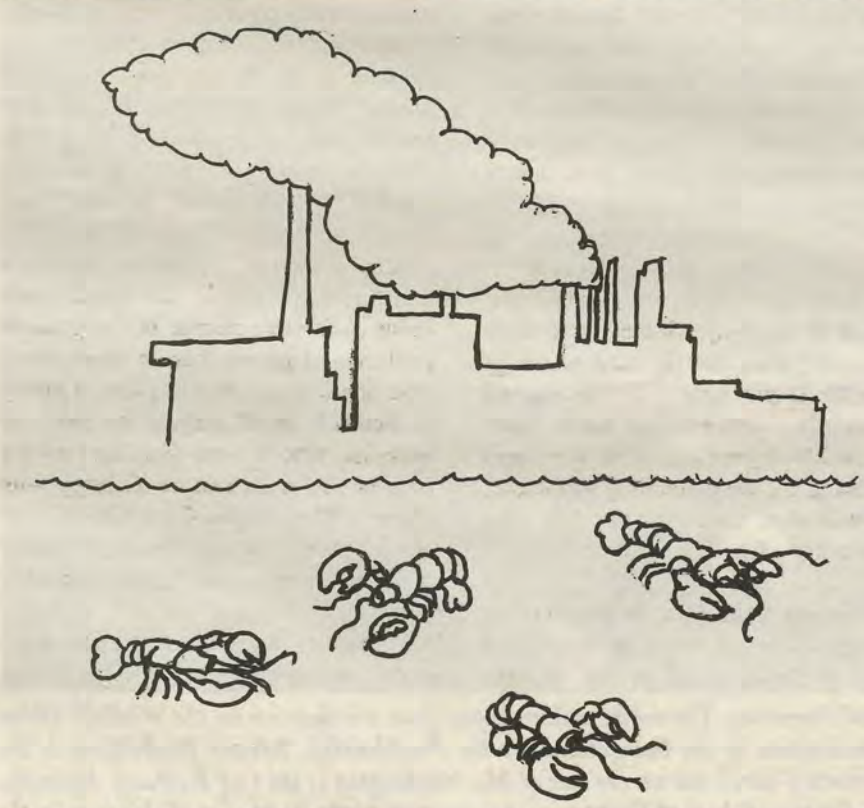
Ban Dioxin

Continued from page 7

During production, incineration, and some uses, chlorinated solvents result in dioxin formation. Viable, water-based, mechanical and chlorine-free chemical alternatives are available for cleaning, degreasing and coating in a full range of industries. EPA should establish a rapid timetable for the phase out of the production of all chlorinated solvents.

C. Phase out the use of chlorine in the manufacture of paper in five years. Pulp and paper plants generate dioxins through the use of chlorine in the pulp bleaching process. Totally chlorine free (TCF) bleaching substitutes such as hydrogen peroxide and ozone produce high quality paper without generating dioxins and other toxic organochlorines. These processes use less energy than chlorine mills, save 94 billion gallons of water per year by recycling waste water, reduce replacement rates for corroded tanks and pipes, and require less money for pollution control and clean-up. TCF technology is widely used in Europe and Canada and in several mills in the United States, including Louisiana Pacific's Samoa, California plant. The technology for phasing out the use of chlorine in the manufacture of paper exists today. The EPA should act swiftly to ensure that this significant source of dioxin is phased out within five years.



D. Require publicly accessible reporting on dioxin under the national Toxics Release Inventory database. Citizens have a right to know about dioxin production and releases in their communities. In light of dioxin's dangers public officials have a *responsibility* to know about sources of dioxin pollution. The EPA is currently considering modifications to the Emergency Planning and Community Right to Know Act which would require public reporting on dioxin, including lower reporting thresholds and additional source categories such as incinerators. We strongly support this addition to the Toxics Release Inventory.

Conclusion

We wish to emphasize that phase-outs should be implemented in a way that minimizes any economic dislocation, especially for workers. However, we cannot afford to waiver in the face of some scientific uncertainty as we did for much too long with DDT, PCBs and lead. Even when decisive action was taken to phase out DDT, PCBs and lead, EPA did so with some scientific uncertainty remaining. We must act now to protect future generations from the devastating health impacts of dioxins in our environment.

How You Can Help:

*Write Carol Browner of EPA and tell her to ban dioxin now. Carol Browner, Administrator, US EPA, 401 M Street NW, Washington, DC 20460.

*Contact Peter Washburn, Natural Resources Council of Maine, 271 State Street, Augusta, ME 04330-6900.

Green Mountain National Forest: A Fall From Grace

by Lowell Krassner

When a coalition of environmental organizations and concerned individuals filed suit against managers of Vermont's Green Mountain National Forest to halt a road building and logging project proposed at Lamb Brook, in the southern part of GMNF, the ***Boston Globe*** headlined its news story—"'National Model' forest plan ends up in lawsuit." The GMNF Plan, upon its adoption in 1986, was hailed by environmental groups as a model of purpose for the national forest system. How could the innovative perspective and vision of this, the only forest plan in the nation that was neither appealed nor returned for extensive revision, result in an all-too-common state of litigation? A brief review of the situation that has led GMNF's fall from grace to a state little different from many other national forests is appropriate at this mid-way point in the plan's life.

In June 1987, at a meeting convened by the Sierra Club and The Wilderness Society for forest activists from all across the nation, then-Chief of US Forest Service Dale Robertson heard myriad complaints about the lack of vision and the narrowness of focus evident in most of the forest plans being produced in the mid-80s planning round. Citizens were especially disappointed because they had expected better under the aegis of the 1976 National Forest Management Act, passed by Congress to correct the obvious deficiencies of USFS performance which had been highlighted in landmark lawsuits won by environmentalists. When I read aloud the GMNF plan's statement of purpose, stated in Chapter IV, "We believe that public land in New England is scarce and precious...The [GMNF] should be managed to provide benefits that private land does not, and to maintain options and opportunities for future...generations..." the audience broke into spontaneous and enthusiastic applause. Here, at last, it seemed, was a forest plan with a vision for management in the public interest.

A Cast of Characters

What, then, has caused the environmental community's view of GMNF to change so drastically in less than a decade? One indicator—I had to dampen the activists' outburst of praise for the GMNF plan with news that the principal authors of this document, Jim Northup and Deb Brighton, were leaving the Forest Service, evidently believing that their innovative work could lead to more rewarding careers as independent consultants. When I criticized USFS for not holding on to these high-caliber personnel, then-Chief Robertson, very typically swallowed the information without any response. Failure to retain the interest and enthusiasm of the best and brightest is a sign of problems in any organization. Today, Jim Northup is one of the plaintiffs suing the Forest Service for failing to follow the plan and for violating other legal requirements in the Lamb Brook projects. The existence of AFSEEE, the Association of Forest Service Employees for Environmental Ethics, is a further indicator of the dissatisfaction and disillusion affecting a significant fraction of USFS personnel.

Although the Forest Service's new chief, Jack Ward Thomas, who was appointed early this year, had a key role in important and environmentally conscientious decisions in the Northwest's Ancient Forests, increased environmental sensitivity has not yet diffused into the management chain, and it appears unlikely that these two outstanding professionals—Brighton and Northup—would even today get the recognition they merit.

Higher management in USFS has seemed to wish the GMNF Plan would somehow go away. Insiders feel that Regional Forester Floyd Marita, who runs the national forest system for all the Northeast from Minnesota to New England, has been hostile to the GMNF plan almost from the beginning. Within two years of the 1987 meeting described above, the entire line management of GMNF, the district rangers and forest supervisor who direct the work and make the critical decisions, had been replaced.

Who's Minding the Store?

In 1992, a hiker approached the Emily Proctor Trail, a side route leading to the main route of the Long Trail. Much to her shock, she found it muddied by skidder tracks, and a short way in, directly abutted by a clearcut. Complaints from a broad spectrum of environmental and outing organizations were met with the Forest Service's explanation that a skid trail route separate from the Emily Proctor Trail had been marked, but was somehow missed, and that a buffer between the clearcut and the trail was in the plan for the work, but was omitted. Since the Forest Service provides ample documentation of its plans, including all such provisions, it's valid to wonder whether these terms weren't spelled out in the contract with the logger, and why Forest Service personnel weren't present to see that the terms were met by the contractor. After a visit to the site, the Forest Service admitted, "We goofed," but allowed the remainder of the logging to continue. No one was penalized for a disfigurement of GMNF that will take years to heal.

Is GMNF Off-Track Legally?

In 1984, the Vermont Wilderness Act was signed into law. As part of a compromise negotiated by Vermont's Congressional delegation among various interests, that law established the White Rocks National Recreation Area (WRNRA), where existing snowmobile trails would continue, but no other motorized use would be permitted. Within WRNRA, certain existing roads, including one leading to Wallingford Pond, were to be closed. Five years after the law was passed, the Forest Service was reminded of its mandate, and action on road closure was requested. Now, ten years later, a call to the Forest Service elicits the information that the road is still in use. Thus, the Forest Service is flouting a legal requirement endorsed by Vermont's two present senators.

At another location in WRNRA, a snowmobile trail was so extensively widened that a hiker observed a pickup truck using it to gain access to Griffith Lake, another location supposedly closed to vehicles.

In the past year, GMNF has proposed a plan to open vast areas, previously closed, to wheeled off-road vehicles. The extensive potential for ORV damage to soil, water quality, wildlife habitat, other recreational use, and the general atmosphere of the Forest are very clear; environmental groups believe the possible changes demand the preparation of a full Environmental Impact Statement which would examine the potential effects of a full range of alternatives. This is required by the National Environmental Policy Act. One has been requested several times from Forest Service officials, but there is no sign that USFS is planning to do more than issue a decision with very little public input, and even less consideration of its potential effects.

Meanwhile, in the Lamb Brook area, also legally closed to all vehicles except snowmobiles in winter, the muddy ruts left by a variety of vehicles are evident on every pathway. Is this the level of resource protection that the Forest Service intends to provide throughout GMNF?

Are We Following Any Plan?

When the 1987 Forest Plan was issued, there were, of course, timber sale projects under way that conformed with the previous plan; these were not immediately altered to meet the requirements of the new plan, but all new undertakings were to be directed by the new plan. Some timber sales that had been contracted under the former plan were never completed; they were abandoned or otherwise terminated. After seven years, the Forest Service intends to re-offer such sales without amending them to bring them into conformity with the current plan. Environmentalists think it is long past time that all actions on GMNF comply with the plan now in effect.

Plan provisions prohibit below-cost timber sales in the absence of definable non-market benefits, and further prohibit money losing sales merely to meet demand for lumber. The Forest Service has been ignoring this requirement in many recent actions. The plan also fore-

Continued on page 24

There's trouble on the White Mountain National Forest too. The white cookie-shaped spots are clearcuts on the WMNF. We've counted over 100 of them. The white-capped mountains in the background are the Presidentials. Mount Washington is the highest mountain in the Northeast. The white reverse j-curve scar on the side of Mt. Washington is the Cog Railway. Recently, we received a survey from a professor at SUNY-Syracuse School of Forestry on our reaction to the 'aesthetics' of clearcuts in the WMNF. Apparently some defenders of bad forestry still think that the primary reason the public objects to clearcuts is because they are ugly. While it is true that clearcuts are ugly, and while it is true that people object to such ugly activity, the real cause of public opposition to clearcuts is ecological, not aesthetic. Simply doing a better job of hiding ecological degradation does not diminish the impact of abusive activity. The WMNF has done an exemplary job over the years of hiding its clearcuts from all but winged creatures and the most adventurous hikers, but they can't hide ecological abuse from the critters whose habitat has been degraded. There is a simple solution to the issue of aesthetics and clearcuts: stop the clearcuts, then you won't have to worry about hiding them. Besides, many of these scars upon the landscape lost money for taxpayers. Photo by David Carle.

