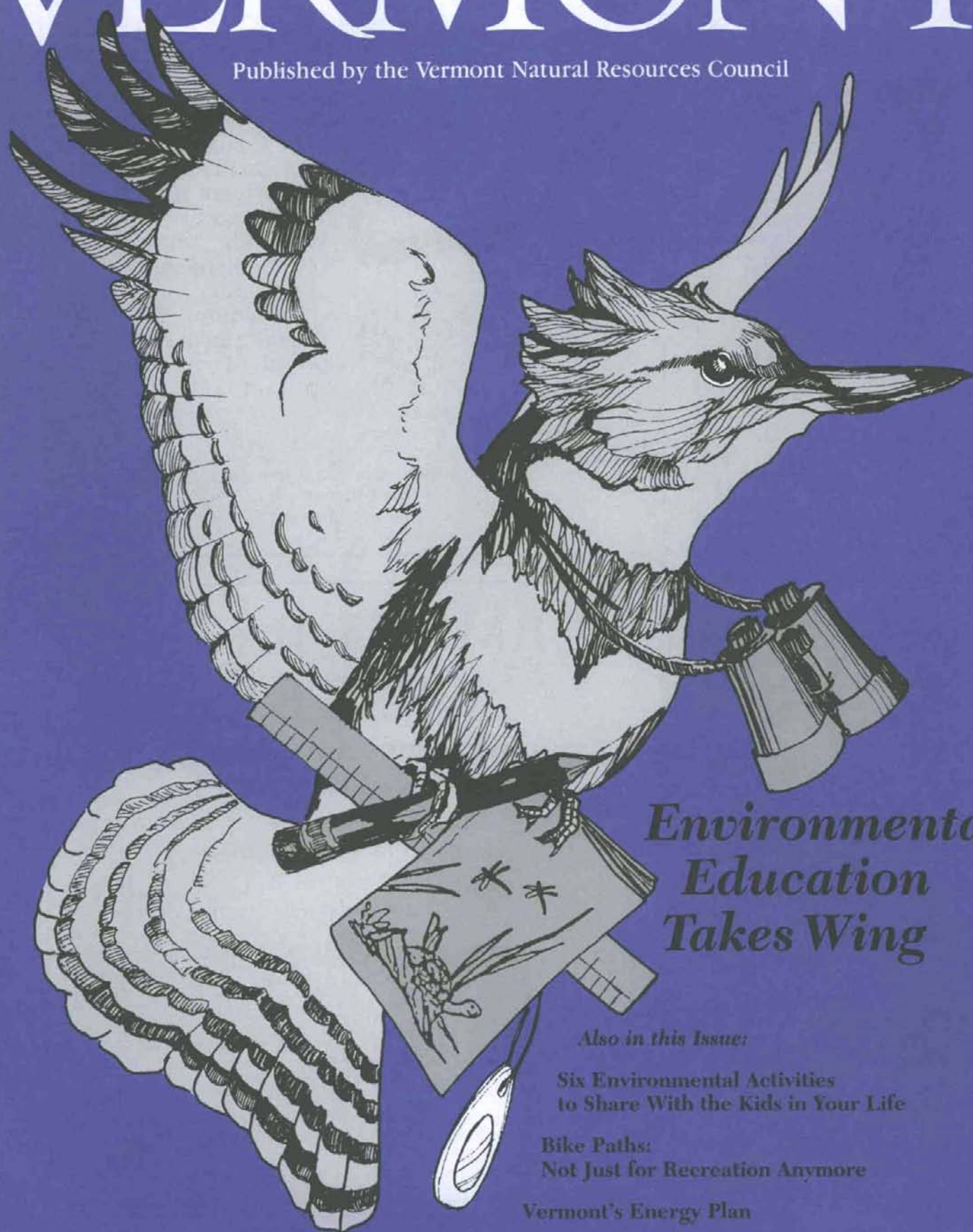


VERMONT

Environmental Report

Published by the Vermont Natural Resources Council



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Published by the Vermont Natural Resources Council

Summer / Fall, 1991



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Environmental Education Takes Wing

Taking Wing

Vermont's Environmental Educators Make Connections for the '90s

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THE INSIDE WORD

SHORT TERM VICTORIES ... Long Term Challenges

Ned Farquhar, Executive Director

VNRC has seen some successes recently that our members should know about. Working closely with Trout Unlimited and local residents, VNRC's southern Vermont office staff won Outstanding Resource Water (ORW) status for the Batten Kill. Vermont's first ORW! This implementation of the rivers law, which VNRC fought hard to see passed in 1987, was time-consuming and difficult — but the reward has come. A magnificent fishing stream, and a significant community resource, has been protected for future generations.

Working with Vermonters concerned about transportation issues, VNRC plugged away for improvements in the Transportation Agency's Act 200 plan — and it worked. The plan charts a course for transportation, *not* traffic. We hope that it will be upheld by the new administration, and we'll be working with them on it.

Working closely with local residents opposed to the Tamarack resort proposal near Stratton, we convinced the District Environmental Commission that the proposed development was bad for wildlife habitat and wetlands. VNRC spoke for the bears, and we won one for them. Tamarack has dropped its appeal of the decision.

Working closely with literally thousands of Vermonters, we saw through the new wetlands rules that implement the VNRC-supported 1986 wetlands law. The law and the rules are good ones, with historic importance to Vermont's wetlands. Now federal wetlands laws are under attack, and we are developing a Vermont coalition to uphold strong, fair wetlands protection at the federal level.

Working closely with the local citizens group, we opposed construction of the Rutland Mall in a wetland. We didn't win at the state level, but the U.S. Army Corps of Engineers agreed with us. Now we have reached agreement with the developer about a new design for the proposed mall that eliminates most of the wetlands impacts.

Working closely with other environmental and human services groups, we have continued the legislative battle for environmental and human service funding. The new Unity Coalition — inspired by VNRC working with the Vermont Low Income Advocacy Council in 1989 — has worked miracles, and we've been able, so far, to stop the anti-environment stampede in the State House.

Working closely with environmental educators and state agencies, VNRC is involved in strengthening Vermont's environmental education network, as described in this issue. Good education today is at the heart of a healthy environment tomorrow.

There are still many challenges on the horizon, but much can be won, thanks to our successful history of "working closely." Vermont's environmental movement has a history of cooperation — as well as a healthy concern for the human environment.

A recent statement by a ski industry representative embodies some of the problem that we must work together to solve. "To some extent," she was quoted as saying, "our environmental regulations serve no one except the no-growth folks." The ski areas association has delighted in characterizing VNRC as a no-growth, anti-people group.

We aren't "anti" anything. We're *for* the animals, the air, the land, and the water that can't speak for themselves and have an important place on this earth — and we're defending the environment with a deep commitment to human rights.

This is where the long-term victories will be hardest to win. We must learn new ways of working closely with the groups that aren't yet considering long-term environmental needs — groups that are instead devoted to individual property "rights" or the advancement of a special corporate interest. It is in inspiring a respect for the environment, and a sense of stewardship, that the real victories will be won. ●

"There are still many challenges on the horizon. But much can be won, thanks to our successful history of 'working closely.'"

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The Vermont Natural Resources Council is a non-profit environmental organization founded in 1963 to promote the wise use of Vermont's natural resources. VNRC does research, legislative lobbying, advocacy, and educational work on issues including forestry, agriculture, water, energy, wastes, and growth management. VNRC is the Vermont affiliate of the National Wildlife Federation.

●
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THE REAL KEYNES

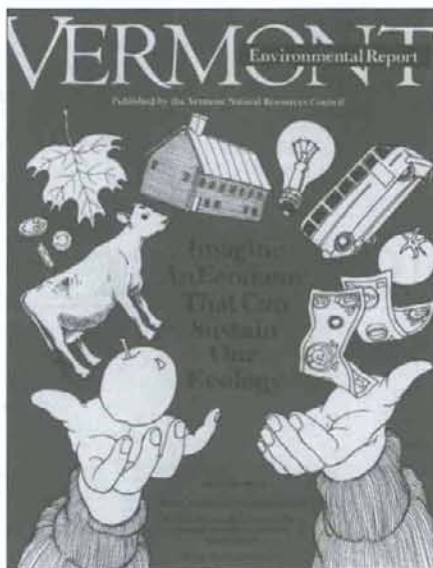
I usually have great confidence in the *Vermont Environmental Report*, but it gave me a turn to see the rather silly references to John Maynard Keynes by Will Raap in the Spring issue ["Seven Visions of a Sustainable Future"]. Mr. Raap accuses Keynes of short-sightedness. Is he aware that Keynes' most important work, "The Economic Consequences of the Peace," accurately forecast the failure of the Versailles Treaty and the social unrest it caused, ultimately leading to the Great Depression and World War II? Keynes believed in full accounting of all costs of human activity including population dislocations, environmental damages and the like....

Keynes' remark "in the long run we are all dead" was made in the 1930s in response to critics of the New Deal experiments to relieve unemployment and human suffering they feared the long-term negative effects. Keynes and Roosevelt were more interested in keeping the ship of state afloat in a time of crisis marked by hunger and deprivation....

If Mr. Raap wants to kick an economist around, why not pick on Adam Smith and his "invisible hand," Irving Fisher and *laissez-faire*, or any of the supply-side idiots who have been guiding U.S. policy these past years? ...

— Robert P. Ericson
Norwich

Raap responds: While I studied Keynes over 20 years ago, I admittedly am guilty of limited understanding of his full contribution to economic theory. I would like to know about his ideas on accounting for environmental costs. Keynes is a father of modern economic theory that focuses our attention on taxation and government spending to manage our macro-economic ups and downs. These manipulations of fiscal policy have often been very successful ... however, one result is that our economic strategists have been trained to watch the trees and neglect the forest.... Fiscal and monetary strategists, capitalist and socialist camps, supply-side and demand-



side advocates all need their policies to be judged by a full accounting of their costs and benefits. Only then will the forest stay healthy, while the trees also thrive.

SUSTAINABILITY, CONT'D

In her article "A Living Wage" (Spring 1991 V.E.R.) Senator Cheryl Rivers argues Vermont's economic development efforts should be focused on providing Vermonters with "quality jobs which pay living wages." We are doing that and I think we have some promising results. These include the recent awards of substantial contracts to Bombardier Corporation and General Electric and a major project at the Equinox facility in Manchester. ...

The Agency of Development and Community Affairs has a number of initiatives to assist established Vermont businesses to grow and prosper, ultimately resulting in an expanded tax base and increased employment opportunities for Vermonters. ...

Clearly we have the framework necessary to develop and preserve a strong sustainable economy in Vermont which will allow us to broaden our tax base. And it is only by preserving our tax base that all Vermonters will share in a prosperous future.

— Frank G. McDougall, Secretary,
Vermont Agency of Development and
Community Affairs

H-Q QUESTIONS

Regarding Hydro-Quebec ["Vermont Perspectives, V.E.R. Spring 1991]: I have read a number of articles on this subject Most of them make emotional appeals and talk about Quebec as it was part of the U.S. but none addresses the important question: what factors will Quebec consider in making a decision to build or not to build the dam(s)? I would think that Vermont's utilities purchase of power would only be a very minor consideration in their decision. If the dam is built will it be mostly to meet Canada's need for power? ... Or will the dam be built mostly for the export of power? If so, which states are interested in buying it? Are we cooperating with organizations in those states which are trying to prevent the purchases of power? Is anyone talking with authorities in Quebec about all these matters?

I want to add that I thought the articles on "Sustainability" were good, and full of practical suggestions which we should start implementing right now.

I was disappointed in the interview with Sanders; his answers to your good questions were vague and often filled with cliches, the fact that they were the cliches of the left did not make them more meaningful.

— Lottie Perutz
Mount Holly

VNRC Water Director Steve Crowley replies: While H-Q's long-term picture (beyond 2020) includes very little export, their contracts for the next twenty years lay the foundation for growth in generation capacity. Firm power contracts, including little Vermont's, are a necessary basis for financing. H-Q already exports power to other Canadian provinces, and contracts are being explored with New York and the New England Power Pool. Vermont opponents are working closely with advocates in all of these areas. Meanwhile, H-Q's "do-or-die" push for an extension of the contract's deadline for withdrawal, in order to accommodate their challenge of the need for environmental review, clarifies how closely Vermont's contract is tied to future expansion.