Does Decline Mean Demise for Paper Industry in Maine?

Commission on the Future of the Maine Paper Industry Offers Troubling Insights into 'Mainstay' of State's Economy

by William Butler

Maine's Legislature now acknowledges the decline of the paper industry. In March 1994, as an emergency action with no fanfare, it passed a Resolve creating a *Commission on the Future of Maine's Paper Industry.* The retiring governor signed off in April.

The *Whereas's* leading off the Resolve are revealing; in sum, they say that what is claimed to have been a mainstay of the state's economy is now in decline both nationally and within the state, bringing into question the industry's long-term ability to remain a major part of the state's economy, creating the potential for a devastating ripple effect. The issue is further said to be of vital concern, deserving immediate study to determine what problems the industry is facing and what, if any, actions the state may take to assist the industry.

The Governor appointed four members and each of the Legislative leaders named two. Of the eight, five are from local paper companies, two represent union workers in the mills, and one has no apparent industry connection. He is Edward Fox, retired Dean of the Tuck School of Business of Dartmouth College. The Governor appointed Fox, who serves on some boards of financial institutions and has no paper industry ties. It is worth noting that the Resolve specifically states that "One member must represent the interest of the environment..." At the Commission's meeting on 29 August, the Chairman, Glen Foss of Madison Paper, reported that "the Natural Resources Council had declined an invitation from the Speaker (of the House)." The stated reason for refusal was the Commission's policy on reporting consensus; "It was the NRC's desire that non-unanimous items be omitted from the final report." The NRC alluded to is the Natural Resources Council of Maine (NRCM), according to the Senate President's staff.

I found commission hearings morbidly fascinating—that may be why I was the only disinterested person attending many of the meetings. Early on, commission members were asking themselves why they were in this large hearing room, with legislators neither on the commission nor attending, almost as though they realized they had been bagged, or, as one of them put it, "Are we up here talking to ourselves?"

If they are talking only to themselves, many of Maine's big players are missing—International Paper, Bowater (Great Northern), Scott, and James River. Scott includes the S.D.Warren mill and wood-fired generator at Westbrook. Because of these absences, Champion International has two seats, while Boise-Cascade, Georgia-Pacific, and Madison have one each. Madison is a small papermaker owned by a Finnish corporation and ***The New York Times***. None of the members seems to have a position or background in forest management.

John Knox, of the Legislature's Office of Policy & Legal Analysis is the staff member for the commission until January 15th, when the finished report was due. At the time this is written (February 1, 1995), he has prepared the first draft, a 68-page frame with large apertures for topics treated by others, such as the State Planning Office on the industry's importance and Jaakko-Pöyry's diagnosis of its future in Maine. It should be noted much of the text originates in the P110 (the *P*aper *I*ndustry *I*nformation *O*ffice), arguably the commission and industry's real staff.

Boise-Cascade paper mill in Rumford, Maine. Photo by Stephen Gorman

In posing the problem in the draft, the authors tell us that two issues precipitated the study; layoffs at the S.D.Warren plant near Portland, and a decline in industry jobs and capital investment in Maine. The next sentence reads "Since, the job decline is to some extent due to the replacement of labor by equipment, the Commission elected to focus on the capital expenditures data." (sic) Even without the comma, the conclusion seems to be at odds with the premises, and even to contradict itself.

At the Commission's request, heads of many state bureaus testified. These included Taxation, Public Utilities Commission, Maine Forest Service, Planning Office, Transportation, Environmental Protection, state University, and the state Development Foundation. With the exception of some of the Chemical Engineering people from the University, I found an attitude of government agencies toward the paper industry that would have been impossibly independent in past years; only the ChemE department head demonstrated the abject fawning formerly customary in addressing paper people. It is apparent that the industry controls that department through its Pulp & Paper Foundation; Judith Bailey, a VP of the university, had to correct the record to show that Maine people and government also bore the cost of the ChemE school.

Taxation: Cold Comfort

I think some important changes in attitudes were manifest in the testimony of two bureaus central to the economy of Maine: Taxation and Public Utilities. Obviously, tax policy should affect the largest industry and landowner. Possibly because, as has been mentioned in these pages, he is aware that Maine's paper industry contributes little to the general state revenues through income or property tax, John LaFaver, the retiring State Assessor offered cold comfort: before industrial personal property is exempted from local taxation, he wanted a "strong corporate income tax in place". He says the investment tax credit (ITC) is now so high that there is no corporate income tax. Retroactive application of ITC to previous investment is "not affordable and not allowed." Further, such carry-back weakens the commitment of industry to Maine, he said.

Although he ranks Maine's tax structure in the top 10 or 15 compared to other states (in terms of being industry-friendly), most of the complaints come from the lowest-taxed. Responding to a Georgia-Pacific claim that Maine is heavily taxed, he said that it was "hard to believe that any state lowered taxes on the paper industry in the last five years more than Maine; it is not taking place nation-wide." LaFaver had mentioned that each of our paper mills had a different tax situation, and that unless G-P supplied the facts for their firm, it was hard to respond. He added that comparing taxation of new mills in other states could be done only on a project-by-project, firm-by-firm basis. He stated that he had apportioned national firm's income in Maine to a lower level, on his authority. Champion, which is seeking to reduce its local property tax in Bucksport, met with his refusal to differentiate commercial and industrial personal property, to which he added that information on mill obsolescence has not been forthcoming from Champion. Finally, asked by G-P what to do about the $300 million budget shortfall, he concluded by saying this is a drama which we enact every two years.

In discussing LaFaver's testimony, commission members revealed the problem—they ask state officials to tell them why a new mill is not located in Maine. It is disingenuous of them to ask us to list the factors in the corporate decision to build a kraft pulp mill in Alabama, a calculation the paper companies perform over and over. A union representative on the commission asked G-P to compare the cost of mill expansion in four states, and then, when Champion reiterated that the Maine paper industry is one of four most heavily taxed, he asked her to get the tax numbers from industry. John Knox, the legislative analyst, added that environmentalists also will ask that industry show its environmental costs.

Power Costs: The Death of Santa Claus

As a premise of the Study, it is assumed that high energy costs are adverse to Maine's 'competitiveness'. Dancing around this aspect of paper industry economics without tripping over what paper mills have done to impose these higher costs on all of Maine succeeded, at least until the chairman of the state Public Utilities Commission testified. Thomas Welch addressed this aspect at the start of his appearance. Welch is new to the PUC and has an appointment for six years. His first point was that the event having the greatest impact on the Maine paper industry was the pending expiration of the cogenerated power contracts, under which paper mills sell their electricity to a utility at an outrageous price, buying back the power they use at a lower price. When renegotiated, rates will flatten or come down in the new market-driven flow of electric power as an unregulated commodity.

He called the 70-megawatt wood and coal fired generator operated by Scott Paper at Westbrook a classic example of this problem. Where Welch stated that it is unclear if the mill will be profitable without the power contract, in the 1980s I was told by a Scott forester that the mill survives only because of the immense profit from the boiler. The near-term demise of the Westbrook mill has been openly discussed at this

Commission's meetings. Welch proceeded to say that, therefore, the timing of the expiration of the cogeneration contracts (Champion and Boise) is crucial. He added that an energy shortfall would not discourage cogeneration by the paper industry—making your own power is too efficient for utilities to match the price. When a Champion representative professed not to agree, Welch reaffirmed his analysis, adding for emphasis that it will be so, "without support of a buy-sell contract" of the sort Champion and Boise currently enjoy. We might add that Champion's 72-megawatt contract has virtually bankrupted Central Maine Power.

Stating the utilities' desire to retain the paper industry load, Welch switched a bit by proposing to explore special-rate contracts, and to study the implications of large customers leaving the system (Madison Paper, e.g.). The loss occasioned on the flight of large users might be borne "by those leaving, those staying, and the shareholders."

Responding to a Champion question, he said generators will get smaller and cheaper. The contracts of the early 1980s had a 15-year. fixed price which enabled the venture to recover its costs in that period. Under a new contract, price will decline dramatically. He gave an example of the Fort Fairfield Energy Venture, just bought out by the utility; the contract price was 13 cents per KWH; the new price will be 2.5 cents/KWH. Press reports show that FFEV produced 33 megawatts and the buy-out cost $78 million. Welch predicts that within 2 years, the rest of these small PURPA contracts will be bought out.

Asked by Edward Fox, the unaffiliated member of the Commission, "Who bears the cost of over-generation?", Welch admitted the question was essential. Fox asked why our rates were 1.5 times those elsewhere; the response was that the average Maine industrial rate was 7 cents/KWH vs. 5 cents elsewhere because cheaper rates are mostly due to federal power systems such as the TVA. He added that the Champion boiler could not be run in Arizona—no trees are available.

Welch concluded that, as the independent power producers lose subsidies, CMP rates will decline. PUC would then insist that someone run the retired plant at four cents/KWH rather than letting CMP build one costing five cents. He affirms, "To the extent that there was a paper-industry subsidy, it will be lost."

Outside the hearing, I asked Welch if he had considered the industry's leaving; he said he had, and that their departure would not make much difference to power supplies and rates in Maine; either contract renegotiation or their leaving the market or the state would be good both for CMP and residential customers.

Jaakko Pöyry: Astrologer to the Stars

Much of the heavy hauling has been delegated to Jaakko Pöyry, a consulting firm to forest industries worldwide. For $125,000 and expenses, they assembled a 100-page "Diagnostic Review of the Pulp & Paper Industry in Maine." It proclaims itself as a desk-top study, using no Maine mill data. My notes on this paper are taken at a commission session on 23 January 1995, at which copies of the paper were available only if the recipient agreed to return it at the end of the session. It is argued that the diagnosis is not a public paper until it has been mailed to the commission members.

I concentrated on transcribing the section on Wood Resources, which is the work of a consultant to Jaakko Pöyry, Robert Wright, of Dayton, Ohio. Mr. Wright, one reads in his resumé, was timberlands manager in Maine for Great Northern Paper Co., managing 2.1 million acres of timberland and procuring one million cords of wood from 1986 to 1990, having been elevated through the hierarchy since 1974. Wright is a graduate of the Maine Forestry College. It should be fair to say that Wright is not the usual "desk-top" analyst from away. Instead, he admits he has presided over what many of us describe as the liquidation of two million acres of Maine.

Clearcut in Kikadjo, Maine. Photo by Stephen Gorman

Herewith are two excerpts *(ed. note: our intrepid correspondent will provide—replete with insightful annotations—further tidbits from this report in our next issue)* :

"Physical availability of softwood fiber will be adequate to sustain established capacity, though reductions in production, displacements, and fiber substitutions have and will continue to occur within the least cost-effective sector."

"Summary: The abundance of forest land in Maine and the quality of fiber produced in these forests are significant assets that can continue to be the foundation of a successful forest product industry. As the balance of the wood supply shifts in the years ahead, Maine may ultimately benefit from a more level playing field among major wood producing regions of the world, unless the influence of other supply and demand differentially and adversely affects wood costs.

Questioned by Edward Fox, Wright said the Maine Forest Service Interim inventory was his source. He admits that the overconsumption of softwood will continue for "at least a decade."

Personally, I think this study is important to Maine and to those following our forest. Attendance was limited to insiders. Only one news story ran, in the ***Portland Press Herald***, page 1, on December 10. One of the commission members asked me what it would take to keep their study from oblivion, like the Northern Forest Lands Study. I replied that if they expect anyone to take note of it, they will have to admit that some of their problems are self-inflicted. It is a nice quandary the commission has gotten itself into.

The commission is scheduled to sunset in February, following the release of its report.

William Butler has spent a half century working in the woods. He is with Friends of the Maine Woods, and he lives in Aurora, Maine.

Children of the Northern Forest

Continued from page 2

funds to acquire large tracts of land for creating coarse filter reserves. Only the federal government has sufficient funds.

Thus, the solution to the endless disagreements over political ideology and ecological reserves lies in: (1) making a social commitment to take whatever steps are necessary to adequately protect biodiversity; (2) addressing ecological problems with ecological solutions such as the coarse filter-fine filter approach; and (3) determining the appropriate roles for various private organizations and state and federal agencies so that we are most efficient at protecting biotic integrity.

Finding the political will to do what is biologically necessary and ethical may be difficult, especially in these giddy days of disinventing government, but those who fail to heed the call of ecological necessity may learn from bitter experience just what Thoreau meant when he wrote: "It was because the children of the Empire were not suckled by the wolf that they were conquered and displaced by the children of the Northern Forest who were."

—Jamie Sayen

GMNF

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saw the possibility that full funding might not be available for all of its objectives, and made provisions for dealing with that situation; it notes that timber supplies can much more readily be derived from private lands, while the recreation and wildlife benefits are less likely to be concerns on private lands. It therefore directs management to work toward these public benefits, and to allow the private sector to address market demands.

In contravention of these clear directions, GMNF budgets for recreation, wildlife, fish, threatened and endangered species, and like programs are generally less than half the levels needed to support the plan, while timber budgets exceed 100% of budget levels. GMNF has lobbied for these disparate funding levels.

Can We Fix This Mess?

GMNF's failure to follow its exemplary plan is a betrayal of the trust placed in it by the public. Although there is a new Forest Service Chief, the managing bureaucracy remains in place. Thus, announcements of Forest Service restructuring don't sustain much credibility while the management cast of characters remains the same. The best hope for putting GMNF back on the path set by its plan remains sustained public vigilance, supported by strengthened environmental laws.

The Forest Service continually attempts to alter its regulations in order to weaken public intervention against its mismanagement, and special interests try to weaken the laws that empower the public to force compliance with its plans and the laws governing it. If the public loses these tools, it will soon after lose what is left of the national forests.

What You Can Do: *Write Senators Patrick Leahy and Jim Jeffords, US Senate, Washington, DC 20510 and Representative Bernie Sanders, US House of Representatives, Washington, DC 20515 and insist that they demand that the GMNF comply with its exemplary plan and the laws governing it.*

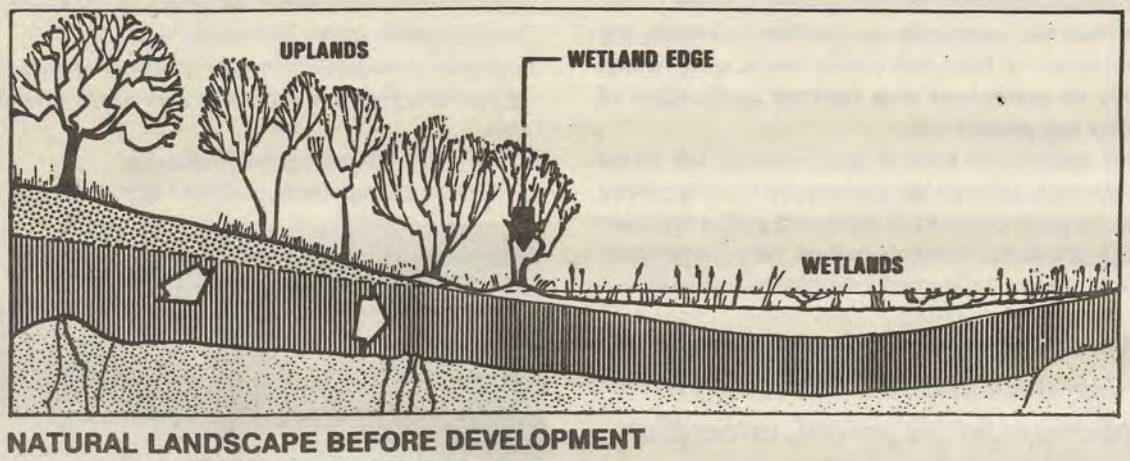
Sins of Wetland Scientists (& of Almost All Field Ecologists)

by Patrick C. Garner

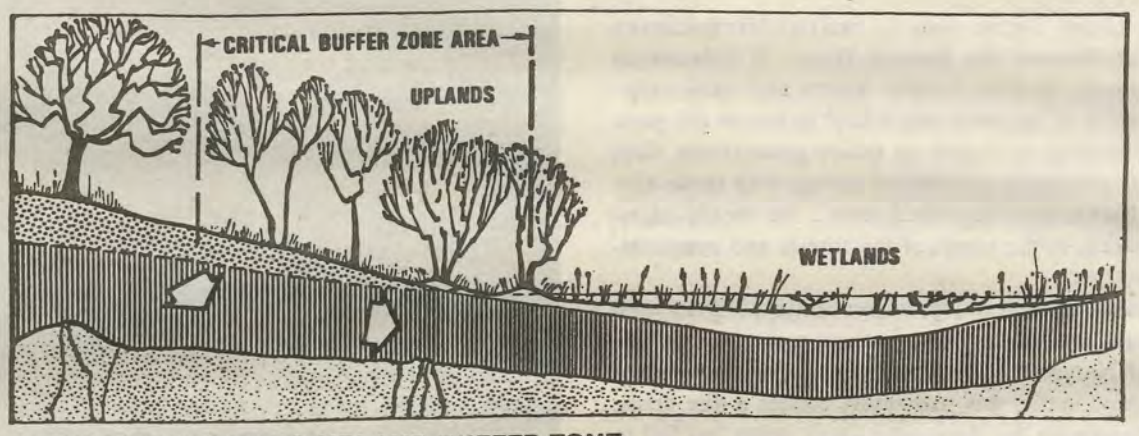
Let me be perfectly frank. I'm a wetland scientist in the midst of a professional crisis. The crisis is not one of my own making, and it is one that is becoming increasingly common among ecologists. The problem? I, like many of my colleagues, am a moralist working within a system that is ethically and fundamentally flawed. We have detected the deep fault line running through the fragile field of environmental regulation. We see it daily because of the constant compromise, bad science and rank anthropocentrism in our field. Yet the environmentally sensitive public views our work with admiration, little knowing the actual struggle we have with our questionable accomplishments.

I use the flawed tools of today's state and federal rules to make crucial decisions in the high stakes game of build-here-and-not-there. My belief is that, unfortunately, these hard fought regulations serve neither humanity nor Nature. And our suddenly volatile political climate threatens to quickly weaken laws that are already far from sufficient. Complicating matters, my colleagues in the environmental field stand largely silent as the ideological battle swirls around them.

As a conservation-oriented expert, I make regulatory decisions on a weekly basis. I try to ascertain the intent of state and federal laws, and I like to think that I err on the side of Nature. Yet I find myself increasingly dismayed by the aftereffects of my work. Although I and my fellow professionals take great pride in the victories we score for the environment, the multiple degradation of countless individual sites cumulatively adds up to a vast ecological disaster being acted out across America. Dishearteningly, we ecologists play a large role in this debacle because we turn away from our knowledge of these losses. We who know the most do the least to stop the problem.

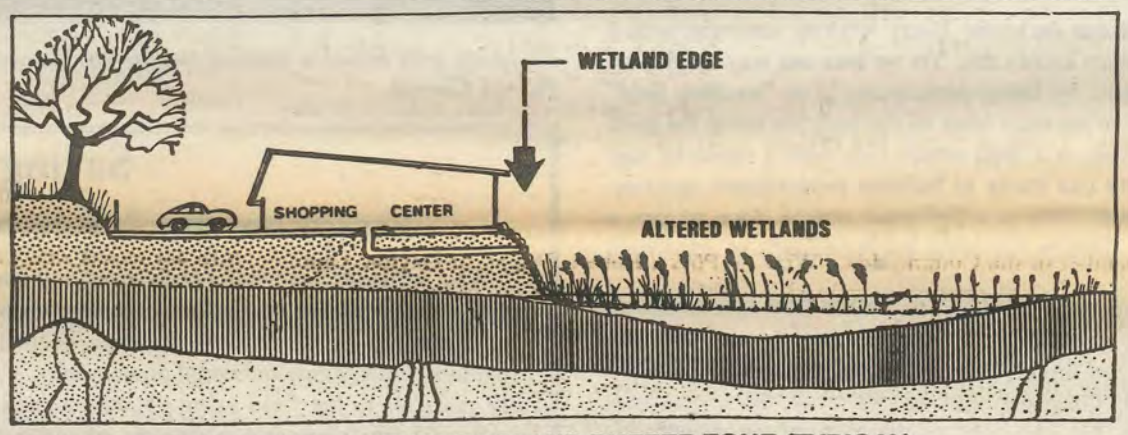


NATURAL LANDSCAPE BEFORE DEVELOPMENT



SAME SITE SHOWING UPLAND BUFFER ZONE

ADOPTED BY PATRICK GARNER FROM "WETLANDS PROJECT", MASS. AUDUBON SOCIETY



SAME SITE DEVELOPED, WITHOUT UPLAND BUFFER ZONE (TYPICAL)

Overview

I spend a great deal of my working hours delineating wetlands in New England. Working predominately in Massachusetts and Rhode Island, I have marked hundreds of sites. My experience is varied. For instance, for seven years I represented a private cranberry grower who purchased a site which the EPA has determined lost over 125 acres of wetlands through the illegal filling activities of a former corporate owner. Portions of the existing cranberry bogs will have to be removed and wetlands will be replicated in their place; final negotiations are being completed at this date with the Department of Justice. On the other end of the spectrum, I have represented many homeowners seeking to build on small residential lots. I have developers and banks as clients, and sit as a member of the Conservation Commission in the town of Harvard, Massachusetts. In short, I am a typical working professional in the environmental community.

Wetland delineation often determines what portion of "undeveloped" land is buildable. After I mark a wetland line, the wetlands are "saved." I'm good at what I do, and I apply the existing laws carefully. Great victories for the environment result from these activities, right? The big environmental groups repeatedly tell us its true. Developers are left with a twenty lot subdivision instead of a fifty lot development. A commercial site gets 100,000 square feet of new buildings, rather than 500,000. Nature wins. But the victory comes because it's always man doing the measuring.

The Slippery Dance Lies in the Compromise

My imbroglio—in fact, every conscientious ecologist's inevitable problem—results from our intimate knowledge that every carefully wrought compromise, in reality, deals a direct body blow to Nature. Knowing the carnage which commonly follows in the aftermath of these regulatory "victories" does not necessarily lead to solutions designed to prevent their reoccurrence. Rather, this uncommon knowledge we hold only points us, if we ponder our decisions, toward the dark heart of the conflict between humanity and Nature itself.

State and federal laws are the singular guide used to determine and save wetlands. Great successes are often portrayed as flowing from these head-on meetings between environmental science and development pressures. For instance, developers purchase a 400-acre site and announce plans for a massive golf course and residential community. Conservation agencies swoop in and demand compliance with the Clean Water Act and other laws. Wetland scientists are hired to delineate wetland resource areas. After months (or years) of haggling, the developers are left with a portion of their original vision. The local environmentalists declare another pristine wildland saved, and the green community sighs in relief.

As an expert in watching natural lands legally destroyed after such regulatory victories, I assure you that although these declarations of triumph are not disingenuous, they are certainly hollow. Typically, the approved development immediately envelopes the entire land up to the wetland edge, creating a pseudo-ecotone, a literal razor's edge along the landscape where Nature over hundreds or thousands of years had fashioned a soft richness. Rarely do we see buffer zones built into this process; clearing always goes to the legally defined wetland edge. Even more rarely are natural upland areas saved if they have no measurable "resource" value.