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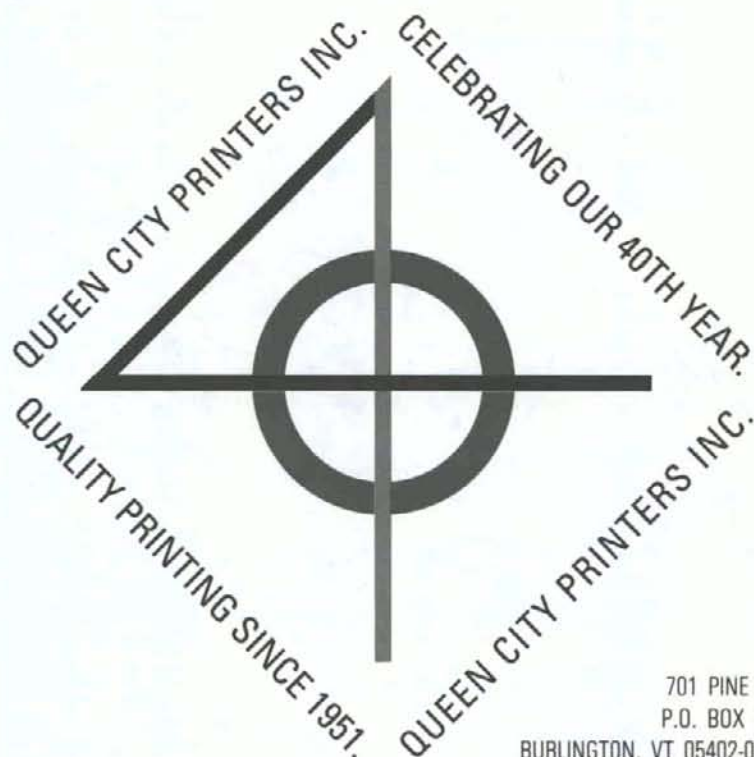
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VERMONT PERSPECTIVE

SATELLITE IMAGES AND CITIZEN INVOLVEMENT

VNRC Begins Northern Forest Lands Project

Vermont's forests shape the Green Mountain State. They support the wildlife enjoyed by thousands of Vermont wildlife enthusiasts, hunters, and anglers. And while providing clean air, clean water, and open space for recreation, they have supported a successful timber industry.

Land sales in recent years, however, have made it all too clear that even the northern-most forests of our region are not immune to development pressure. The 1990 U. S. Forest Service Northern Forest Lands Study focused the attention of New England — and the U.S. Congress — on the changes happening the forests of northern Vermont. (See "Vermont Perspectives," *V.E.R.* Spring, 1991.)

Importantly, the study did not make specific recommendations on how the region should protect its forests, communities and economy. These decisions will be made in years to come by citizens, landowners and state and federal leaders.

With this in mind, and thanks to generous grants from the Davis, Merck, and Wharton foundations, VNRC is now working with the Underhill and Wild Wings foundations to create the VNRC Northern Forest Protection Project. VNRC will gather information on the resources and bring together conservationists, landowners, and local people to address the issues raised by the Northern Forest Lands Study. Ultimately, VNRC will propose programs to address key forest issues.

VNRC's goals are threefold: protecting important environmental re-

sources in Vermont's northern forests; maintaining a sustainable forest products industry in the region; and assisting local people, landowners, and communities to enhance the economy and communities of northern Vermont.

According to Jane Difley, Regional Director of the American Forest Council and Chair of the VNRC project's advisory committee, "The strength of this project is its emphasis on involving local people in addressing the northern forest challenges."

VNRC has initiated a program of information gathering, public workshops and policy discussions to develop common objectives.

Information gathering this year will involve the production of satellite imagery-based maps of two million acres in northern Vermont. These maps will depict cover-type, age classification, and ecosystem values in the area.

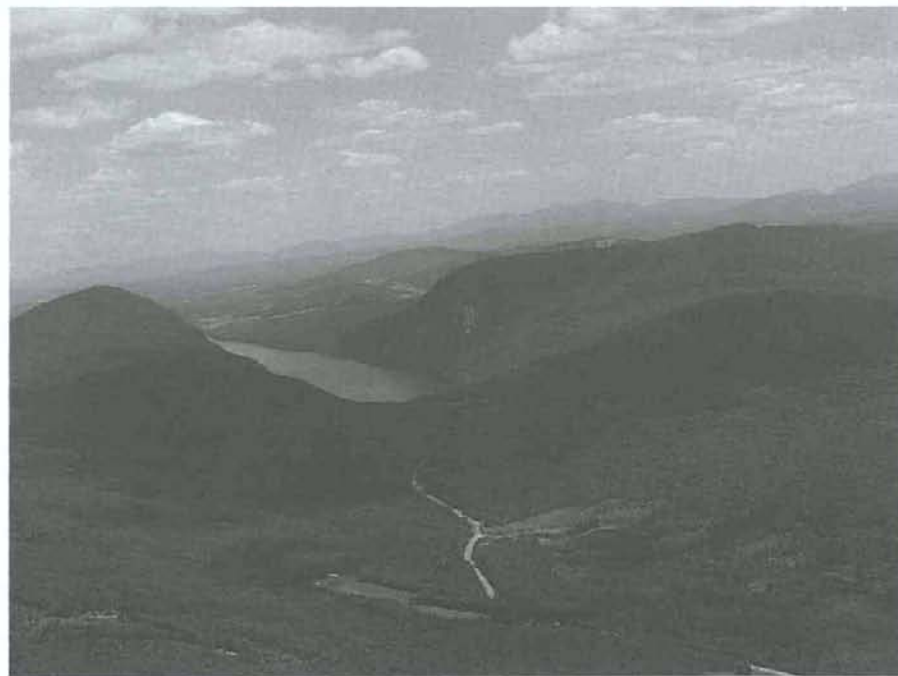
"The information on these maps will

help Vermonters evaluate the status of the local timber resource and the degree of fragmentation and conversion. This information will enable people to identify protection priorities," explains VNRC Policy Director Andrea Colnes.

Using state-of-the art mapping equipment developed at the Islands Institute in Maine, VNRC will develop a draft map which will be presented for public review and comments in workshops during the late summer and early fall.

"We hope that the public review of the draft maps will both improve the maps, and provide a forum for learning about local concerns regarding Vermont's northern forests," says Colnes.

Following completion of final maps in December, VNRC will enter the second phase of the project, which will focus on developing policy initiatives to protect the forests of northern Vermont. **JS**



TUNE-UP OR OVERHAUL?

Land Use Regulations Come Under Scrutiny

After over twenty years of use, Act 250, Vermont's land use and development law, has gained its share of ardent admirers and angry detractors. "If it ain't broke, don't fix it," goes the old Vermont saying, and discussion is now heating up over whether Act 250 and other permit systems are "broke" — or just in need of a tune-up.

Governor Snelling, in his inaugural address in January, spoke of his intent to study Vermont's permit processes with an eye to improvement. This summer, an internal study conducted by the Agency of Natural Resources and the Environmental Board is unfolding. Meanwhile, Norwich attorney Jonathan Brownell has initiated a private think tank on the topic, with recommendations due this fall.

The Central Vermont Chamber of

Commerce has initiated a "Coalition for an Integrated and Efficient Permit Process" campaign. The initial brochure seeks endorsement of seventeen recommendations for change — primarily to the Act 250 process.

"VNRC has promoted several of the same changes the Chamber calls for, and we are encouraged to see the implicit promotion of a stronger local planning and regulatory process revived in the business community," says Ned Farquhar, VNRC Executive Director. "However, many of the other recommendations the Chamber proposes will weaken Vermont's environmental permit process," Farquhar says, "and some are pure poison."

Act 250 is certain to see attempts at modification — both from friendly and destructive forces — in next year's leg-

islative session. Almost all of the Chamber's recommendations, for example, are present in various bills now pending. VNRC is a leading advocate for proposals to implement the "growth center" concept, one that the Chamber has also supported. Among the Chamber's recommendations that VNRC opposes are amendments that would limit public participation and reduce regional review.

"Two decades ago, Governor Deane Davis and the other framers of Act 250 had a remarkable clarity of vision, and Act 250 has stood the test of time," says Farquhar. "VNRC has been involved in Act 250 since its inception, and we will be working especially hard in the months to come to see that this landmark law retains its strength and fairness." **PE**

FROM DOCTRINE TO LAW

Public Trust Stymies Legislature

A 1989 Vermont Supreme Court decision on the public trust doctrine set off what may be the environmental debate of the decade.

The 1989 decision involving the Burlington waterfront, and a subsequent Superior Court decision involving the Williams Point Yacht Club, recognized that certain resources are held in the "public trust," to be used by the public and not developed for private gain. (See "Vermont Perspective," *V.E.R.*, Winter 1990-91.) Now, lawmakers are faced with the challenge of seeing that the concept is reflected in Vermont statutes.

After a legislative summer committee spent six months wading through the issues, and the House Natural Resources Committee spent an intensive two months writing a bill, a flood of last-minute amendments caused the bill to collapse of its own weight.

"In the last quarter century, Vermont's population has increased by 50%; and somewhere in the mid-1980s, our appreciation for, and use of, our water resources skyrocketed," notes VNRC Water Director Steve Crowley, who monitored the public trust issue this session. "In the early 1990s, there is no sign of either trend letting up. What we have is a resource in conflict with itself."

The key issue facing the legislature, as identified by VNRC, was twofold: to clarify how the state permit process would account for the appropriate use of the state's navigable water; and to deal with the state's stewardship responsibilities in the face of increasing cumulative impacts on water.

The House committee identified a number of issue areas, including ownership of filled lands, water conservation, protection of tributaries, and as-

sessing fees for private or commercial use of public trust resources.

Ironically, what brought the bill down was an amendment urged by the governor, allowing a pedestrian easement along public trust waters. An outcry over private property rights ensued, causing frustrated legislators to throw in the towel.

Most frustrated are boat owners and regulators who were looking to the legislature for clarification, in the face of court decisions that leave permit programs in doubt. With roughly seventeen applications for marina construction or expansion under review or anticipated, and two projects in the appeal process, Vermont's public trust issues are far from resolved.

"If the issues are not dealt with effectively in the legislature," says Crowley, "it will be up to the courts to figure it out." **SC/SCC**

A CELEBRATION FOR THE BEARS VNRC Victory in Tamarack Case

Another victory for Vermont bears! Developers of the proposed 180-unit Tamarack resort development in southern Vermont were denied an Act 250 land use permit this spring. The District II Environmental Commission unanimously concluded in early April that the resort's "location in remote lands, in the middle of a bear travel corridor and spring feeding area present insurmountable obstacles."

In mid-June, the developers withdrew an appeal of the Commission's denial, making the decision firm.

The victory is the result of VNRC's three-year effort to protect the bear habitat from development. The Commission's decision covers key concerns that VNRC had addressed during the years of permit hearings.

"This denial clearly points to the larger public benefits of preserving pristine upland waters, critical black bear travel corridors and feeding areas, and the area's rural character," says Marcy Mahr, VNRC Southern Vermont Program Director.

The decision refers to the "already precarious status of black bears in southern Vermont" and states that "development in southern Vermont has adversely

affected the state's bear population." Particularly important is the Commission's conclusion that bear travel corridors are necessary wildlife habitat.

"Travel corridors are decisive to the survival of black bears by ensuring access to food supplies, dens, and reproduction," states the Commission's Findings of Fact document. "Loss of travel corridors threatens all of the above functions of the habitat, with a corresponding imperilment for bear usage of the areas linked by the corridor. ... [T]he ability to provide secure areas for travel is sufficient by itself for us to find that the corridors constitute necessary wildlife habitat." The Commission agreed that both the northern and southern corridors identified by state wildlife biologists were critical to habitat needs.

The District Commission also based its denial upon Tamarack's lack of conformance with habitat provisions in the Stratton and Jamaica Town Plans and the Windham Regional Plan. Since the bear habitat "includes a regionally significant corridor," the Commission

states, "the development's adverse impacts to bear habitat conflict with the Windham Regional Plan's wildlife resources goals and policies."

Additionally, the Findings of Fact state that the project would have a substantial impact on regional settlement patterns, rural lands, traffic and emergency services.

Tamarack developers also had not received necessary state permits, nor convinced the Commission that the project could comply with regulations pertaining to stormwater discharge, community water supply and wastewater disposal, and subdivision.

"We are pleased that the Commission also concluded that the proposed development would create 'scattered development,' an argument that VNRC had made strongly," adds Mahr.