My imbroglio—in fact, every conscientious ecologist's inevitable problem—results from our intimate knowledge that every carefully wrought compromise, in reality, deals a direct body blow to Nature.

There are critical problems with this "scientific" methodology: one is our contemporary overemphasis on the value of wetlands, to the detriment of important upland areas. Another is that wildlife, particularly if upland oriented, is driven backwards into wetland preservations. And finally, wetland vegetation itself is inevitably altered by the sudden edge effect which results from the physical change. The inevitable lawns, sidewalks, buildings and bituminous roadways which parallel the wetland edge are man's orderly replacement for the diverse biotic regime which previously existed.

My brief description of post-development conditions is not a unique observation. Ecologists have commonly noted man's insensitivity. In 1974 Anthony Huxley, writing in ***Plant and Planet*** about the effects of cultivation on the landscape, states, "Man has always found it difficult to appreciate the delicacy of quality and texture of soil, and to realize that it is not inexhaustible, and that some processes are virtually irreversible." Bill McKibben in ***The End of Nature*** complains, "The momentum behind our impulse to control nature may be too strong to stop." Yet he notes in the same breath, "the likelihood of defeat is not an excuse to avoid trying" to prevent man's massive reorganization of Nature. This sentiment, the refusal to accept the status quo, underlies my passion as well: it should be a continuing battle cry for all of us.

The mainstream environmental community is disingenuous in not focusing as a primary issue on the character of typical land development. I personally will no longer participate in rationalizations that things were worse in the past, or that if present laws did not exist, every site would be paved over. Compromise—which always drives these lop-sided decisions—is simply a euphemism for the partial, rather than total, loss of Nature. The fact remains that our current laws slow

development at best, alter the landscape in ways we cannot even anticipate at worst, and allow the creation of a desperately sanitized regime which we call "improving the property." This honored paradigm sacrifices natural sinuosity for Pythagorean geometry, critical uplands for waterways, and wildland diversity for an inheritance of European palace landscaping which can only be maintained with constant applications of chemistry and power tools.

Our reliance on technological systems has failed us. In the end, after all the plans have been approved and the irregular contours of fields and gullies regraded to a high precision, Nature is bullied away, confined to its roughest terrains, pushed into barren badlands and lonely rivers. Maine forestry activist Mitch Lansky notes in ***Beyond the Beauty Strip***, "If it becomes impractical... to have healthy forests and stable communities, if it becomes impractical to ensure the passing of biological wealth to future generations, then there is obviously something wrong with these systems. Rather than degrade forests... we should adjust the systems to the needs of the forests and communities."

Compromise—which always drives these lop-sided decisions—is simply a euphemism for the partial, rather than total, loss of Nature.

Today, at the terminus of our century, humanity on this continent leaves a sculpted and make-believe version of Nature for the future. For environmentalists who know better, this realization creates a dire crisis. And damningly for those who know better but fail to speak, their holy green dance in the public eye is unspeakable arrogance in the robes of Nature's good keeper.

We can do better. Every working ecologist with a conscience knows this. Yet we earn our way by playing this game, by being participants in an "exciting field" where we pat each other on the back for being the good guys. This is a field where kids with a streak of real morality can study to become professional environmentalists. This is a feel-good sort of place to earn a living. This is the ideal job thousands of graduates seek.

Except that this is also a place that, after a year or two as a professional, begins to twist your guts and make you angry. The charade takes a short time to unmask. Once the mask is torn away, the understanding that this job is just another facet of our growth-oriented society hits hard. After professional ecologists have left any undeveloped site, after the yellow blur of bulldozers begins, immense areas of habitat are lost and biomass is devastated. Its replacement is the monoculture of cropped grass and exotic shrubs which meet the winding edge of the emasculated wetlands we have so proudly saved.

The Consequences of Our Laws

No moralist likes to feel like a fool. Yet to continue in this line of work, one must grease the wheels of rationalization frequently. A strong dose of anthropocentrism, like a double aspirin, is the best thing. But, once one has seen the consequences to Nature of many of our carefully approved development schemes, one loses confidence in the sanctity of the game we have so loyally played.

In frustration I have catalogued the axioms which drive those of us who work with current environmental laws:

Environmental Regulatory Realities:

**Every regulatory decision is a compromise;*
**In every compromise Nature loses;*
**Nature's losses are too often characterized as Environmental Victories; and*
**Each of mankind's Victories is in reality a further step in the massive human reordering of Nature.*

Those of us who work in the maelstrom of the regulatory maze, those of us reasonably seasoned and wide-eyed, are inevitably flawed workers, craftspersons with a dirty secret, with a questionable agenda which we consciously or otherwise paint in shades of green. I identify our profession's quiet transgressions with further axioms:

The Sins of Environmental Professionals:

**Every field decision is compromised by the use of politicized science;*
**Every compromise is colored by economic considerations, whether acknowledged or not (while economic considerations cannot be used to measure the immeasurable values of Nature); and*
**Ecologists inevitably bring the uniquely human tools of egotism, fear and hubris to every field investigation.*

Changing the Profession

Can we change these realities? My criticisms will be denied or minimized by other professionals. The effects of our regulatory compromises will be characterized by economic interests as minimal. Opinions like mine will be called anti-development at the least, and anti-human at another extreme. Fellow professionals will defend their silence as being objective, properly detached. If they admit that my concerns are real, they will mutter in the same breath that change takes time.

All of these defenses will be driven by the fact that society as a whole believes without question that

Shopping area beside a wooded swamp in Massachusetts. Note that trash lies over the wetland line. Photo by Patrick Garner.

Saving Wetlands or Fragmenting A Formerly Integrated Landscape?

What wetlands have really been saved at the end of a typical development review? Let's assume as wetland scientists we are asked to evaluate a site on which a developer proposes a golf course. First, wetland resource areas, including ponds, brooks, marshes, wooded swamps and wetland meadows, are identified generally by visual inspection, maps and aerial photography. Then the specific edges of the wetlands are "delineated" (physically marked) in the field using vegetative, soil and hydrologic indicators. Several permitting agencies or boards walk the delineation; comments are made, points are shifted and wetland lines fine-tuned.

Have we saved the wetland resources at our site? Without a doubt, using current regulatory definitions, we have set aside the wetlands and accurately marked the "edges" of these areas. But the wetland line—the definition of which is itself of continuing controversy in environmental science—is both the strength and the weakness of our work.

For while the line limits human activity downgradient of itself, it also becomes a new boundary above which bulldozers can roam and muskrats will not go. Most vertebrates will not cross even a single-lane dirt road in a 500 acre forest; in our golf course, a paved road, parking lot or fairway usually abuts the wetland line, effectively creating a wall for most species. Once the upland adjoining the resource areas is cleared, we have effectively stripped away much of the functional support for the wetlands. In fact we unavoidably leave a fragment of the formerly integrated landscape.

Fragmentation in ecology is the random clearing of areas of native land, but fragmentation is also the stripping of upland areas from their contiguity with wetlands. Given these conditions, isn't saving a wetland without saving a significant portion of its contiguous upland border analogous to "saving" an ocean's ecosystem without saving its beaches, dunes and estuaries?

What integrity do wetlands have without bordering uninterrupted native uplands? Numerous species found predominately in wetland areas cannot survive without an upland zone. Vertebrate species—watersnakes, frogs, turtles, mink—depend on upland habitat. Royal fern, red maple and yellow birch, sweet pepperbush and witch hazel too depend on the energy and nutrient flow between wetland and upland areas.

The field of conservation biology recognizes the impoverishment which immediately—and always—proceeds human modification of a native site under the definition of edge effect. When this occurs to a wetlands, plant succession is accelerated due to shadow loss and ambient temperature change. Soil pH is altered, subtly or suddenly, as a result of erosion of chemically modified topsoil from the adjoining human activity. Seed stock of upland plant species is introduced. Hydrologic change occurs due to increased storm water washing off newly impervious areas. Nutrient cycles and periods of soil saturation are disturbed.

The net effect is that the vegetation of the carefully preserved wetlands (without its upland buffers) often recedes, mixes with exotic or upland species, or becomes an isolated zone within an area of biotic impoverishment. Native fauna, dependent on topographic variety and varying landscape, are driven away or destroyed.

Our golf course, probably touted by its proponents as environmentally sensitive, becomes a textbook microcosm of the multiple alterations caused by fragmentation. Certainly, we have saved wetlands, but not without changing them for the worse.

Our contemporary policy under the federal Clean Water Act is to save wetlands. But a high percentage of the wetland areas we "save" are always left in a state that is biologically diminished. Remnants of Nature are never more than that, and we kid ourselves by not insisting that as we preserve wetlands, we should also preserve vital upland buffer zones, significant upland areas and wildlife corridors connecting isolated resource areas.

—PG

Solar Water Heating Technologies Are Reliable, Economical, & Clean

by Sia Kanellopoulos

For years, researchers have looked for a clean, efficient, inexpensive source of power. The answer is a long way off-about 93,000,000 miles. Every day our lives are touched by energy from the sun as the earth intercepts thousands of times more solar energy than is used by the world's human population. Today, you can harness solar power economically to meet many of your energy needs. It's always going to be there—all you have to do is go get it.

There are three primary processes by which humans can make use of solar energy: photochemical, photoelectric, and photothermal. The photochemical process, called photosynthesis, uses solar radiation to join carbon dioxide, water, and soil nutrients to create carbohydrates and oxygen. The photoelectric process occurs when solar radiation excites electrons in specially prepared materials (called photovoltaics) that can extract these electrons into an external circuit, producing an electronic current. The photothermal process occurs when solar radiation is absorbed by an object and causes its temperature to rise. This is the first in a series of articles that detail how you can enjoy the gift of solar energy in your daily life. This article will focus on solar water heating technologies based on photothermal processes. Subsequent articles will discuss solar space heating, solar cooking, and solar power generation.

Over a million Americans have invested in solar hot water systems for their homes and businesses. In 1993, over 143,000 square feet of solar thermal collectors were shipped into the northeast. Thousands of families in New England use solar heated water in their washing machines, dishwashers, showers, and pools.

Solar domestic hot water (SDHW) systems use insulated collectors mounted on the roofs of buildings to heat water instead of burning oil or gas or using electricity. When sunlight shines on the collectors, a liquid inside them heats up. There are two kinds of SDHW collectors appropriate to the Northeast:

*Flat plate collectors typically consist of a metal case, a transparent glass or plastic cover, a black absorber plate and insulation. Sunlight enters through the glazing and strikes the absorber, which heats up. The heat is then transferred to a liquid passing through the collector. Flat plates designed for colder regions often have a double layer of glazing and use an anti-freeze liquid as the heat transfer medium.

*Evacuated tubes consist of a coated absorber tube inside a transparent glass outer tube. The air is removed from the space between the two tubes to eliminate connective and conductive heat losses. Sunlight enters through the outer tube and strikes the absorber tube, heating the water held within.

Both types of collectors can accept direct, diffuse or indirect sunlight from a wide range of angles. Even though the sun does not shine all the time, hot water from the collectors can be stored for extended periods in storage tanks that are very similar to the ones used in conventional water heating systems.

Solar pool heaters are another very economical water heating technology. They consist of black tubes through which pool water circulates and is warmed. These tubes are made from rubber, plastic or metal. This elegant technology allows for a very cost-effective use of the power of the sun and can extend the pool season by several months.

The U.S. Department of energy estimates that Americans consume approximately 2.5 quadrillion BTUs (2.5 Quads) of energy annually to produce hot water at a cost of over $20 billion dollars. The Solar Energy Industries Association estimates that solar hot water systems in use today produce only a small fraction of the demand, but could produce up to one quad of energy every year. There is great potential for the sun to make a more significant contribution because of the availability of direct and indirect sunlight in ,most regions in the United States. Numerous demonstrations in the Northeast have proven that solar water heaters provide 60 to 90% of a household's annual demand for hot water, or upwards of 200 kilowatt hours each month (Lof, ***Active Solar Systems***).

Today's solar domestic hot water systems are extremely reliable and have a two to seven year payback, depending on the initial price and size of the system, household demand for hot water and the cost of the fuel being displaced. Solar water and pool heaters are mature technologies that are economical to use today. The aggregate generation of these small-scale, distributed producers is an important contribution to our energy supplies. From an environmental perspective, solar water heaters are an important alternative to fossil fuel powered water heaters because their operation does not cause any pollution. The Solar Energy Industries Association estimates that a single solar domestic hot water system will displace 10.5 tons of carbon dioxide if it replaces a natural gas system and 71.5 tons of carbon dioxide if it replaces an electric system.

For information on distributors of solar water heating equipment near you, contact Sia Kanellopoulos, president of the New England Solar Energy Industries Association (508) 457-4557. The U.S. Department of Energy's Energy Efficiency and renewable Energy Clearinghouse (800) 523-2929 offers free information such as fact sheets, videos, brochures and will respond to complex technical inquiries. Recommended resource books on solar domestic water and pool heating include ***Consumer Guide to Solar Energy***, by S. Sklar and K. Sheinkopf; ***Active Solar Systems***, edited by G. Lof; and ***A Golden Thread***, by K. Butti and J. Perlin. The Florida Solar Energy Center (407) 783-0300 conducts a standards program to evaluate solar water and pool heating systems nationally. FSEC publishes a list of approved system, conducts workshops and training seminars for installers and produces numerous informational brochures and a maintenance manual entitled ***Solar Domestic Hot Water Systems***.

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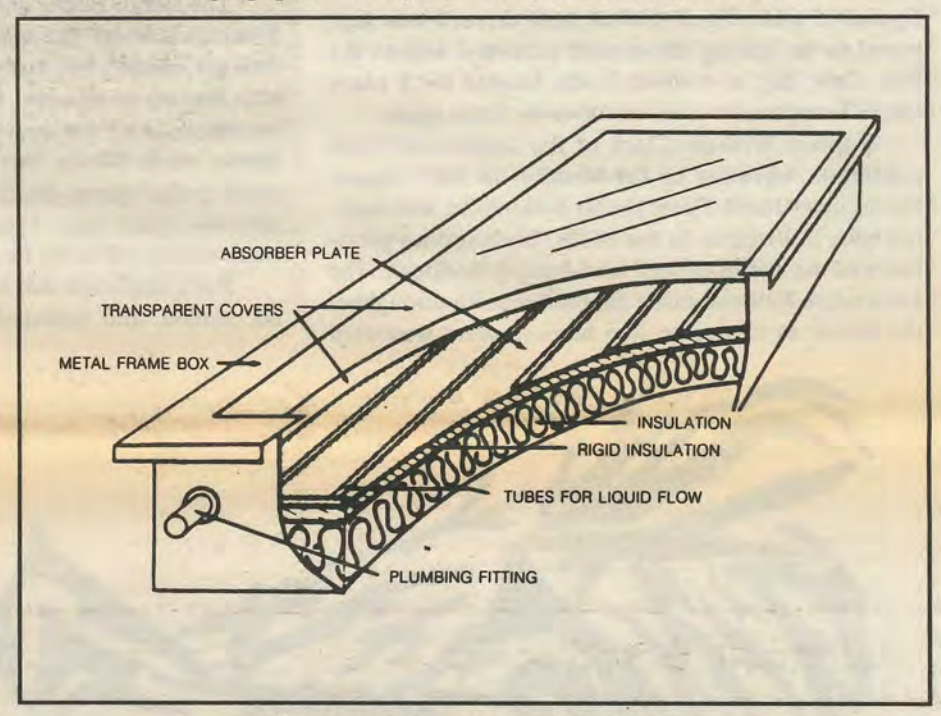

Flat Plate Solar Collector, Liquid Type

growth is good, whether that growth is sustainable or not. Further, compromise—the keystone of working democracies—will round the edges of every argument and insure that anthropocentrism will underlie every position. The shifting politics of the post-November, 1994 election season in this country will raise the level of unreason and subvert any expectation we might have for objective dialogue. The paradigm of land clearing with its destructive effects, apparent even to Plato 2400 years ago, will remain a vested right of property ownership and will be rationalized under the euphemistic conceit of "wise use."

In this turmoil field professionals must help set the tone of these arguments. Those of us who get our boots dirty, who come back at the end of a day with briar scratches, poison ivy and notebooks filled with rain-smeared sketches, must stop playing mind games in which we are always the good guys. We must face the reality that we are trained to not only observe the interactions of Nature in its pristine state, but to also skillfully measure the effects of human activity upon Nature after a site is stripped. And we must admit that remaining silent about the negative changes we know will occur to a site is glaringly wrong. We must admit that the aggregate effect of our continuing silence is the very diminishment of Nature herself. We must experience a sea change, must awaken with shock like Aldo Leopold when he shot a shewolf and saw an inexplicable green fire of fierce intelligence in her dying eyes.

As ecologists we are often the only ones who get out of our cars and walk through the backyards and rear woodlots of America. We can quantify the changes to native sites, and bring science to measure the carnage. Too, we see the native diversity of each landscape, the richness blazing from ancient hillsides—and this vision we are granted is often unique. Developers rarely conduct more than a cursory walk through a site; town and city officials worry about ticks; neighbors hew to existing paths and are not qualified to understand much of what they see during a site review. The solitary walk is left to us, as well as the responsibility for accurately describing what we have seen, and what may occur after development.

Conclusion

What does this mean in practical terms? We must be more vocal. We must actively talk about the inequities of what we accept as development. We must help formulate alternatives, and be willing to critique the archaic zoning and environmental laws that determine the backbone and character of modern development.

And we must stop apologizing for Nature's often mysterious diversity. Last year a government biologist who was cataloguing endangered species in Rhode Island was interviewed by a local newspaper. In response to a question asking why the state bothered with such expensive and arcane enterprises, he muttered that someday scientists might find that these creatures hold the key to medical cures. In other words, we're going to save rare butterflies so that someday they might save us. This attitude is anthropocentrism at its ugliest. Why do we not dare to equate Nature's right to survive with our own? The biologist, a working expert in living things, could only justify his work in the context of human gain. (The newspaper also noted that the biologist then killed the rare butterfly a "proof" that it was sighted and so that it could be added to his "data base".)

As ecologists, wetland scientists, biologists, orthinologists—and yes, as activists—we must recognize that when we think of ourselves as good guys we must not unconsciously exempt ourselves from being part of the problem. We have a responsibility to speak out. Our silence is no longer tolerable.

And we must hear ourselves speak when we speak to the public. When we articulate it must be not with apologies but with the vision of what we have seen in our wanderings through the wildlands which remain. And as passionately interested (versus scientifically disinterested) ecologists, we must become ethically engaged and morally involved in the narrow period which remains before the historic and monstrous restructuring of the natural world on this continent becomes irreversible.

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The Land of Absence

by Mollie Yoneko Matteson

With bison gone, the last white wolves
turned secret to the mountains, barren
in their life of flight. Teeth worn down,
his lover dead, we shot the last one
over cattle killed in need. Pretend
he isn't stuffed and standing in a courthouse
with the laws that mark your bones
in ordered rows. Burn to ash on wind.
Scream across the plain.

Matthew Hansen
from the poem, Tribute.

I decided to see the White Wolf one February morning. Cold, dry air snagged my breath as I carried my things out to the car. Notebook, handbag, map, water bottle, peanut butter and jam sandwich, an apple, a sleeping bag. Hoarfrost furred the trees. I scraped ice from the car windows.

"Are you going just so you can look at a stuffed wolf?" my husband asked.

"No," I said.

I paused. "I'll see you tonight, early evening."

"All right." He gave me a hug.

I drove east, then north. From Livingston, on the Yellowstone River, to Stanford, in the Judith Basin, I figured it was a three or four hour drive. I was supposed to be writing about wolf recovery, and on the first clear day in a week, I was headed for a place where I supposed wolves would never roam again.

Captain William Clark of the Lewis and Clark expedition, traveling up the Missouri in 1805, named the tributary Judith River for his bride-to-be, then waiting back in Virginia. In the 1870s, the luxurious grasslands of the Judith enticed land-hungry stockmen. The Milwaukee Railroad made the basin known throughout the nation as it tried to lure homesteaders westward early in this century.

And on May 8, 1930, the last "renegade" wolf in Montana was killed in the Judith Basin.

As I drove out of the Yellowstone drainage and into the watershed of the Missouri, the land rippled and bulged. Streams flowed east and northeast, the road lulled me with its rhythm of syncline and anticline. Along creek bottoms, naked shrubs—willow and red osier dogwood—were lusty pink and rose. Then the road would sweep me up to the ascetic benchlands. Sky blared. Snow caked tawny grass and lay windwelded on leeward slopes.

I crossed into the headwaters of the Judith at Judith Gap. Two livestock trucks passed in the opposite lane. A bus followed. Its signboard read "Cutbank Wolves." This was the modern Judith Basin. Cattle drives by semi, wolves in charter buses. Later, I passed the Conrad Cowboys, Choteau Bulldogs, and Browning Indians. Must be a basketball tournament, I thought.

Like the Grizzlies of my alma mater, the University of Montana, the reality of these mascots (with the exception, perhaps, of the Bulldogs) had long ago diverged from the mythological ideal. Cowboys rode Fords and Chevys and worked government forms as much as they worked cattle. Indians also rode Fords and Chevys. These days, they talked about basketball, not buffalo hunts. Only the wolves and the grizzlies had not changed much. They were simply gone.

The Judith Basin, unlike the empty steppes of the Sweetgrass and the upper Musselshell drainages through which I had just passed, manifested considerable human investment. Fences were markedly more numerous, and the spaces they fenced in, smaller. Barns, ranch houses, tiny hamlets clustered at crossroads, poked above the blue distance like ducks scattered on a wide lake. I passed cows, sheep, and gravel roads cutting off to the far corners of the basin.

But a landscape that had initially appeared inhabited, tended, and nurtured was mostly an illusion. I stopped at a farmstead perched on a high bench. The house slouched like an old woman, its roof sloughing groundwards. The unpainted, weathered clapboard was peeling and cracked like badly chapped lips. The wind blew at will through shattered windows.

Twenty miles outside of Stanford, the town of Moccasin could have modeled the effects of the neutron bomb. The empty carapace of a bank, a silent school, flapping doors, eyeless house fronts.

Most of those tiny silhouettes on the horizon, it turned out, marked not prosperity but abandoned ambition.

This is not to say that the Judith Basin was a desolate wasteland. Even that cold day, Highway 200 between Great Falls and Lewistown fairly bustled (by central Montana standards) with traffic: mothers in mini-vans, young men packed three abreast in the cabs of Broncos and Rams, semis towing frozen foods, a bread truck. Every few miles I passed scattered herds of cattle. Isolated mountain ranges—the Little Belts, the Judith Mountains, the Moccasins, the Big Snowies, the Highwoods—surround the basin like a great inland archipelago. A modest orographic effect funnels additional moisture into the prairie basin, making it "well-watered" by the standards of the high plains.

Thus, more people came to the Judith Basin than tried the upper Musselshell, or other, more blatantly arid places. There were more towns here because the settlers had stayed long enough to build real communities. But the Judith was going the same as the rest of the de-populating Great Plains. The same patterns: ranches getting bigger as ranchers themselves got scarcer. Small towns vanishing. Bigger towns growing. The farmers and ranchers of the Judith Basin were not going to escape the fate of their peers. They were just going to hold out a little longer.