VNRC Executive Director Ned Farquhar notes, "Wildlife habitat fragmentation is one of the key concerns VNRC has with development outside of growth centers. The bears can't speak for themselves in a case like this, and we're glad VNRC could be there to speak for them." **SC/MM**

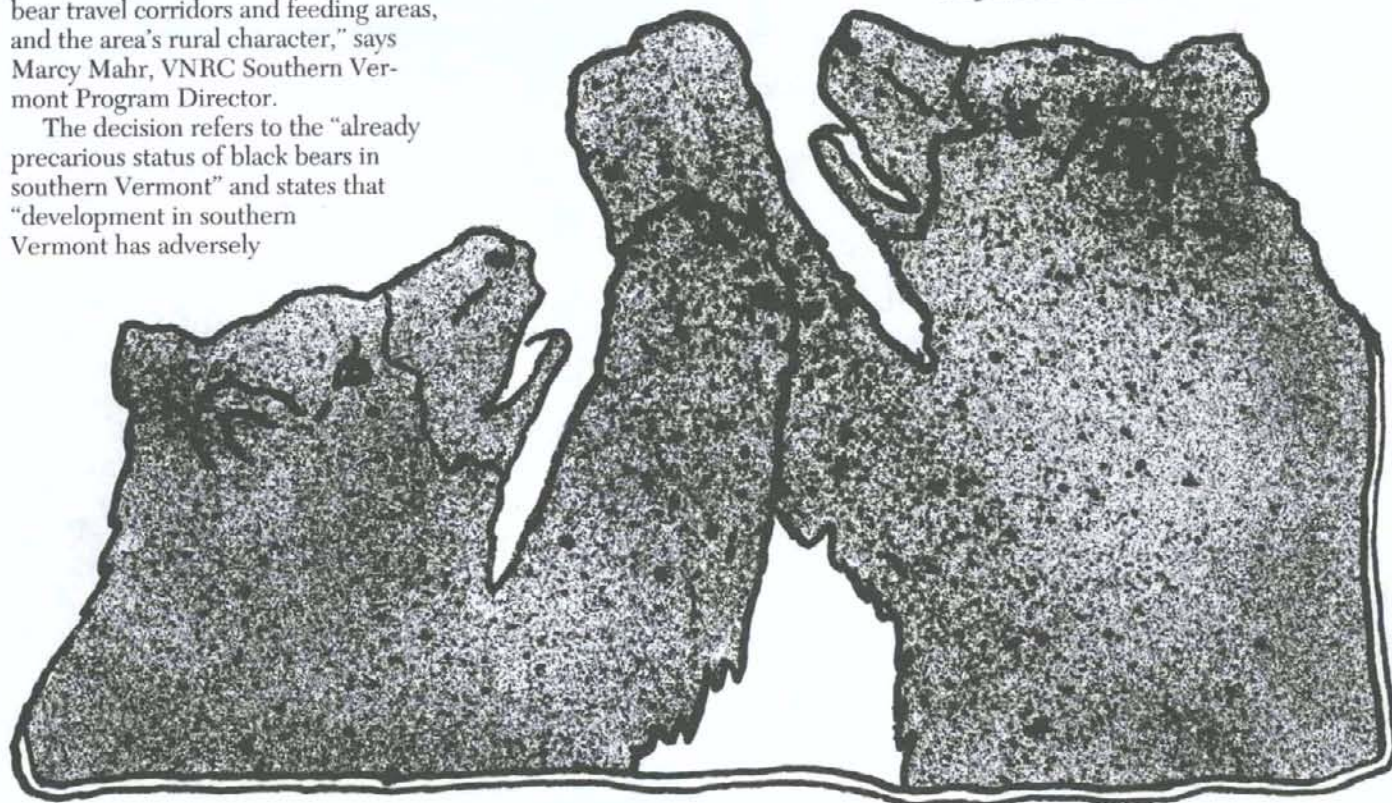


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CUTTING DECISIONS

National Forest Regulations May Be Revisited

Conservationists across the country won a significant and well-publicized victory when a federal court decided against cutting a stand of Washington State old growth forest, in order to save the habitat of the rare Spotted Owl. Ironically, however, the decision has had a ripple effect on Vermont forests — and has illuminated the need for continued public input in the forest planning process.

Due to the Spotted Owl decision, the National Forest's Pacific Northwest Region was unable to meet its assigned timber sale, so the Forest Service reassigned sales to the other regions. Vermont's Green Mountain National Forest (GMNF) was asked to increase its timber sales to 17 million board feet — a million over the amount allowed in its plan.

"The increased emphasis on timber sales would have had a negative impact on other elements of Vermont's plan, including wildlife habitat programs and land acquisition," explains VNRC Forest Director Jim Shallow. "Luckily, GMNF staff was reluctant to see this happen."

After calculating the costs of the increased timber harvesting and the negative impact this would have on the ability to follow the plan, the GMNF transferred the additional timber sales to the Ottawa National Forest. According to Mary Jean Packer, Green Mountain National Forest Planner, the transfer ended up costing the GMNF around \$90,000 because the Vermont had to help pay Ottawa for the administrative costs of the sales.

This bureaucratic maneuver spared the GMNF from having to shift this year's program emphasis to timber sales. However, the episode points to a weak link in an otherwise nationally acclaimed forest plan.

"The Green Mountain National Forest's present Allowable Sale Quantity of 16 million board feet per year seems to be sending a signal to region-

al Forest Service offices and to Washington that the forest can actually produce that amount," says Shallow. "In fact, the 16 million figure might need to be changed in a mid-plan revision to reflect more accurately what the forest can handle."

Meanwhile, however, the Forest Service is proposing changes to the regulations which govern the planning

process — changes which might cast current forest plans in concrete. The draft changes, to be released this fall, would also limit citizen involvement. VNRC will be working to ensure that the regulations continue to maintain a high level of public input in the planning process, so that the plan's multiple use principle is carried out according to the public's wishes. **SC/JS**



EXCEPTIONAL AND IRREPLACEABLE

Dorset Marsh Deserves Protection

It is fed by hundreds of cold springs. It is full of nutrient-rich, limey waters and made of floating sedge meadows, hemlock swamps, cat-tail marshes, and beaver ponds. It is a headwater source for both the Mettowee and Battenkill rivers. It is the Dorset Marsh, and it could become the state's first Class One wetland.

According to the Vermont Wetland Rules, Class One wetlands must be "in and of themselves ... exceptional or irreplaceable in their contribution to Vermont's natural heritage and ... therefore so significant that they merit the highest level of protection under these rules."

In early April, the Water Resources Board heard testimony on the Dorset Class One designation from VNRC, the Dorset Citizens for Responsible Growth and their technical experts, state officials, and neighboring landowners. "Class One" designation would allow only specified activities within the wetland and a 100-foot buffer zone, including some silvicultural activities, existing hydro-electric operations, fishing and recreation.

Witnesses testified that the Dorset Marsh is exceptional for nine of the ten functions enumerated in the wetland rules. Marcy Mahr, VNRC Southern

Vermont Program Director, testified that "maintenance of Vermont's natural heritage implies the maintenance of an ecosystem — species, communities, habitats, mingled together to form an interactive web of life."

The Dorset Marsh petition is just one of several petitions currently before the Board. The Ascutney Audubon chapter has a petition pending to upgrade the Camp Hill Beaver Pond, with its great heron rookery. A petition from the Burlington Conservation Board to reclassify a wetland on Lake Champlain has been stalled by a developer's court injunction. The Agency of Natural Resources has submitted a petition to upgrade the Scanlon Bog in Brandon.

Other reclassification petitions are also in the making. The Central Vermont Audubon Chapter is working on petitions for the Molly Bog and others. A local group is developing a petition for the Cornwall Swamp along the Otter Creek. And several town Conservation Commissions are surveying wetlands in preparation for petitions or development of local ordinances.

The decision on the Dorset Marsh petition has now been delayed, apparently for administrative and procedural reasons. **MM**

ROADS TO BUILD

...and Promises to Keep

"This is a project that expands highway capacity at considerable public cost and very little public benefit. Politically, it is the fulfilling of old promises that no longer make sense." This assessment was part of VNRC's testimony to the Vermont Agency of Transportation on the proposed interchanges in Bolton between Interstate 89 and U.S. Route 2.

A crowd of 100 attended a February hearing on the Draft Environmental Impact Statement (DEIS). Fully half of the Bolton residents who spoke questioned the need for the project.

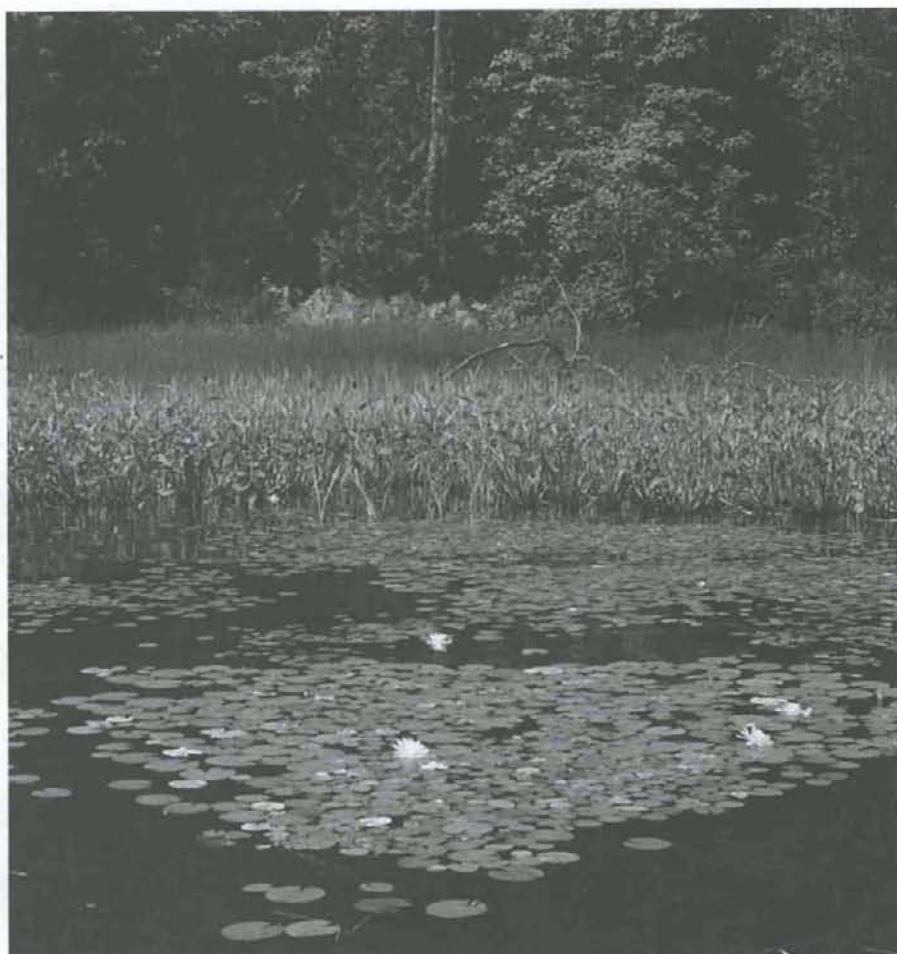
"It's bad enough that the interchanges would displace a small wetland and prime agricultural soils," says VNRC Land Use Director Peg Elmer. "But they are also likely to spawn a great deal of unplanned growth in this rural area."

Commenting on the DEIS as a private citizen, Bolton Board of Selectman Chair Jerry Mullen noted, "As for the benefits, of the four listed in the [DEIS] summary, safety was the last. The first listed is the benefit to Bolton Valley Ski Resort. While this may be a fine goal, I have a bad feeling about using public money to enhance private business."

A U.S. Environmental Protection Agency review noted, "[W]e believe the DEIS does not contain a credible demonstration that the project is needed and fails to rigorously explore less environmentally damaging options for roadway improvement along this corridor. ... We are unaware of any transportation project in New England that has been proposed on the basis of equivalent traffic conditions."

The U.S. Department of the Interior Bureau of Mines noted, "the need for this project is questionable..."

VNRC will continue its opposition to the project. The Senate Transportation Committee is now researching the position of neighboring select boards and planning commission, and is likely to hold a public hearing before deciding on continued funding. **SC/PE**



WETLANDS NEED CLEAN WATER, TOO

Clean Water Act Reauthorization Threatens Wetlands

As the U.S. Congress began debate this spring on the reauthorization of the Clean Water Act, VNRC was taking steps to ensure that Vermont's congressional delegation would be informed on the key issues.

Through the winter, environmental advocates from around the country prepared for the debate by developing a national agenda for clean water.

According to VNRC Water Program Director Steven Crowley, a few major issues quickly took center stage.