I arrived in Stanford about lunch time. Though it was a weekday, the downtown was quiet. A sign caught my eye: Wolves Den Cafe. A wolf's portrait was painted on the front window. Inside, two men in work clothes—creased jeans, baseball caps, flannel shirts—hunched over burgers and fries. Two women held a tete-a-tete in a corner, picking at each other's food. I sat up against the wall, beneath a framed photo of a contented-looking, restful gray wolf. I ate potato soup and a BLT.

What did the women running the cafe—the young waitress, the older one who occasionally peered out from the doorway to the kitchen—think about wolves, I wondered. Or **did** they think about wolves? In Vermont, where I grew up, the name "catamount" was commonly applied to businesses, sports teams, and city streets. The last eastern panther had been killed in Vermont in 1881, but that was irrelevant. The image was part of a cultural landscape, and while memories of the living animal faded with the generations, the symbol survived.

I spooned up the last of the soup, and ordered a cup of coffee so I could legitimately loiter for a few more minutes. Glancing out at the sunny, still street, I thought about the day—over 50 years ago—when the White Wolf's killers had paraded his carcass through town. The street had been mobbed. So thick was the crowd of onlookers that the car carrying the dead wolf took several hours to drive the two block long Main Street. Sometime after the excitement of that day, he'd been installed in the imposing Judith County Courthouse. It stood at the head of Main Street, its somber facade overlooking a nearly treeless town.

The other customers left. The waitress bustled from one table to another, replacing sugar packets, shoving salt and pepper shakers back together in tidy couplings. I cradled the white coffee cup between both hands.

The light seemed very bright, pressing through the clean, large windows. I got up to pay my bill and headed toward the courthouse.

In their journals, Lewis and Clark reported a great abundance of wildlife on the Montana plains, including wolves. Accurate estimates of the pre-white settlement population of wolves appear to be non-existent. I have seen figures such as "...in 1800 [wolves] exceed[ed]

350,000 individuals," and not known whether to gasp or laugh. One historian suggests that trappers and bounty hunters took 100,000 wolves per year between 1870 and 1877. Today in all of Canada, where wolves still occupy about 85 percent of their former range, the wolf population is put at 50,000-65,000.

I give up trying to rationally evaluate the numbers. It is enough to know there were many wolves, more probably than I am capable of imagining.

The advent of fur trappers in the 1830s had little direct effect on wolves, except when a trapper surprised one raiding his food cache or beaver trap. It was not until the 1850s, when the beaver were trapped out, that wolf pelts became valuable. Fur traders sought buffalo hides primarily, but the wolves that followed their carcass-strewn paths were easy targets. By the mid-1860s, the American Fur Company at Fort Benton on the Missouri was taking between 5,000 and 10,000 wolf pelts a year. The earliest "wolfers," the men who made a regular occupation of killing wolves, were seasonals. During the summer, they'd work on steamboats, in the mines, or by the late 1870s and '80s, on horseback herding cattle. In winter, they'd stock up on strychnine and ammunition and lace the country with poisoned carrion. Entire wolf packs, sometimes several, died at these bait stations.

By the 1870s, stockmen were moving cattle on to the public domain lands of the high plains. The hide-hunters had decimated the once-vast buffalo herds. White settlers and the U.S. government would complete the subjugation of the Indians within two decades. As for the wolves, they turned to eating livestock. Where wolves had been merely pests to the mountain men, and later, to the early wolfers, a means of picking up extra cash, they became a direct threat to stockgrowers.

The first bounty law was passed in Montana in 1884. One dead wolf, one dollar. In addition to strychnine, the wolfers and ranchers employed other techniques. Traps, snares, packs of dogs. In spring, wolfers would locate a den, and hooking pups out one by one with a piece of wire, club them to death. Some chose not to waste their time with this tedious method, and instead just tossed a stick of dynamite down the den hole. In addition to the state bounty, various stockgrower associations offered their own bounties, for wolves as well as bears, mountain lions and coyotes.

Bounty prices moved up and down with the temperament of the legislature. At one point, legislators backed by the powerful mining companies in the state attempted to abolish the wolf bounty. It was a cost-cutting measure that ranchers did not appreciate, and they rallied to have it reinstated. By the late 1890s, the issue seemed moot. Wolves had become quite rare, and bounty prices had been declining along with the bounty's practical necessity.

But for some, this end was not final enough. In the early part of this century, stockgrowers pushed to raise bounty prices again, including increasing the price for wolf pups to $5 each. By 1911, the bounty reached its peak at $15. While ranchers in the more mountainous regions of the state were by that time claiming the complete eradication of the wolf, livestock growers on the plains continued to clamor for predator control.

Perhaps the reason wolves held out longer on the plains is connected, in some way, to the reason they were so numerous there originally. Not the cold, rugged peaks of the Rocky Mountains, but the grassy rangelands had hosted the highest densities of native prey species. In the early 20th century, game was scarce everywhere in Montana—wiped out by overhunting—and the easiest, perhaps the only kind of living left to a wolf was preying on livestock. In the central portion of the state, the immense openness of the plains themselves offered a kind of hiding cover. The scattered, timbered mountains dotting that sea of space offered another. With cattle plentiful in that country, it was a strange and yet logical place for the last wolves to hold out.

Inside the Judith County Courthouse, a flight of steps led up to a rotunda. Floor and ceiling were pierced with a large circular opening, giving way to views of stories above and below. I half-expected a glass dome above, a sun-speckled hall with potted palms below. But I looked up to a plain, flat ceiling, and down to a barren, dark space with fake-marble floor tiles like those seen in elementary schools. A couple of metal folding chairs stood against one wall.

A large mural portraying a sweeping landscape and people with straining, hopeful faces covered the back wall of the rotunda, but I couldn't make it out well. Ladders and scaffolding obscured it.

The White Wolf, in his glass case, was shoved up against one side of the hall. No one entering the building could miss him: his fierce countenance, his lean animal body demanded attention. But I'd expected a more prominent positioning, nonetheless—at the top of the staircase, or the center of the hallway. I glanced into the rooms on either side of the foyer. A serious-looking man pored over piles of paper in the county appraiser's office. A woman leaned over a desk in the other room. Neither paid any attention to me. The White Wolf had become just another piece of furniture, and an awkward one, at that.

He was tall and long, but the brittle pelt seemed to have been draped directly atop bones. A newspaper account of his capture and death was posted on top the glass case. It said the White Wolf was eternally "snarling." That was what some liked to imagine, at any rate. His face was twisted into a grimace; his ears were shoved back, conveying ferocity and cowardliness.

But who's ferocity and cowardliness?

The bullet hole in the left side of his muzzle was not camouflaged, but simply filled in with putty. It did not seem possible that this could have been the mortal wound. It looked more like a kiss.

The White Wolf had been preceded by other well-known outlaws in the state. There was the Three-legged Scoundrel of the Tongue River Valley, in southeastern Montana. He was killed in 1920. The famous Custer Wolf worked the ranges from eastern Montana to the western Dakotas, and was shot in 1921. The renegade pair of Snowdrift and Lady Snowdrift claimed the Highwoods, at the northwest end of the Judith Basin. While their free-roaming existence was condemned, two of their pups—Lady Silver and Trixie—were stolen from the den and taken to Hollywood, where they were trained and filmed in several movies. A sibling, Lobo, was made mascot of prizefighter Jack Dempsey while he was training for the world heavyweight championship in Shelby, Montana. A government trapper killed the adult female and male within weeks of each other in 1923.

The White Wolf, who supposedly brought down over $35,000 worth of cattle, sheep, and horses during his career, was bountied at $400 by Judith Basin stockgrowers. During the late 1920s his fame grew as articles about his campaign of destruction filled papers around the country. Letters and telegrams poured into Stanford: men wanting to come out and join the hunt, women warning to keep the "children near the house until somebody kills that terrible wolf."

He was finally tracked down when two ranchers spotted him in the Little Belt Mountains. They gave chase with their pack of hounds, cornering him after a couple of hours. Al Close shot the wolf in the head, stating matter-of-factly in an article published soon after, "and that's all there was to it." Twenty-seven years later, he recounted for the ***Great Falls Tribune*** the same incident, but was more philosophical. "And do you know, I almost didn't shoot. It was the hardest thing I think I ever did. There was a perfect shot, the grandest old devil...I thought swiftly that these were the hills over which he had hunted. I knew that it was the cruel nature of the wilderness—the fight for the survival of the fittest—that made him the ferocious hunter that he was. I thought of all the men who hunted him, of how his fame had gone out all over the country, and I *almost* didn't shoot."

"Swiftly these things passed through my mind as I stood there with my rifle aimed, finger on the trigger, and luckily I came to my senses in time and let the bullet fly fairly into the face of the old criminal."

Another account of the day's events described the eager but respectful crowd that pushed into Stanford's main street that afternoon, for a glimpse of the animal. "Nobody cursed him," wrote a reporter from the Spokane, Washington paper, the ***Spokesman Review***. "In spite of the cattle and sheep he had destroyed, everybody respected him. He had possessed a cunning and strength far beyond that of any wolf. He was, without a doubt, the largest wolf ever taken in Montana, and possibly the largest in the Northwest."

And thus it is that we build up our enemies in their defeat, as evidence of our own courage and the fairness of the fight.

In the 1920s and 1930s, as the state's wolf population dwindled to almost nothing, and the threat they posed to the livestock industry faded to insignificance, the individual wolves themselves took on the aura of the supernatural. Author and Stanford librarian, Elva Wineman, who wrote extensively about the White Wolf, described him as "the flying gray wraith" who struck "terror and death into the herd and ...(fed) like an epicure on the choicest animal of the lot." He was an "agile spirit," "monarch of the wilds," a "cunning strategist," the "mysterious gray-white essence of Satan." Ranchers came to view their relationships with such animals, antagonistic though they were, as personal. As Montana historian Dave Walter writes, "The killing of such a wolf was inevitable, but in the meantime he became somewhat of a local hero."

I am stuck on that, "the killing...was inevitable." The feeling held by the men who pursued the last wolves was not love, but something that could seem strangely like it. Respect. Awe. A desire to be close to that with which they were obsessed. And yet the only end they could envision, that they could act out, was one of annihilation.

That's where my comprehension runs out. Is it a cultural barrier? Is it one of those irreconcilable differences between a man's way of seeing the world, and a woman's? Or could it be the gap between the generations, the difference between growing up in a time when the world seemed big and people small, and now,

Livestock Guard Dogs: A Non-Lethal Answer To An Old Problem

by Nancee French Amey

Ed. Note: As support for wolf reintroduction grows in the Northern Forest region, farmers are concerned that there will be conflicts between these wild predators and domestic animals. A sheep raiser from northernmost New Hampshire has discovered a way to protect her flock from such conflicts. She suggests that we can have both sheep and wolves in the Northern Forest region.

Every goat herder and shepherd knows the fear of wild carnivores. Domestic livestock in general, is much easier than wild prey. In the past, Americans fought the problem in expensive, dangerous, and unsatisfactory ways such as: trapping, shooting and poisoning predators such as coyotes, wolves, and wolverines. Livestock guard dogs have been used by shepherds in Asia and Europe for centuries. I thought the idea was worth a try. I had my husband read an article on the subject. He was very skeptical and felt we would have to be very desperate to put a dog in with sheep to protect them from other canines, wild or domestic. That ended the subject until last year when the coyotes discovered my 100 ewe flock of sheep and all their lambs.

I was lucky enough to know a fish and game officer who had seen working, effective guard dogs. The coyote attacks on my lambs were threatening to end my shepherding days. I couldn't trap coyotes, I wouldn't use poison even if it were legal, and I have never shot anything that I didn't eat. I was desperate. In the Fall of 1993 I bought a livestock guard dog, an 11 month old Italian Maremma named Esther. Esther was a non-lethal solution to a lot of problems now and possibly in the future.