"The top issue is wetlands protection," says Crowley. "The Clean Water Act reauthorization has opened the door to those who are determined to undermine existing wetland regulations."

According to National Wildlife Federation legislative staff, there has rarely been such an all-out assault on critical ecosystem protection.

Other Clean Water Act needs include requirements for pollution prevention and toxic use reduction; and funding for municipalities dealing with toxic sewage, and for farms and towns dealing with polluted run-off.

In Vermont, a coalition of water advocates including VNRC, the Lake Champlain Committee, the Connecticut River Watershed Council, and several local river groups, is joining to send a united voice to Washington. VNRC will keep members informed on water advocacy work and needs for public participation. **SC/SCC**

CROSSING TRAILS

Killington Hearings Conclude

Act 250 hearings concluded early this summer on the merger request of Killington and Pico ski resorts in southern Vermont. Developers have requested a twenty year permit to allow construction of new chairlifts and ski trails which would cross the Appalachian Trail; Killington estimates that skier capacity of the combined resorts would increase by 36%.

Last December VNRC, the Appalachian Mountain Club, and several other environmental groups signed an agreement with Killington. (See "Vermont Perspectives," V.E.R. Spring 1991.) According to the agreement, if the 20-year permit is granted, 5,000 acres of key wildlife habitat will be permanently conserved and a variety of development restrictions will be set.

VNRC has been active in promoting a process to anticipate and solve problems such as highway capacity and water supply, reducing the need for bitter and polarized regulatory battles.

"VNRC can accept a growth monitoring process that includes annual check-ups by the District Environmental Commission," says VNRC Executive Director Ned Farquhar. "Now, it is up to the Commission to decide whether Killington is supplying enough information to approve the 20-year permit."

Wastewater treatment has long been one of conservationists' central concerns in Killington expansion plans. VNRC Water Program Director Steve Crowley has argued for realistic "growth checkpoints" to make sure expansion does not outpace the support systems.

VNRC Land Use Director Peg Elmer testified on the need and the potential for successful traffic demand management techniques such as ski trains.

The Commission's decision is expected as this magazine goes to press. Elmer notes, "If the permit is issued based on the collaborative, it will require years of effort and participation from VNRC." **SC/PE**

STUDENTS OF THE RIVER

VNRC Initiates River Monitoring Program

AVNRC-initiated educational water quality monitoring program is being expanded in Manchester.

The Battenkill and other area rivers will be monitored by high school students and citizen volunteers. The program will emphasize river chemistry through measuring turbidity (suspended sediments), acidity, alkalinity, E. coli bacteria (indicator of risk to human health) and dissolved oxygen.

"Real-life research gives students a much greater appreciation for education and the environment," says teacher Tom Hopkins.

Through the program, local river protection groups will be able to document the water quality of the streams and use the data in river protection proceedings, such as Class A up-

grades or Outstanding Resource Water designations. The data will be valuable baseline information for evaluating change in water quality over time.

"I look forward to expanding my work greatly with VNRC in creating a community water quality testing center," says Hopkins. "I wouldn't have been able to pull this together without VNRC's southern Vermont staff."

Financial supporters include the Manchester Rod and Gun Club and the Bennington County Earth Day Committee. The River Watch Network assisted in purchasing of laboratory equipment and in creating a program to ensure data validity.

Several sample runs are planned for this summer. The program will be in full swing beginning in the fall. **DN**

WHO'S AFRAID OF STREAM PROTECTION?

Upland Water Ecosystems are Critical

Upland streams are among Vermont's most remarkable, and ecologically sensitive, ecosystems. They deliver cold, clean water to valley streams; they sustain fragile ecosystems; and they provide drinking water, and recreational and aesthetic enjoyment of the highest quality. When their chemistry is changed even slightly, however, significant alterations to the watershed can be the result.

VNRC has long been a strong advocate of upland stream protection, including working for the 1986 pristine rivers law, and the recent, precedent-setting upgrade of Kidder Brook in Stratton. Most recently, VNRC has been active in stream reclassification efforts on the upper Winhall River and Cobb Brook in southern Vermont. (See "Vermont Perspective," V.E.R. Spring 1990.)

VNRC has worked with local groups to upgrade the waterways to Class A status. Both streams are threatened by surrounding ski area development.

"Residents in the Cobb Brook area have done water quality monitoring, field work and mapping, prepared the petition, and garnered strong support from local and regional officials," says VNRC's Marcy Mahr. "The Cobb has significant ecological value, and we have the facts to prove that it is in the public interest to protect it."

Protection efforts hit a snag this May, however, when the Agency of Development and Community Affairs called for a hearing postponement.

In a letter to the Water Resources Board protesting the postponement, William Roper, attorney for the Friends of Winhall River citizens group, wrote, "The petition has been pending for over one and a half years and it seems incomprehensible that the Department still needs more time. One is left to wonder whether there is more to this request."

VNRC will continue to work for the stream upgrades. The hearings have been rescheduled for July 31. **SC**

TAKING WING

Vermont's Environmental Educators Make Connections for the '90s

Susan Clark

"In Vermont and New England, most environmental education ... and training happens through non-formal programs such as nature centers."

Barry Schultz King,
Keewaydin
Environmental
Education Center

Anyone interested in the role of environmental education in the future of Vermont's schools need look no further than Number One of the Department of Education's *Vermont Education Goals*.

"Vermonters will see to it that every child becomes a competent, caring, productive, responsible individual and citizen who is committed to continued learning throughout life," reads Goal One, with one of the key measures of success being, "Understanding of and respect for the environment, and a commitment to conserve and preserve it."

"We put those goals together by asking people one question: 'What do you want for your children?'" explains Vermont Commissioner of Education Richard Mills. "The environment is listed in the goals because hundreds of Vermonters we talked to insisted that it be there."

Indeed, the demands of the education restructuring movement now sweeping America have striking parallels to the demands that ecologists have been making for years. Community, diversity, interconnectedness, whole-system study, local action and responsibility are principal tenets of both movements, and it is no wonder that they are now combining on the cutting edge of social reform.

Vermont has long been a leader in environmental protection. In the 1990s, signs are pointing to an increase in national awareness of the environment as well — and of the role that environmental education must play in protecting it.

In 1990, the U.S. Congress authorized the National Environmental Education Act. The law calls for a new office in the Environmental Protection Agency, along with new curriculum materials, internships, and a grant program. Some \$15 million was proposed to fund the bill, but ultimately no money was attached. Still, the law is a hopeful sign for educators, who will work toward future funding.

In the non-government sector, the new Alliance for Environmental Education (AEE) promises to connect the many environmental education teacher training programs nation-wide. According to Barry Schultz King, who has been monitoring the planning stages of the network for New England, "The web of regional centers will be made up of colleges and universities in most regions, but New England has proven to be different. In Vermont and New England, most environmental education program

creation and training happens through non-formal programs such as nature centers." King works with dozens of schools herself, as the Director of Keewaydin Environmental Education Center, a residential program for school groups in Salisbury.

Indeed, in Vermont, active environmental education — or "e.e.," as it is known to those in the field — is nothing new. In fact, our little state has some of the most innovative e.e. programs and materials in the country (see following article). The increasing activity at the regional and national levels has, however, created a call to action in Vermont — for networking. Educators see the need to be well organized in the face of oncoming challenges, as well as possible funding opportunities.

"Our state has a unique and highly successful array of non-formal environmental education programs," says Megan Camp, Director of Programs at Shelburne Farms. "Vermont teachers are highly interested and motivated, and we are also lucky to have an active and involved state government."

"So much of what environmental education is about is making connections — showing that we are all part of one big system," says Camp. "We need to listen to our own message, and make a concerted effort to bring all of these people together, so that we can learn from one another."

Camp is the co-chair of the Vermont StateWide Environmental Education Programs (SWEEP), a group that has promoted coordination in the e.e. non-profit sector since 1975. Earlier this year, the group spurred discussion by drafting a "Blueprint for Environmental Education"; now, SWEEP, with VNRC as an active member, is working with the Department of Education to coordinate a broad-based e.e. symposium for early next year.

"It will be very helpful to have a broad cross-section of people — teachers, people who have done significant work in the field, as well as others — to shake out what Vermont's environmental education picture should look like," says Department of Education Science Consultant Alan Kousen. Kousen notes that it will be important to consider the issues in the context of Vermont's education goals.

According to symposium organizers, another critical goal will be to involve community members who may not have been active in e.e. in the past.

"Environmental education has never begun and

ended in the classroom, and now we're seeing even more interest in — and need for — bringing our programs to adults in many fields," notes Delia Clark, SWEEP Co-Chair. Clark runs a public issues program for the Montshire Museum in Norwich, bringing environmental and other issues to business people and community members.

Tom Hudspeth, Professor of Environmental Studies at the University of Vermont, argues that the future of environmental education lies in reaching — and receiving input from — people and organizations outside of traditional environmental circles. Business people, clergy, and other community members will be critical in spreading the word in the "decade of the environment."

Hudspeth adds that in recession times, involving new members of the community will be key to fundraising toward Vermont's environmental education needs. "Many other regions are able to spend more than we can — in Houston, they dispense over \$1 million on environmental education just for the city!" says Hudspeth. "Vermont doesn't have this kind of deep pockets."

"I can't help but wonder whether one of the reasons Vermont has created the many excellent programs we have is the lack of funding — people throw their hearts into environmental education in place of dollars," Hudspeth says. Still, he notes, expanding programs will call for increasing funding. "We need to identify 'environmental education friendly' corporations and businesses. In Vermont, these businesses are used to donating to organizations such as land trusts — as environmental educators, we need to make our presence known," says Hudspeth.

Whether through in-school programs, adult-oriented programs in the community, residential programs at nature centers, teacher training sessions, or curriculum material development, Vermont's environmental education community is thriving by making connections. Even Education Commissioner Mills, who is lobbied daily by different education interest groups, admits that Vermont's interactive, multi-disciplinary environmental education programs are an inspiration.

Mills recalls visiting a school in Middlesex, where environmental educator Joseph Keifer of Foodworks has organized a garden project. The gardens are part of a school-wide program to integrate the students, community, and natural systems. "Much of what we need to do is find connections

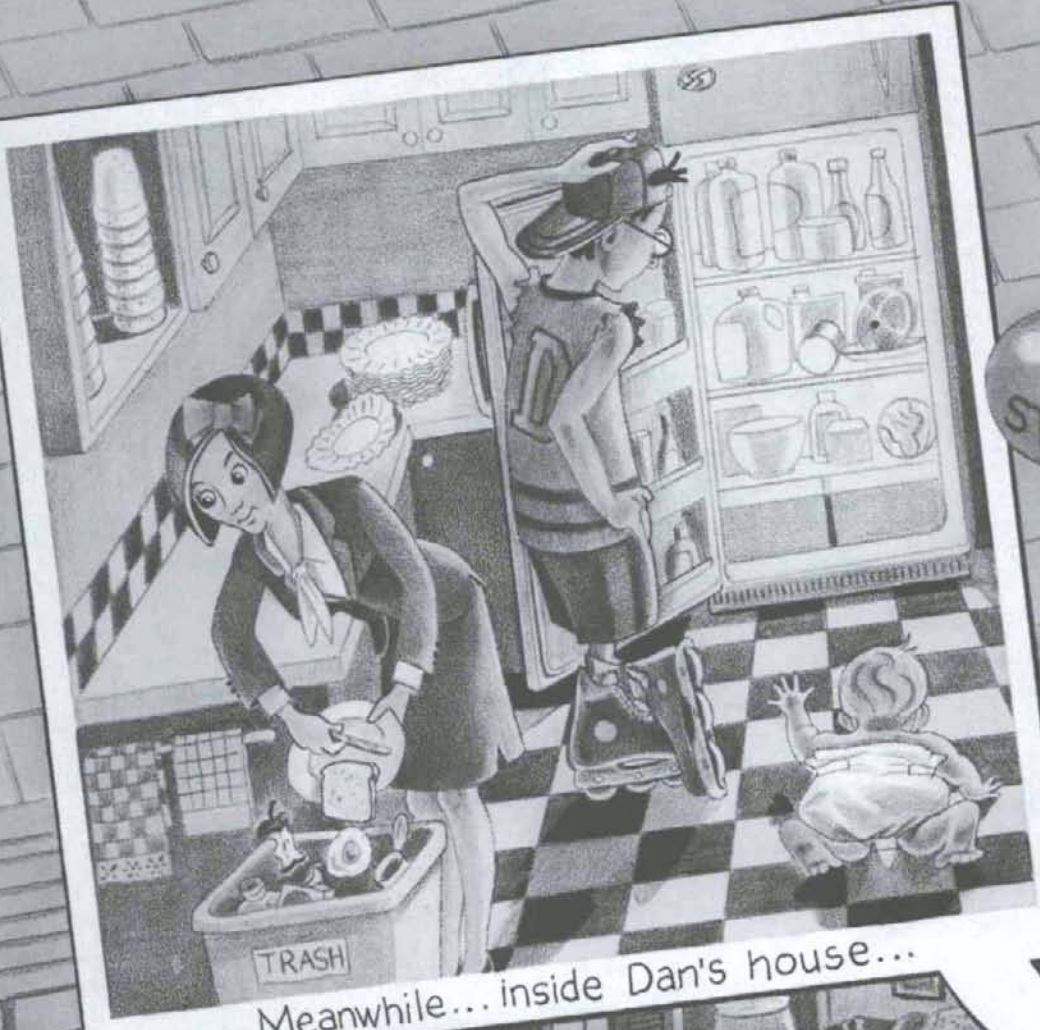
and build on them," says Mills. "When I left the school, one of the last things that happened is that the kids gave me a handful of seed corn. There was a message — I thought it was a wonderful gesture — a kind of an admonition to me to go out and plant my own gardens."