I have been reading in newspapers and magazines, and listening to groups advocating the reintroduction of wolves to the Northwoods. I have been told that if the ecological setting was right, it wouldn't matter if the wolves were reintroduced or not; they will come. They were here before; they will be again.

Experience in Minnesota has shown that wolves can create a distraction for one guard dog, and that two dogs are far more effective in defending domestic livestock. Coyotes are also smart critters, and when I realized that Esther was being run ragged, I decided to get a second dog—Ranger. That was in March of 1994. When I added Ranger, a male Maremma, to my flock I knew that he would be even bigger than Esther, but I have seen wolves in northern Canada before. They are 50 pounds heavier than a coyote and can pull down an animal ten times their size. Sometimes they kill dogs near Yellowstone National Park. Could a Maremma protect a flock against a pack of wolves?

The couple that brought these dogs into the U.S. in 1976 are in Amherst Massachusetts. They were part of the Livestock Guard Dogs Association at Hampshire College. I have read their research, I have studied animal behavior, and I have come to the conclusion that my sheep are relatively safe.

Asian and European shepherds were plagued by wolves. The reason for the development of the guarding dog was the threat of wolves and bears. These dogs are still in use. They have been in use for at least a thousand years and are judged solely on their ability to work.

I chose the Maremma out of a dozen or so breeds of guard dogs in this country because they had high marks in temperament. I was as concerned with their ability to get along comfortably with humans as I was with their ability to guard my flock. Pittsburg, NH is not a hub of human activity but my flock draws quite a crowd, and I did not want anyone hurt.

Ranger is rather shy of people. He'll roll over on his back and wag his tail from about ten feet away. He takes a dim view of being taken away from the flock for any reason, but is not vicious about the separation. Esther, on the other hand, has gone to school with me and has a deep commitment to knowing where I am and what I am doing around the farm.

They both sleep, or seem to sleep, during the day and patrol and then sit in the middle of the flock at night. They are not attack dogs. They warn off intruders and warn their flock of danger. Most predators seem to know instinctively that there are no veterinarians in the wild and they would rather find other prey than fight a canine their own size for food.

Ranger and friend enjoy the tranquility of the Amey farm. Photo by Nancy French Amey.

A guard dog is unique in that it works independent of human commands. Unlike a Doberman or German Shepherd, they "think" for themselves and work out their guarding plan of action alone without human interference. They have a slow metabolism and eat very little to maintain the 100 or so pounds they carry. It costs a little less than $200 a year to feed one. They cost between $200 and $600 per animal.

If the public wants to see wolves or other predators roam free and the farmers want to keep their livestock safe, it would be worth the effort to promote livestock guard dogs. The federal agency of Animal Damage Control spends millions to shoot, trap and poison predators. The money spent by the government and the agricultural community would be better spent on a method that protects and preserves domestic and wild life. Could not the ADC pay for dogs rather than poisoning critters?

These dogs are born with livestock; they live and die with sheep. They bond with them as we do to our family members. There are approximately 5,500 guard dogs in this country. I would like to see more people who are interested in the continuation of farming and those interested in the preservation of predatory wildlife work together to solve a real problem in a non-lethal manner. Guard dogs can be a simple answer to a complicated problem.

For more information contact: Livestock Guard Dog Association, Hampshire College Box FC, Amherst, MA 01002-5001.

Nancee French Amey raises a flock of 100 sheep and a family in Pittsburg, New Hampshire.

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when the world is a tiny, limited, tenuous thing, and people seem to be everywhere, seem to be *in* everything?

Couldn't Close have stopped, at that last second? Why did he brush aside the stirring of compassion he purportedly felt? A society that must carry out its campaign of domination to its ultimate, extreme, ugly end—take no prisoners, kill the women and children, too—is in great jeopardy of annihilating itself. The bitter hollowness of that last act hangs on. It fixes the people in a perpetual attitude of defense, forces them to justify long after even they have lost their righteous certainty.

Thus my pessimism about the restoration of the wolf, and the native ecosystems of the Great Plains. I believe it will come, that there will be large prairie preserves, national parks, that even the private lands will be given over increasingly to all forms of wildlife. But we need to imagine it first. And that will be hard, because the settling of the plains was so much about, literally and mentally, erasing the last vestiges of wildness.

In the mountains, deserts, and canyon country of the West, it was far more difficult to appropriate entire landscapes. The sunny, even face of the plains was ostensibly more hospitable to the early white settlers, and though decades of drought and topsoil erosion have proved that much of the region is not hospitable at all, the land did submit more readily at the outstart.

Those who are poets, writers, who sing the praises of the plains—and they are few because we as a people do not generally admire the flat, treeless lands—do not speak of the wholly wild. They love the people and the landscape, the ranch house tucked in a coulee, the profile of a farmer against the wide sky. And well they should love these things, because they have their charms. But the darker side is absence. Wolves gone for 50 years. No black-footed ferrets. Two percent of the pre-settlement population of prairie dogs. No free-roaming bison. Antelope numbers reduced 98 percent through the entire West. The willow bottoms long empty of grizzly bears.

Reasonable visionaries, like geographers Frank and Deborah Popper, propose to revive the region's laggard economy, along with the faltering spirit of its communities, by installing a "Buffalo Commons." This would be a mixture of public and private lands, geared toward wildlife restoration and management, recreation, and education. A similar proposal, first put forth by Montanan Bob Scott, was termed "The Big Open." While these ideas laudably center around ways to make a naturally functioning ecosystem economically valuable, the plains need and deserve something more.

The Great Plains must have its seers, its heretics, just as the mountains and the deserts have had theirs. We need a vision of the land not as resource, or even as spiritual haven, but as an entity onto itself. Whole, alive. The land of absence giving way to a vital presence.

The wolves are trying, for their part. They have been showing up in eastern North Dakota, single dispersers from Minnesota or Canada. But recovery will not happen, even with wolves appearing voluntarily, until we give them back some of the space we've appropriated. And that will not happen until there is a constituency for wolf recovery on the plains. On private lands, native prey is scarce, or intermingled with livestock. Landowners are not apt to tolerate wolves, in any case. Public lands on the plains are limited and scattered, and since these are either surrounded by agricultural operations, or are themselves leased out as pasturage for privately-owned livestock, land management agencies do not even entertain notions of predator restoration. In 1991, a government-hired gunner shooting coyotes from an airplane mistakenly killed a wolf. It was an honest error (though one can question the basic value of his mission), because in eastern North Dakota, who would have expected a wolf? He did not see the wolf as such because to him the possibility of a wolf did not exist.

We are blinded not by the failure of our eyes, but of our minds and hearts.

Vermont native Mollie Yoneko Matteson has defended wilderness in the Northern Rockies for the past decade. She currently lives in Oregon.

We gratefully acknowledge Island Press for granting us permission to reprint this essay © 1994 by Mollie Yoneko Matteson from **Place of the Wild: A Wildlands Anthology**, edited by David Clarke Burks, Published by Island Press, Washington, D.C. and Covelo, California, 1994.

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The Wildlands Project in the Northern Forest

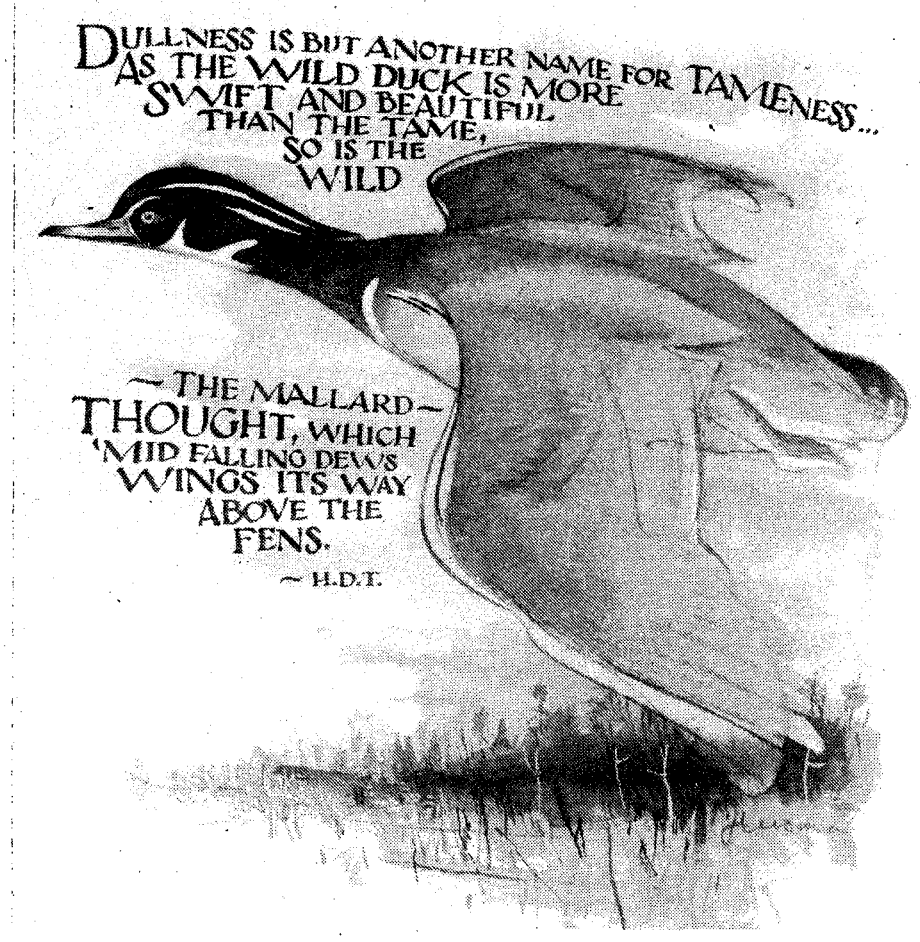
Preliminary work in designing an ecological reserve system for the Greater Laurentian Region (GLR) continues. The GLR includes southern Quebec and the southern maritime provinces of Canada, the islands and banks of the continental shelf bordering the Gaspé Peninsula, New England, New York and the northern third of Pennsylvania and New Jersey, the Gulf of Maine and Long Island Sound. A dominant physiographic feature of this region is the St. Lawrence River.

One priority of the coördinating committee of the Greater Laurentian Region Wildlands Project has been to communicate and coordinate with State and Provincial agencies or conservation groups who are independently designing ecological reserve systems. By attending meetings, sharing information and publishing updates on the Project, we try to cultivate a regional context for their mapping efforts, and encourage them to place the proposals within The Wildlands Project vision.

A baseline map of the region has been produced using a digital chart of the world and regional data such as political boundaries and roads. Work in progress includes researching the availability of digitized data sets for each subset of the region, such as public lands, private conservation lands, locations of threatened and endangered species, significant/critical ecosystems, human population centers, and wetlands. The baseline map, overlayed with these types of data, will help to determine gaps in the database and to structure the primary research necessary to design the ecological reserve system.

We are currently developing a protocol to acquire data directly from a state or provincial agency or conservation group and guidelines on how to use the data to design a regional ecological reserve system. Dr. Steve Trombulak, GLR Science Director, describes this process in "How To Design An Ecological Reserve System" which is forthcoming through ***Wild Earth.*** To receive a preprint of this article or advice on the process, locations of data sets, or any data that we have acquired, and for information on how to become involved with The Wildlands Project in the Greater Laurentian Region, contact Marcia Cary, POB 455 Richmond, Vermont 05477.