Vermont's environmental educators will highlight community involvement next year when Vermont hosts the Fall, 1992 New England Environmental Education Alliance (NEEEA) Conference. Hundreds of environmental educators from around the region will convene on October 2-4, 1992 at the Breadloaf Campus in Middlebury, focusing on the theme "Painting the Town Green: Environment, Involvement, Empowerment." VNRC is active in conference coordination, and planning work is already underway. Educators, parents, and any interested members of the public are encouraged to be involved in planning. Contact Susan Clark at VNRC.

"The environment is listed in the [Vermont Education Goals] because hundreds of Vermonters we talked to insisted that it be there."

Richard Mills,
Vermont Commissioner
of Education





Meanwhile... inside Dan's house...



FROM VERMONT TO THE WORLD

Six Activities to Share With the Kids in Your Life

Toxic chemicals inside the home / So dangerous they need their own zone / The time is now / The place is here / To drop your stuff / Without a fear / Take it to the Depot!"

Chittenden County schoolchildren delighted this spring to a rap performed by Elvira D. Poe, a wild-looking, dancing character covered with recyclables whose mission is teaching kids to use Burlington's new recycling and hazardous waste depot.

"Let's face it, toxics aren't exactly exciting," explains Ivy Zeller — alias Elvira. Zeller is School Programs Coordinator for the Association of Vermont Recyclers. "Our challenge is to make these issues alive for kids — to show them the problems, but most importantly, to show them their connection, so they can have an effect on the solution."

According to teachers, student understanding and interest levels are greatly enhanced by the creative, interactive programming that typifies environmental education. Organizations providing such programs, whether in nature study, waste issues, agricultural topics, or other areas, are in high demand.

The popularity of Vermont's environmental education programs is encouraging — but can be overwhelming. Two years ago, on the day that Shelburne Farms began taking bookings from school groups visits, they were swamped with calls; within two hours, teachers had booked every opening from September through June. This year, they have been forced to go to a lottery system.

The remarkable success of Vermont's programs has been attributed to many things: a beautiful natural environment; enthusiastic teachers who are eager to open students to other environments; needy

school systems in search of program supplements. But whatever its cause, success has inspired many organizations to "go national" with their curriculum materials. Enthusiastic reviews from teachers, coveted awards, and in several cases, publishers' calls for second and third printings and sequels, have proven that the programs' value is not limited to the Green Mountains.

In addition to locally produced environmental education programs, several excellent national programs are widely popular in Vermont. The granddaddy of e.e. curricula, *Project Learning Tree*, is administered with care by the Vermont Department of Forests, Parks and Recreation, and the Department of Fish and Wildlife administers its sister programs, *Project Wild* and *Aquatic Wild*. In addition, Fish and Wildlife has an array of other educational programs designed to bring the outdoors to kids.

What follows is a selection of some of Vermont's remarkable local talent. Although abridged, each activity gives a taste of the hands-on, creative offerings of Vermont environmental educators. All of the programs mentioned here are now being used in Vermont schools, although some of the activities are excerpted from yet-to-be-released publications — including an exclusive preview of the latest book by best-selling Norwich author Michael Caduto.

Information on these and other environmental education programs is compiled in several excellent directories meeting a range of needs:

- ♦ **The StateWide Environmental Education Programs (SWEEP) 1991-92 Catalogue** lists all SWEEP members and provides program descriptions and contacts. The catalogue is available free from any SWEEP member, including VNRC; if ordering by mail, please include \$1.00 for postage.

- ♦ **The VNRC Vermont Environmental Directory** is a complete listing of Vermont's environmental organizations, including nature centers and land trusts. It also details government agencies, regional and town commissions, university programs, and more. The new 3d Edition will be available this fall. Order from VNRC: \$6.00 for VNRC members, \$12.00 non-members, plus \$1.00 postage.

- ♦ **The Northeast Field Guide to Environmental Education** gives information on groups in all six New England states plus NY, NJ and PA. Send \$26.00 plus \$3.00 shipping to Antioch New England, Box C, Roxbury St., Keene, NH 03431.

"We want to show kids that Earth is the coolest, hippest planet to live on, and empower them to help keep it that way."

Jackie Kaufman,
P-3 Magazine

At left: "Yikes! Disposable Dan and his family are really making a mess of their home — and our home planet! Can you find the 10 eco-awful things in this picture?"

Disposable Dan and a host of other characters make environmental protection fun for kids who read **P-3 magazine**. Distributed nationally, P-3 (for Planet 3 in the solar system, Earth) is created by Randi Hacker and Jackie Kaufman in Montgomery.

(Note: VNRC members are offered a special P-3 subscription rate of \$10.00; write P-3, Box 52, Montgomery VT 05470.)

HERBAL HERITAGE

Exploring the Roots of Our Past

"Central to an appreciation and concern for the environment is the awe inspired by discovering the diversity of life and range of adaptations...."

Eve Pranis,
National Gardening
Association

Our community heritage is rich and colorful. We can capture and recreate some of that heritage by listening to stories about how our elders sustained themselves: gardened, helped each other in community, cared for their homes and the environment when they were young.

How can our elders join us in growing an herb garden? Choose an elder from the community to interview.

The goal of this interview is to find out how your elders gardened with herbs. Sample questions might be: What herbs did you grow? How/when/where did you plant them? How did you tend your herb garden? What did you use the various herbs for? How did you preserve the herbs? You can document your interview in a journal and use it for ref-

erence, as part of a collection of local heritage interviews, or rewrite it later in story form.

Now it is time to start your herb garden! You can invite elders to share their methods of planting herbs. Divide into small groups led by an elder. Gather herb seeds, potting mix, and recycled paper cups and see what happens!

As follow-up activities, consider: planting a community heritage garden; giving away potted herbs as gifts to elders; selling dried herbs; cooking foods with the herbs; creating a poster with pictures of herbs and their different uses.

Joseph Kiefer is the Director of Foodworks, an educational consulting organization in Montpelier specializing in food, ecology and community.

EARTHWORMS

They Get All the Dirt

Up to three million worms might live in an acre of soil, and they can till up ten tons of nutrients important for plant growth. Pretty amazing, aren't they? That's why the earthworm was chosen as the town of Shelburne's mascot on Earth Day.

Take a close look at a worm. Go outside and collect some worms from your backyard or buy some redworms from your local bait and tackle shop. Keep them in a cup or jar filled with some soil. Have a plant mister nearby so that you can keep them moist as you observe them — they will die if they dry out. Use a magnifying glass to get an even closer look.

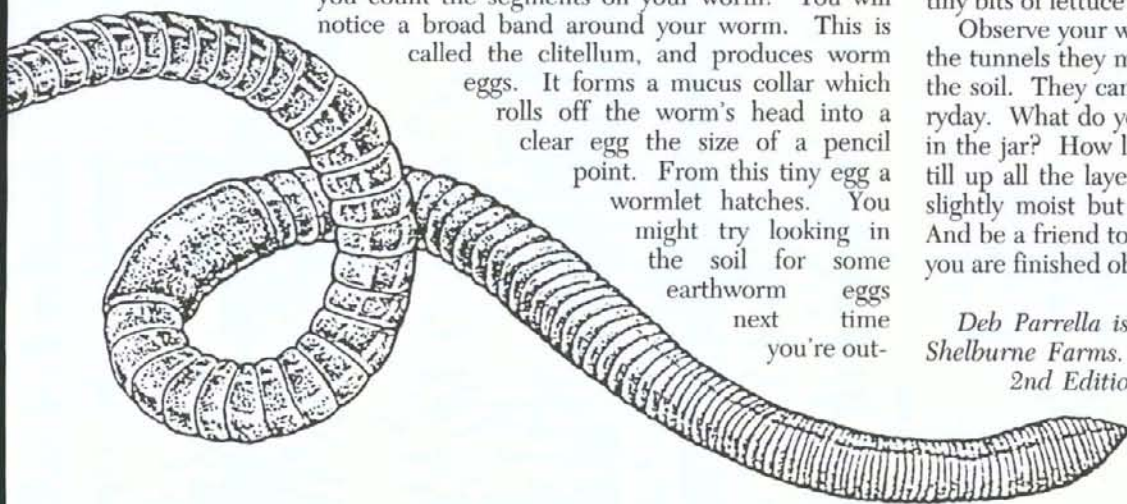
A worm is made of tiny segments. An adult worm can have up to 120 of these segments. Can you count the segments on your worm? You will notice a broad band around your worm. This is called the clitellum, and produces worm eggs. It forms a mucus collar which rolls off the worm's head into a clear egg the size of a pencil point. From this tiny egg a wormlet hatches. You might try looking in the soil for some earthworm eggs next time you're out-

side. Put your worm down and watch it move. A worm is a lot like a waterbed — it doesn't have any bones to hold it up. Its "skeleton" is made of water. It moves by using two sets of muscles. Circular muscles work to flatten the worm out until it is long and thin. Longitudinal muscles work to squeeze the worm together like an accordion. Little bristles on each segment help to grip the soil as the worm moves along.

Let's see if worms are as hardworking as they say. Find a large, clear glass jar. Go outside and collect enough soil, leaves, and humus to fill the jar in layers. Fill the jar, then place 3-4 worms inside. Worms like the dark, so cover the jar with paper or a dark cloth. Feed the worms fresh grass clippings, tiny bits of lettuce and carrot scrapings.

Observe your worms for several weeks. Look for the tunnels they make as they eat their way through the soil. They can eat their own weight in soil everyday. What do you think will happen to the layers in the jar? How long did it take for your worms to till up all the layers? Be sure to keep your worms slightly moist but not too wet or they will drown. And be a friend to your worms — let them go when you are finished observing them.

Deb Parrella is Director of School Programs at Shelburne Farms. This activity will appear in the 2nd Edition of Shelburne Farms' nationally distributed K-6 curriculum guide Project Seasons, to be published late this year.



NATURE THROUGH STORIES AND EXPERIENCE

"How the Butterflies Came To Be"

Michael Caduto of Norwich is an ecologist, storyteller, and bestselling author. His new book of Native American animal stories and wildlife activities, *Keepers of the Animals*, from which he adapted this abridged selection, is due out this fall.

"Long ago, not long after Earth-Maker shaped the world out of dirt and sweat he scraped from his skin, Iitoi, Elder Brother, was walking about. It was just after the time of year when the rains come. There were flowers blooming all about him as he walked. The leaves of the trees were green and bright. He came to a village and there he saw the children playing. It made his heart good to see the children happy and playing. Then he became sad. He thought of how those children would grow old and weaken and die. That was the way it was made to be. The red and yellow and white and blue of the flowers would fade. The leaves would fall from the trees. The days would grow short and the nights would be cold. A wind brushed past Elder Brother, making some fallen yellow leaves dance in the sunlight. Then an idea came to him.

"I will make something," Elder Brother said. "I will make the hearts of the children dance and it will make my own heart glad again."

"Then Iitoi took a bag and placed in it the bright colored flowers and the fallen leaves. He placed many things in that bag. He placed yellow pollen and white cornmeal and green pine needles in that bag and caught some of the shining gold of the sunlight and placed it in there, as well. There were birds singing around him and he took some of their songs and put them into that bag, too.