—Marcia Cary



Conte National Wildlife Refuge Needs Your Support Today

In light of the political sea change that has taken place as a result of the last elections, the Conte Refuge, which memorializes the long time GOP congressman from Massachusetts Silvio Conte, by protecting the entire Connecticut River watershed is in need of firm and vociferous support from the conservation community. If support is not expressed before the Congress begins to mark up the president's FY96 budget it is possible that all the good work that has been done thus far will be for naught. As it stands, the US Fish and Wildlife Service expects to release the Refuge proposal and the corresponding Draft Environmental Impact Statement by the end of March. After release of these documents, there will be a series of public hearings and a 90 day public comment period. *(To get on the mailing list of the Conte Refuge, write: Connecticut River Planning Process, USF&WS, VA Medical Center, Northampton, MA 01060. Tel. 413 582-3174.)*

Letter writers are urged to contact: your local Congressperson(s) and U.S. Senators, Secretary of the Interior Bruce Babbitt, Mollie Beattie Director of the U.S. Fish and Wildlife Service, and your state's governor. Copies of letters sent to Babbitt and Beattie should also be sent to Ron Lambertson, F&WS Northeast Regional Director.

Here are some important points to consider making in your letters:

* The Connecticut River is a natural resource of national significance, as recognized by Congress and President Bush in the Conte Refuge Act signed in 1991.
*Support for the Conte Refuge is bipartisan. The proposed refuge memorializes the conservation leadership of the late Silvio Conte, a long-standing Republican member of Congress.
*The Conte Refuge will establish a new national model for natural resource conservation that is based on a true partnership between the Federal and state governments and private landowners.
*The Conte Refuge is unique in that it is being shaped by the residents of the watershed and incorporates their active participation, rather than a plan created elsewhere and imposed by a Federal bureaucracy.
*The Federal funds to implement the Conte Refuge will leverage and be multiplied by private investment in resource conservation.
*The Conte Refuge will protect the national interest in the Connecticut River, which includes restoration of Atlantic Salmon and conservation of critical fish, bird, plant, and animal habitats, without diminishing private property rights.
*Through its focus on education, the Conte Refuge will help create the next generation of stewards for the Connecticut River who will better understand the connections between the environment and the economy of the watershed.
*The Conte Refuge will provide a means for more effective resource protection by local, state, and Federal agencies by identifying and mapping critical habitat areas.
*The Conte Refuge will make available resource information and technical services currently unavailable to private landowners and local governments.
*Besides providing a more effective approach to resource conservation by addressing the watershed as a whole, the Conte Refuge will create a national identity of great benefit to the tourism and economy of the Connecticut River Valley.

The most important message to get to legislators is that there is a broad spectrum of groups and individuals living in the Connecticut River Valley who support the establishment of the Silvio O. Conte National Fish and Wildlife Refuge. In addition, it is important to note, as USF&W representative Larry Bandolin stressed, that funds allocated to the Conte Refuge would be for implementation of the refuge rather than further planning.

Support the Conte Refuge by contacting legislators. Thank them for their past support and encourage them to make certain that the fruits of their past labors to provide a model for watershed protection do not die on the vine.

Based on letter released by the Connecticut River Watershed Council.

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New Staff Member

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was born
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The Wildlands Project Mission Statement

Our Mission

The mission of The Wildlands Project is to help protect and restore the ecological richness and native biodiversity of North America through the establishment of a connected system of reserves.

As a new millennium begins, society approaches a watershed for wildlife and wilderness. The environment of North America is at risk and an audacious plan is needed for its survival and recovery. Healing the land means reconnecting its parts so that vital flows can be renewed. The land has given much to us; now it is time to give something back—to begin to allow nature to come out of hiding and to restore the links that will sustain both wilderness and the spirit of future human generations.

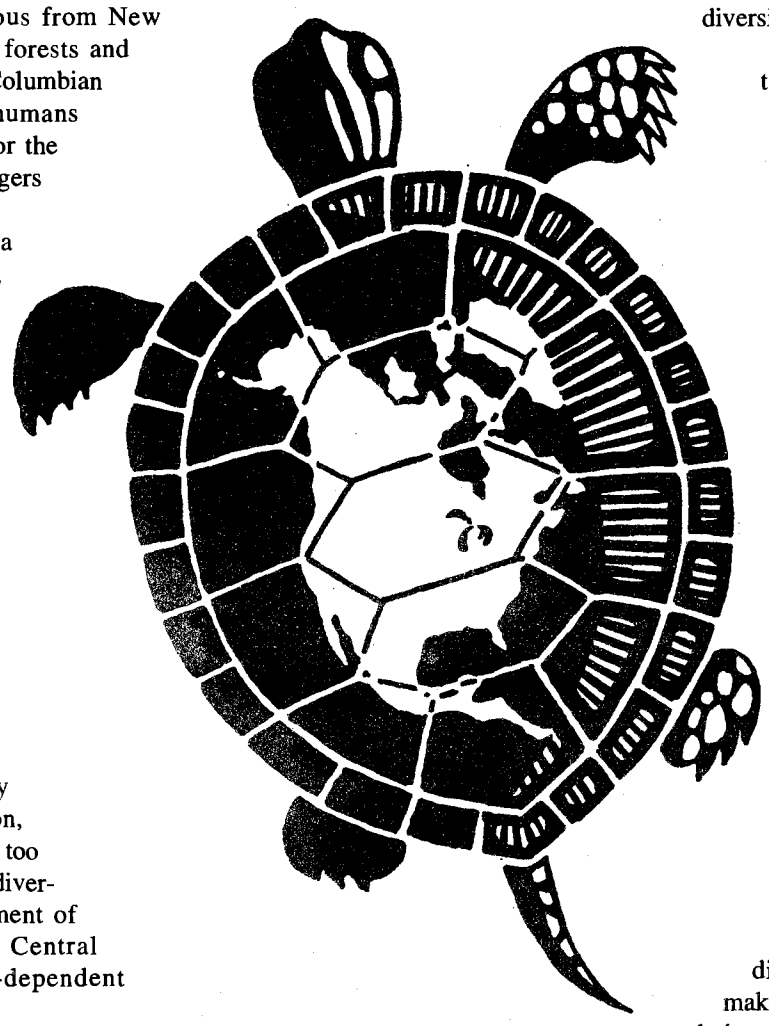
The idea is simple. To stem the disappearance of wildlife and wilderness we must allow the recovery of whole ecosystems and landscapes in every region of North America. Allowing these systems to recover requires a long-term master plan.

A feature of this design is that it rests on the spirit of social responsibility that has built so many great institutions in the past. Jobs will be created, not lost; land will be given freely, not taken.

Our Vision

Our vision is simple: we live for the day when Grizzlies in Chihuahua have an unbroken connection to Grizzlies in Alaska; when Gray Wolf populations are continuous from New Mexico to Greenland; when vast unbroken forests and flowing plains again thrive and support pre-Columbian populations of plants and animals; when humans dwell with respect, harmony, and affection for the land; when we come to live no longer as strangers and aliens on this continent.

Our vision is continental: from Panama and the Caribbean to Alaska and Greenland, from the Arctic to the continental shelves, we seek to bring together conservationists, ecologists, indigenous peoples, and others to protect and restore evolutionary processes and biodiversity. We seek to assist other conservation organizations, and to develop cooperative relationships with activists and grass-roots groups everywhere who are committed to these goals.



The Problem

We are called to our task by the failure of existing Wilderness, Parks, and Wildlife Refuges to adequately protect life in North America. While these areas preserve landscapes of spectacular scenery and areas ideally suited to non-mechanized forms of recreation, they are too small, too isolated, and represent too few types of ecosystems to perpetuate the biodiversity of the continent. Despite the establishment of Parks and other reserves from Canada to Central America, true wilderness and wilderness-dependent species are in precipitous decline:

*Large predators like the Grizzly Bear, Gray Wolf, Wolverine, Puma, Jaguar, Green Sea Turtle, and American Crocodile have been exterminated from most of their pre-Columbian range and are imperiled in much of their remaining habitat. Populations of many songbirds are crashing and waterfowl and shorebird populations are reaching new lows.

*Native forests have been extensively cleared, leaving only scattered remnants of most forest types. Even extensive forest types, such as Boreal Forest, face imminent destruction in many areas.

*Tall Grass and Short Grass Prairies, once the habitat of the most spectacular large mammal concentrations on the continent, have been almost entirely destroyed or domesticated.

The Meaning of Wilderness

The failure of reserves to prevent the losses just mentioned rests in large part with their historic purpose and design: to protect scenery and recreation or to create outdoor zoos. The Wildlands Project, in contrast, calls for reserves established to protect wild habitat, biodiversity, ecological integrity, ecological services, and evolutionary processes—that is, vast interconnected areas of true wilderness. We reject the notion that wilderness is merely remote, scenic terrain suitable for backpacking. Rather, we see wilderness as the home for unfettered life, free from industrial human intervention.

Wilderness means:

*Extensive areas of native vegetation in various successional stages off-limits to human exploitation. We recognize that most of Earth has been colonized by humans only in the last several thousand years.

*Viable, self-reproducing, genetically diverse populations of all native plant and animal species, including large predators. Diversity at the genetic, species, ecosystem, and landscape levels is fundamental to the integrity of nature.

*Vast landscapes without roads, dams, motorized vehicles, powerlines, overflights, or other artifacts of civilization, where evolutionary and ecological processes that represent four billion years of Earth wisdom can continue. Such wilderness is absolutely essential to the comprehensive maintenance of biodiversity. It is not a solution to every ecological problem, but without it the planet will sink further into biological poverty.

The Wilderness Proposal: Core Reserves, Corridors, Buffers & Restoration

We are committed to a proposal based on the requirements of all native species to flourish within the ebb and flow of ecological processes, rather than within the constraints of what industrial civilization is content to leave alone. Present reserves—Parks, Wildernesses, Refuges—exist as discrete islands of nature in a sea of human modified landscapes. Building upon those natural areas, we seek to develop a system of large, wild core reserves where biodiversity and ecological processes dominate.

Core reserves would be linked by biological corridors to allow for the natural dispersal of wide-ranging species, for genetic exchange between populations, and for migration of organisms in response to climate change.

Buffers would be established around core reserves and corridors to protect their integrity from disruptive human activities. Only human activity compatible with protection of the core reserves and corridors would be allowed. Buffers would also be managed to restore ecological health, extirpated species, and natural disturbance regimes. Intensive human activity associated with civilization—agriculture, industrial production, urban centers—could continue outside the buffers.

Implementation of such a system would take place over many decades. Existing natural areas should be protected immediately. Other areas, already degraded, will be identified and restoration undertaken.

The Wildlands Project sets a new agenda for the conservation movement. For the first time a proposal based on the needs of all life, rather than just human life, will be clearly enunciated. Both conservationists and those who would reduce nature to resources will have to confront the reality of what is required for a healthy, viable, and diverse North America. Citizens, activists, and policy makers will be able to confront the real choices because the choices will be on the agenda. It will no longer be possible to operate in a business-as-usual manner and ignore what is at stake.

The Wildlands Project will also inspire the development of indigenous proposals for other continents.

Who We Are & What We Do

The Wildlands Project is a non-profit publicly supported organization with offices in McMinnville, Oregon. We are a group of conservation biologists and biodiversity activists from across the continent.

We work in cooperation with independent grass-roots organizations throughout the continent, local chapters of national and international conservation organizations, and scientists and individuals to develop proposals for each bioregion. Development of regional Wilderness proposals is based upon principles of conservation biology. Draft proposals are developed through discussions and conferences that bring together regional activists, conservation biologists and other scientists, and conservation groups across the spectrum of the movement. The Wildlands Project supports this process through funding, networking, and offering technical expertise...

In short, our job is to educate the public, the environmental movement, government agencies, the academic community, and others about the importance of biodiversity and what is necessary to protect it. The Wildlands Project welcomes the participation and support of all persons and organizations interested in these issues.