"Come here," Elder Brother called to the children, "Come here. I have something here for you." The children came to him and he handed them his bag. "Open this," he said.

"The children opened Elder Brother's bag and out of it flew the first butterflies. Their wings were bright as sunlight and held all of the colors of the flowers and the leaves, the cornmeal, the pollen and the green pine needles. They were red and gold and black and yellow, blue and green and white. They looked like flowers, dancing in the wind. They flew about the heads of the children and the children laughed. As those first butterflies flew, they sang and the children listened.

"But as the children listened to the singing butterflies, the songbirds came to Elder Brother.

"Iitoi," the songbirds said, "those songs were given to us. It is fine that you have given these new creatures all the brightest colors, but it is not right that they should also have our songs."

"Ah," Elder Brother said, "you speak truly. The songs belong to you and not to the butterflies."

"So it is to this day. Though they dance as they fly, the butterflies are silent. But still, when the children see them, brightly dancing in the wind, their hearts are glad. That is how Elder Brother meant it to be."

The joy which the butterflies in this story bring to the children of the Papago, a desert people of the arid southwest, is one of the many ways that insects enrich our lives.

Although insects can also be a pest and a nuisance in some ways, life would be difficult, less enjoyable and even impossible without our six-legged friends. Imagine a world in which: all of the animals which eat insects disappeared; our multitude of insect-pollinated foods were not available; silk, beeswax, honey, shellac, and other insect-made products could not be found; the vital scavengers no longer released life-giving nutrients from dead plants and animals; insects used in medicine (treating diseases) and research (i.e. pollution and genetics) were not to be found; the color and beauty of a butterfly's wings, the sound of crickets in summer's heat, the flash of a firefly's glow and the bizarre find of a "walking stick" were just distant memories.

◆ With your child, compile a list of the many gifts we receive from insects. Suggest going through a day saying "thank you" to an insect, or insects in general, each time one of these gifts is used. An example is "Thank you, honeybee" for honey, and for beeswax, which is a common ingredient in lip balm.

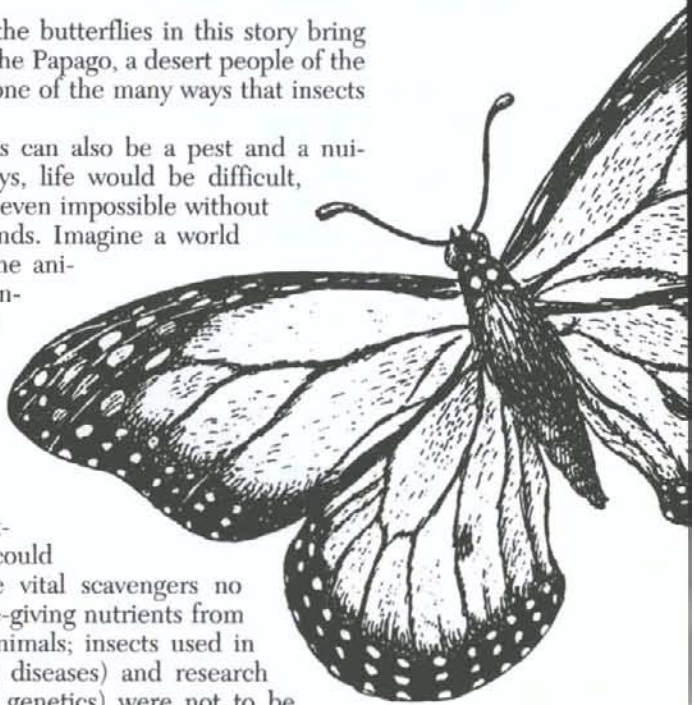
◆ Have the child write a poem, draw a picture or use another form of saying "thank you" to insects.

◆ Write a story about a world in which there are neither insects or any of their gifts.

◆ Hold a "Pollination Appreciation" feast using only foods available as a result of insect pollination.

◆ Have a colorful butterfly festival with butterfly kites, balloons, mobiles, cookies and other fun forms of expression to honor the butterflies.

◆ Cut out colors and shapes from magazines and paste them into a collage shaped like a butterfly.



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LITTER LOOKING

Reducing Waste Starts At Home

"We can encourage personal responsibility by teaching how environmental ... solutions depend on our willingness to change some of our habits."

Jenepher Lingelbach,
Vermont Institute
of Natural Science

The first goal of environmental educators is to initiate children's understanding of the natural world and how it functions. We can then encourage personal responsibility by teaching how environmental problems have grown over the centuries, and how solutions depend on our willingness to change some of our habits.

♦ Try "litter looking." Put on some gloves, and go outside and collect roadside litter. Notice what was living in or under the trash. Bring it home and sort it into piles of recyclables and reusable items. What's left can be divided into biodegradable and non-biodegradable. How much of this trash could have been diverted from the waste stream?

♦ Pantomiming environmental issues can be fun — and colleagues can guess what the problems are and think up some solutions. Try these pantomimes, or make up your own:

Overnight campers try to burn their trash at their campsite. A hungry bear paws through the pile and seriously cuts its foot on the lid of a can.

Boaters throw their trash into the ocean. A turtle thinks a plastic bag is a jellyfish and eats it. The bag

blocks the turtle's digestive tract, and the turtle dies of starvation.

♦ How much of the packaging we buy is excessive? Find an elaborately packaged product, and study it carefully. Try designing a new package or draw a way in which it could be sold with less packaging or no packaging, while retaining all necessary information for the consumer.

♦ To make your own recycled paper, make a "slurry" of bits of paper and water: use a blender or beat the paper and water to mush. Scoop some slurry onto a screen, spread it evenly and pat it as dry as possible with sponges and old newspapers. Remove the damp "mat" of newly made recycled paper from the screen, and set it on an old newspaper to dry.

Jenepher Lingelbach, Education Director of the Vermont Institute of Natural Science in Woodstock, draws these activities from the VINS Waste Away curriculum. Lingelbach is the author of VINS' Hands-On Nature curriculum. Both books are distributed nationally.

PLANT A QUESTION ...

Watch it Grow

Indoor gardening helps educators draw on children's natural curiosity about living things and engage them as problem solvers in garden-based explorations. Educators and students nationwide are using indoor gardens to experiment with plant needs, simulate tropical rainforests, and raise tree seedlings to address global environmental concerns. They are growing "garbage gardens" (from lunchbox leftovers), doing acid rain experiments, creating classroom decomposition chambers, raising food crops from other cultures, and more.

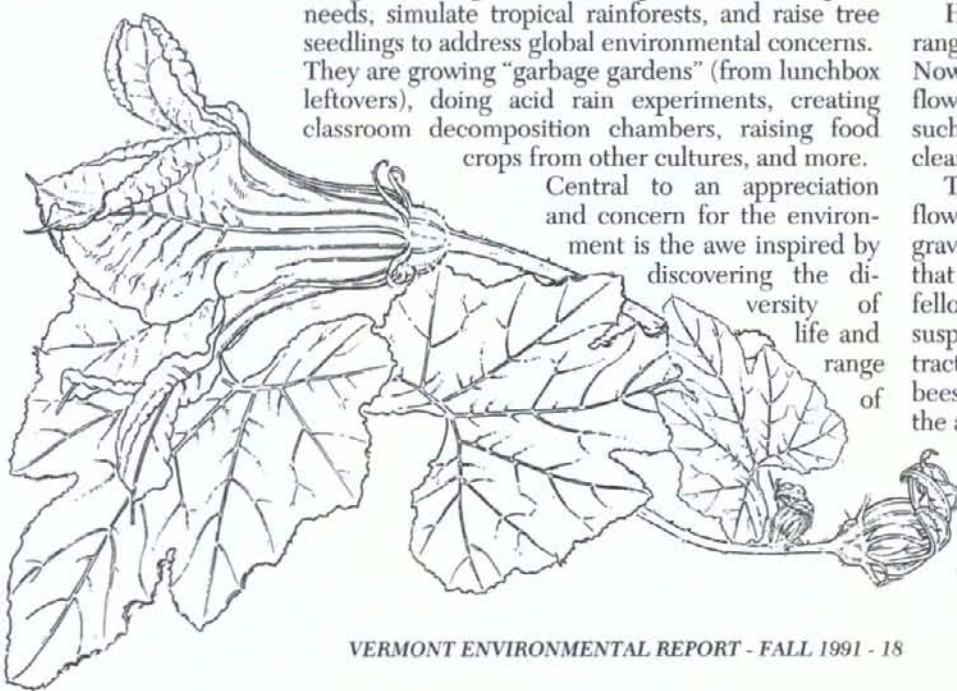
Central to an appreciation and concern for the environment is the awe inspired by discovering the diversity of life and range of

adaptations that help living things meet their needs. Consider this suggestion for reinforcing children's understanding of the concept that every part of a flower is designed not to please us, but to increase its chances for pollination.

Have the children collect and carefully observe a range of flowers; discuss the concept of pollination. Now, challenge them to "invent" their own fictitious flowers. Have miscellaneous construction materials such as glue, tissue paper, pebbles, sticks, or pipe cleaners available.

Try one of these flower challenges: Invent a flower that could pollinate itself with the help of gravity; that could easily be pollinated by the wind; that will make a pollinator think it is approaching a fellow insect; that might be designed so that an unsuspecting human could pollinate it; that would attract a pollinator with a long beak; that would force bees to follow a particular route in and out, touching the anthers and stigma along the way.

Eve Pranis of the National Gardening Association of Burlington excerpted this activity from NGA's K-8 curriculum guide GrowLab: Activities for Growing Minds. •





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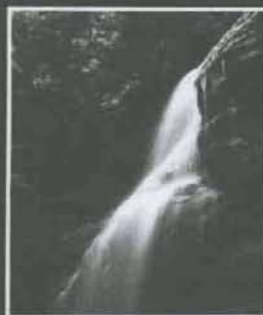


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VERMONT WILDS



Photographs by J. Allen & Linda
Kathleen Gaudin and J. Allen Gaudin
Foreword by Walter P. L. Lundy

VERMONT WILDS

A Focus on Preservation

A VNRC Exclusive!

(See page 26 for details!)

WOODBURY'S COMMUNITY PLANNING PROGRAM...

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A RENEWABLE FUTURE

Vermont Energy Plan Leads the Way

Given the absence of federal leadership, it will be up to the states to hammer out an environmentally sound energy policy.

Andrea Colnes

The sun warms the south facing barn on a still January morning. Finished with chores, the farmer turns off the energy efficient fluorescent lighting and heads across the yard to check on his manure digester which generated the methane to fuel the farm's electrical generator. Then he returns to the barn, and dumps the morning's load of woodchips into the wood gasifier to take care of the day's heating needs....

Although this scene might sound futuristic to us, this type of creative technology to reduce energy consumption and increase local renewable energy use already exists. Whether on the farm, in our homes, businesses, or transportation methods, energy alternatives will be critical to protecting the nation's environment and economy. And as it has so often in the past, Vermont may lead the way.

Last year, President Bush called for "... achieving balance among our increasing need for energy at reasonable prices, our commitment to a safer, healthier environment, our determination to maintain an economy second to none, and our goal to reduce dependence ... on potentially unreliable energy supplies...."

However, the Bush administration is now advocating tired and familiar strategies: producing more and using more, with limited attention to energy efficiency.

"Unfortunately, George Bush's remedy for our nation's insatiable appetite for energy appears to be simply to

heap bigger servings onto an already overflowing plate," notes VNRC Executive Director Ned Farquhar.

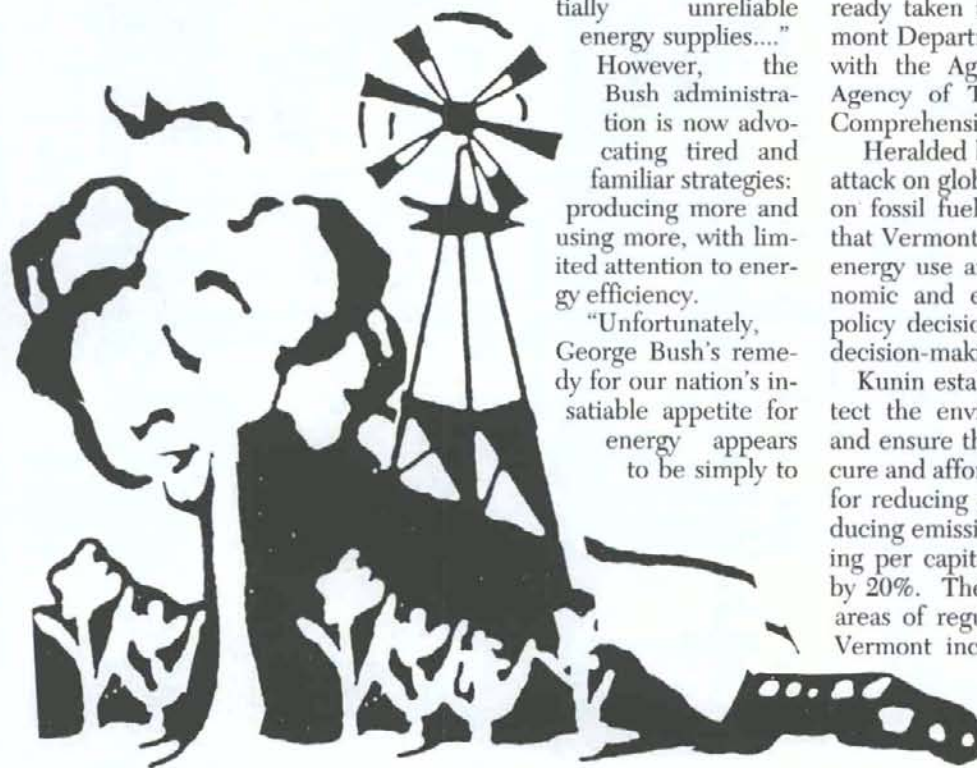
Ironically, in a report on the National Energy Strategy, U.S. Energy Secretary James Watkins stated that the single loudest message they had heard from across the country was to improve America's energy efficiency. Instead, the administration's plan calls for increased domestic oil production and opening sensitive areas to drilling, including the Arctic National Wildlife Refuge; increased use of coal, natural gas and nuclear power; and limiting public comment on new nuclear power plant licensing. (The key elements of this plan are contained in S. 341, which at the time of this writing was under consideration in the Senate Energy Committee.)

Given the absence of federal leadership, it will be up to the states — through internal action and through pressure exerted by their congressional delegations — to hammer out an environmentally sound energy policy.

In response to an executive order issued by former Governor Madeleine Kunin, Vermont has already taken the lead. In January, 1991, the Vermont Department of Public Service in collaboration with the Agency of Natural Resources and the Agency of Transportation released the Vermont Comprehensive Energy Plan.

Heralded by the *New York Times* as a "sweeping attack on global warming, acid rain and dependence on fossil fuels," the plan represents the first time that Vermont has taken a comprehensive look at all energy use and production, and analyzed the economic and environmental implications of energy policy decisions. It provides a framework for the decision-making process, and a blueprint for action.

Kunin established three basic plan goals: to protect the environment, increase energy efficiency, and ensure that all Vermonters have access to a secure and affordable supply of energy. The plan calls for reducing greenhouse gas emissions by 15%, reducing emissions of acid rain precursors, and reducing per capita non-renewable energy consumption by 20%. The policy options considered involve all areas of regulated and unregulated energy use in Vermont including transportation, energy supply, residential and commercial buildings, government, industry and agriculture.



As in the rest of the country, research in Vermont has shown that the greatest potential for energy efficiency and pollution reduction is in the area of transportation. Transportation accounts for almost half of Vermont's energy use and, due to sharp increases in miles traveled by Vermonters, is expected to be the major cause of increased energy demand as we enter the next century.

Transportation strategies presented in the plan concentrate on increasing vehicle efficiency, developing alternative technology, expanding public transportation, and reducing overall demand for transportation. Many of the options can be implemented by the state. Some of the most promising: establishing financial incentives to purchase more efficient cars; reducing transportation demand by encouraging development in "growth centers"; and using fuel tax revenues to fund public transit expansion. Other important measures, such as raising the fuel efficiency of new cars to 40 mpg, would require federal action.

In the area of energy supply, the plan's most significant policies concern expanding renewable resources and continuing conservation and efficiency initiatives already being developed in coordination with Vermont's electrical utilities. At the heart of conservation measures now being implemented by regulated utilities is rate restructuring that makes it profitable for utilities to invest in conservation rather than expanded power sales. The success of the early stages of this program has depended largely on close cooperation between Vermont's utilities, the Public Service Department and leading environmental organizations including VNRC. Continuing this cooperation will be critical.

The plan strongly recommends shifting Vermont's energy sources from non-renewable, expensive and imported forms to locally available, cleaner and renewable energy sources. An area with great potential in Vermont is expanded use of wood as fuel for electrical generating facilities. VNRC is monitoring the emerging technology of wood gasification — where wood is burned at extremely high temperatures to achieve complete combustion. Several studies by the U.S. Forest Service and the Agency of Natural Resources are now underway, to determine if Vermont's

forests can be harvested at higher levels on a sustainable basis. Other important renewable energy sources identified in the plan include solar, wind and other alternatives.

The plan identifies expansion of the existing review of energy use under Act 250 as the most cost-effective way to improve energy efficiency of new construction. Continued investment in conservation measures by Vermont's electrical utilities is considered the most effective means of improving efficiency in existing buildings.

By taking the initiative to develop innovative and practical energy alternatives, Vermont can set an example in New England and the nation. By outlining an extensive array of policy tools and program options, the Vermont Comprehensive Energy Plan has established a useful framework.

The next steps fall into three areas: research and information to identify specific policies appropriate for conditions in Vermont; an extensive public education program to communicate the urgency of developing an energy policy and identify appropriate recommendations; and finally, advocacy to establish a sustainable energy strategy in Vermont's body of law.

Concerned Vermonters, and citizens' groups such as VNRC, will be the driving force behind seeing these options become reality through state planning, legislative action, and federal action. Vermont can lead the way in envisioning — and creating — a sound energy future. •

*Andrea Colnes is
VNRC's Policy
Director.*

*The Vermont
Comprehensive
Energy Plan
provides a
framework for
decision making,
and a blueprint
for action.*



BIKE PATHS

Not Just for Recreation Anymore

Tony Redington and Susan Clark

Bike paths increase economic and social activity without the penalties of noise, pollution and land conversion associated with the automobile.

Vermont communities, like most throughout the country, have historically ignored walking and bicycling as a viable transportation alternative. Recently, though, Vermonters are starting to "vote with their feet" — and opt for non-motorized transportation.

The change is visible in the number and variety of path and greenway concepts in Vermont town and regional plans. And Vermonters' support for the path-way concept was demonstrated dramatically early this year by the avalanche of local proposals for pedestrian-bicycle paths.

In February, Governor Snelling announced that \$500,000 of a previously uncommitted \$20 million in federal transportation funds would be available for building demonstration bikeways and pathways; the Legislature upped that appropriation to \$1 million. Within only two months, 29 different towns had made \$5-million worth of preliminary applications.

The selected demonstration projects — in Essex, Montpelier, Newport, Springfield and Stowe — serve downtown or village center areas. The five dual pedestrian-bicycle and one pedestrian-only pathways meet transportation design criteria: a minimum ten-foot paved travel surface for dual paths (eight-foot for pedestrian only), with two-foot level-graded shoulders. Construction targets for all programs are summer, 1992.

In Stowe, the federal money will be used to ex-

tend the town's highly successful Stowe Recreation Path. With over five miles of trail in place since the late 1980s, the path has gained national recognition as an attractive and practical alternative to road travel.

Anne Lusk, a national force in trails and greenways policy and the driving force behind the Stowe Recreation Path, explains, "We're trying to make Stowe a walking and biking town."

"The path is used extensively by bicyclists and walkers, both local people and tourists," says Lusk. "And we see people of all ages using the path — from children on trikes to elderly people in wheelchairs."

The path's uses go year-round: it is popular for cross-country skiing, while there have also been propo-

sals to plow one side of the path in the winter to accommodate the many walkers.

Lusk notes that the path has been a gathering place for the community, similar to the old country stores in traditional Vermont villages. "We hear that there is more business conducted on the Stowe Recreation Path than in town," she laughs.

VNRC Land Use Director Peg Elmer notes, "VNRC has been a vocal advocate for alternative transportation in Vermont — both through the regulatory process and grassroots organizing — because there is a strong connection between transportation policies and environmental protection." Says Elmer, "We're seeing that the paths increase economic and social activity without the penalties of

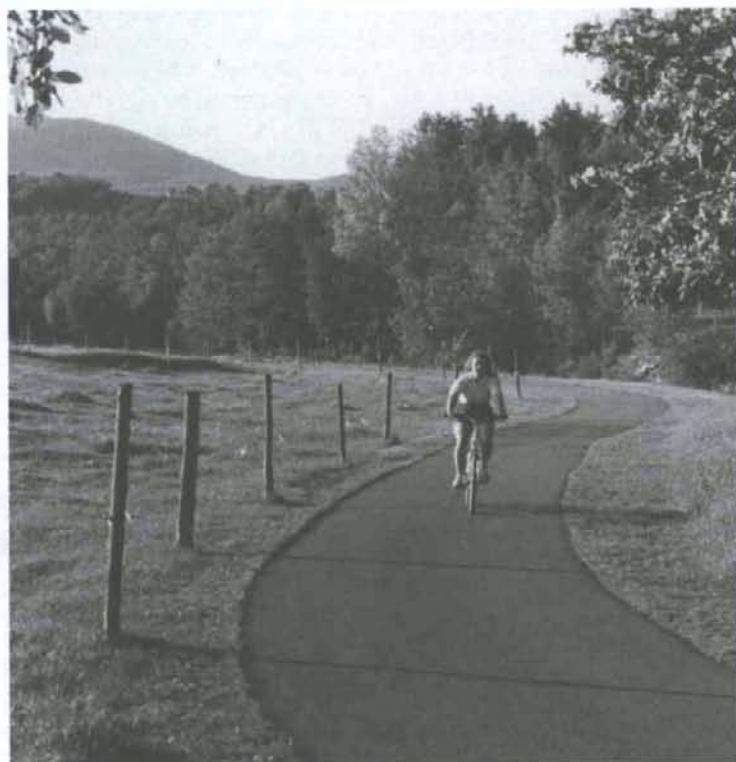


PHOTO COURTESY ANNE LUSK

noise, pollution and land conversion that are associated with the automobile.

"Studies have shown that road building is a self-fulfilling prophecy — you might build a by-pass or widen a road in an effort to reduce congestion, but actually, the new road winds up attracting more traffic," explains Elmer. "Finally, we're seeing that process turned on its head, with positive results for the environment — where we're building bike paths and pedestrian paths, we're seeing an increase in the number of bikers and walkers."

In the northern Vermont town of Newport, a 1.2 mile path will grace the shores of Lake Memphremagog — with plans for a longer trail if monies become available in the future. According to former planning commissioner Martin Y. Fisher, 73% of Newport residents surveyed named a bike path as a priority in downtown revitalization.

"We will be connecting two neighborhoods, the high school, two grammar schools, the central business district and the town park — so the path will see a lot of use as an alternative transportation network," Fisher says.

For several years federal law has permitted the use of federal highway funding for independent pedestrian path development, but only a handful of states developed independent paths. Vermont's demonstration grows out of the efforts of the Vermont Trails and Greenways Council, which represents practically all major trails user groups. Led by Stowe's Lusk, the Council finishes work this year on one of two grants made by the National Park Service to prepare a model state trails inventory and describe approaches to trail development likely to be successful in other states.

The new Vermont bikeway projects forge a unique governmental partnership. The Vermont Agency of Transportation (AOT) and the Recreation Division of the Department of Forests, Parks and Recreation jointly administer the project. From their first inquiry through application, selection, and advertising for construction, towns work with the Recreation Division. AOT deals with technical questions and administers the construction phase.

Applicant towns play the key role. In exchange for completing all work at local expense through the design stage, the town receives 100% of construction costs. Each town must, with the help of the Recreation Division and AOT, cover the critical steps of acquiring access to the land, gaining any applicable state or local permits, and providing the engineering details.

Bettina McCrady, who works on a volunteer basis to spearhead Springfield's project, notes that the development process is not always an easy one. Springfield volunteers have garnered strong local support and town officials' backing, and several landowners of parcels the path will cross have embraced the project. However, owners of a few key parcels are not supportive of the path. Consequent-

ly, Springfield's project may not meet the federal funding deadline.

"Some landowners have initial concerns about security, noise, vandalism, or that the path will be used by motorized vehicles," explains McCrady. "We're working to address these concerns, but it takes time. We're just hoping that funding will continue beyond this appropriation."

Bike path enthusiasts warn that some landowner reluctance is a normal occurrence. In most communities where paths are built, however, property owners become enthusiastic endorsers of bike paths as the paths see high-quality use and, in many cases, enhance land values.

Regional planning will be critical in coordinating community planning for identification of potential inter-town links. Last year, for example, a Winooski Valley Park District and Chittenden County Regional Planning Commission sponsored a short-term intensive greenway planning program. It involved practically all Chittenden County towns in a community-based effort to identify both trails and conservation corridors.

Federal and state transportation policies are beginning to reflect a changing attitude toward non-motorized transportation. Speaking at a biking conference last fall, U.S. Federal Highway Administration chief Thomas Larson was an outspoken proponent of biking, stating, "We'll be better off forty years from now if the baby boomers are bikers today instead of couch potatoes."

The new Vermont transportation goal legislated in 1990 is emphatic: "to provide safe, convenient economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicycles."

This spring, Vermont Secretary of Transportation Patrick Garahan testified before a U.S. Senate subcommittee on the reauthorization of the Surface Transportation Act. Garahan spoke in support of S.965, which would provide the flexibility for more funding to be devoted to bicycle and pedestrian uses — a counter-proposal to the Bush administration's bill. Noted Garahan, "Governor Snelling and I recognize that U.S. surface transportation has indeed entered a new era."

Based on the enthusiastic response of Vermonters, pedestrian and bike paths will continue to spread throughout the state. Path advocates will continue to press for the allocation of a share of Vermont's federal highway dollars on path projects, and according to Stowe's Lusk, "I think the chances are very good that we will continue to get funding." ●

Tony Redington, a member of the Montpelier Recreation Path Committee, is a Policy Analyst for the Vermont Agency of Transportation. Susan Clark is V.E.R. Editor, and rides her bike to work when she's not on deadline.

In Newport, a new bike path will connect two neighborhoods, three schools, the business district and the town park — creating a true alternative to car travel.



*"It is a world
of words,
to the end of it."*

—Wallace Stevens

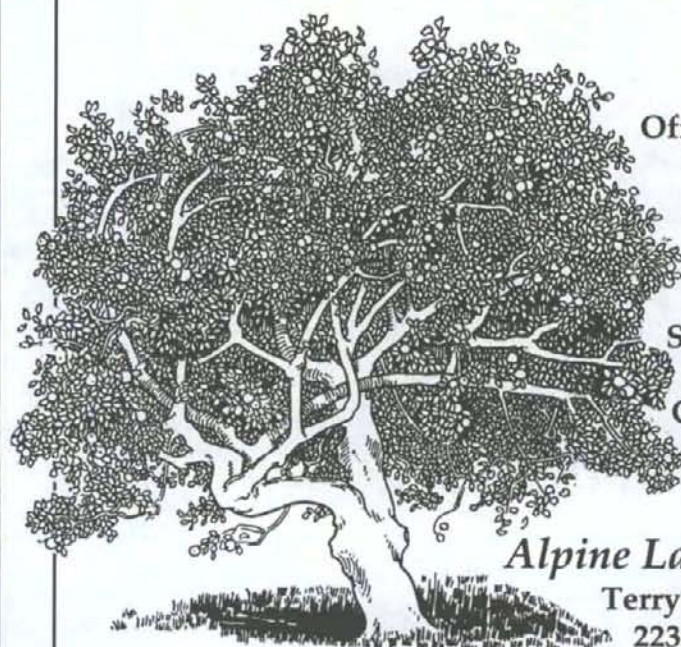
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VNRC NEWS & NOTES

SEPTEMBER 7

HIGHLIGHTS

*Gaylord Nelson, Leahy
Will Address VNRC Meeting*

Mark your calendar! VNRC's 1991 Annual Meeting will be held this year on Saturday, September 7 at Shelburne Farms, on the shores of beautiful Lake Champlain.

The day promises to be exciting, featuring a special keynote address by Gaylord Nelson. Nelson, former U. S. senator from Wisconsin, is Counselor of the Wilderness Society. Sometimes referred to as the "Father of Earth Day," Nelson became known during his eighteen-year stint in the Senate as a staunch environmentalist. Among his many achievements: Nelson was the original author of the legislation to preserve the Appalachian Trail; he sponsored the 1964 Wilderness Act; he introduced the first legislation in Congress to mandate automobile fuel efficiency standards, control strip mining, ban the use of phosphates in detergents, and ban the use of DDT.

VNRC is proud to announce that Vermont Senator Patrick Leahy will be attending our Annual Meeting to receive a special award for environmental accomplishment.

The Annual Meeting will start at 10:00 a.m. with a range of field trips and workshops on a variety of topics. At noon, members and guests may select a buffet lunch, or bring their own picnic. Speakers and the business meeting will be highlighted in the afternoon. At the business meeting, members will be asked to elect new VNRC Board members, as well as vote on a series of changes to our by-laws. Look for your invitation to the event, arriving in your mailbox in August. ●



COLNES BEGINS FOREST, ENERGY PROGRAMS *New Policy Director Brings A Wealth of Talent*

VNRC was delighted this spring to welcome Andrea Colnes as our new Policy Director. Her work will focus on VNRC's new Northern Forest Lands Protection Project, as well as energy work, and coordinating VNRC's policy staff.

Andi comes to VNRC with a strong background in natural resource policy and environmental conservation. She has worked in coastal area management for the city of New Haven, Connecticut; legislative policy analysis for the Maine State Legislature; and international conservation for the World Wildlife Fund in Nepal. Most recently, she helped prepare the Vermont Comprehensive Energy Plan for the Department of Public Service.

Andi holds a B.A. in Political Science from Williams College and a Mas-

ter's in Wildlife Conservation from the University of Maine. In addition to her professional experience, she has traveled extensively, including a 2 1/2-year bicycle journey around the world with her husband, Barry Goodman. She lives in Middlesex.

◆
Other staff changes are also taking place this summer; two staff members are moving on to new pursuits, and we bid them each a fond adieu. **Marcy Mahr**, Southern Vermont Program Director, will begin working toward her Master's this fall in the University of Vermont Field Naturalists Program. Marcy began with VNRC in late 1987 as an intern in our education and lobbying programs. She was the first administrative and research staff at our

new Southern Vermont Office in Manchester, and later moved on to head its policy program. Marcy's efforts in rivers and habitat protection have seen tangible results, and her friendly style has helped give VNRC the support of the southern Vermont community.

Steven Crowley, VNRC Water Policy Director, also leaves VNRC this summer to pursue work in education and wetland and water policy.

Steve began with VNRC in early 1989, and worked to educate Vermonters about Vermont's many new water laws as part of VNRC's Action Center. His skill in policy monitoring has helped continue VNRC's leadership role in water issues. Steve will continue to work with VNRC on several issues including public trust and the federal Clean Water Act. •

FRESH INSIGHTS

Welcome, New Board Members

Several new members were appointed to the VNRC Board of Directors to fill vacancies this winter. We are pleased to introduce the following new directors:

Richard Carbin of Barnard is the Executive Director of the Countryside Institute, which promotes stewardship in rural New England; he is involved in professional exchanges with the United Kingdom and other areas. A founder and former Executive Director of the Vermont Land Trust, Rick is an organizational representative to our board.

Melissa Cunningham of Woodstock is a freelance photographer. The mother of three, she is an active volunteer for a variety of organizations.

George Hamilton is the Executive Director of the Institute for Sustainable Communities, which addresses environmental problems in Eastern Europe. George served as the Director of the Office of Policy Research and Coordination under Governor Kunin. He lives in Plainfield.

Margaret H. Laggis is the Director of Government Relations with the Vermont Farm Bureau. Prior to re-

ALPS MEET GREEN MOUNTAINS Hillside Farming Studied

Ten Vermont farmers, and ten land use professionals including VNRC's Susan Clark, will travel to Switzerland in August for the Hillside Farming and Mountainside Recreation Exchange. The group will tour agricultural areas, hosted by a Swiss mountain advocacy group. In October, Swiss team members will visit Vermont.

"Faced with agricultural pressures similar to our own, the Swiss have taken innovative steps to keep their farming system in place," says Clark. "Although 1991 marks Vermont's bicentennial, it is impressive that it also marks the 700th anniversary of Swit-

zerland. For many reasons, we can learn from the Swiss experience."

Organized by the International Conservation Institute, the exchange has the participation of a number of Vermont groups. VNRC members will receive reports on exchange findings. •

WILDS CAPTURED New Book Is VNRC Exclusive

This book is more than a record of the treasures of Vermont. It is also a compassionate argument for careful, sensitive progress, and for diligent efforts to preserve the rural beauty that still exists."

This praise from the *Bennington Banner* is about an extraordinary new book by VNRC members A. Blake and Pauline Gardner. With a foreword by Patrick Leahy, *Vermont Wilds: A Focus on Preservation* contains 64 stunning full-color wilderness photographs.

VNRC proudly co-sponsors *Vermont Wilds*, having arranged with Storey Communications of Pownal, Vermont, to publish an exclusive softcover edition. With a new membership of \$35.00 or more, VNRC will send *Vermont Wilds* as a thank-you gift to remind each new member that VNRC works to ensure the long-term protection of Vermont's wild lands.

The softcover edition is also available to continuing VNRC members — please write or call Rebecca Sheppard, Membership Coordinator, for details.

VNRC members interested in meeting *Vermont Wilds* author and photographer are cordially invited to book-signing parties with the Gardners, to take place at each of the VNRC offices: August 23, 4:30-6:30, Manchester, and August 30, 4:30-6:30 in Montpelier. •

TRAIN GAINS

VNRC co-sponsored a series of presentations with several Vermont railroads this spring to draw attention to the need for firm limits on truck weights and lengths on Vermont roads. We'll be working more with rail groups in the future, to ensure rail's place in Vermont's transportation future. •

turning to settle in Vermont, Margaret spent several years working for the House and Senate Agricultural Committees in Washington D.C. She lives in East Hardwick.

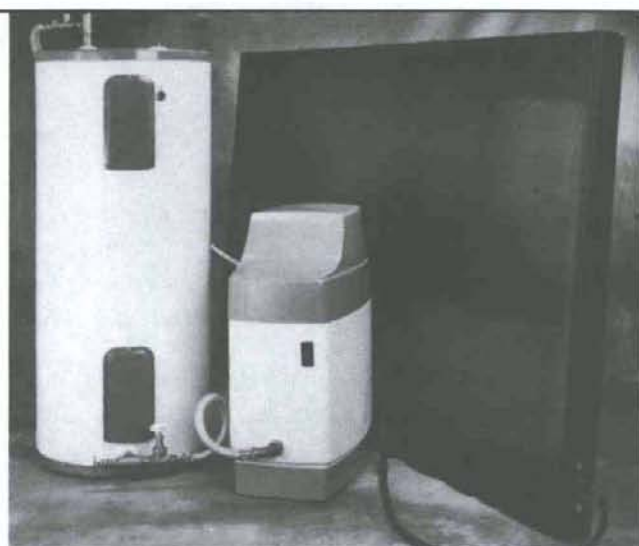
John Meyer of Calais is a forester and woodland manager, and is active in Current Use Tax Coalition and Tree Farm program. He is filling an organizational slot on the Board from the Vermont Tree Farm organization.

Cheryl Rivers is a state senator representing Windsor County, and manages the River Echo Morgan Horse Farm in Bethel. She has extensive experience as a low-income advocate and environmentalist.

Peter Stein is a General Partner in the Lyme Timber Company. Active in a number of environmental organizations, he spent several years working for the New Hampshire Trust for Public Land as a Senior Vice President. He lives in Norwich.

Stephen C. Trombulak of Middlebury is the Director of Middlebury College's Environmental Studies Program, where he is a professor in the Biology Department. •

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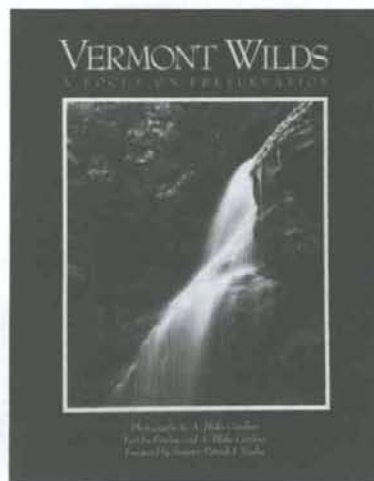
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In an effort to assist Vermont landowners with forest care, the Merck Forest and Farmland Center offers a 3-workshop series on **Understanding Forest Stewardship**. Call Merck Forest in Rupert for more information, 394-7836.

August 23 and 30

You are cordially invited to meet writer/photographers A. Blake and Pauline Gardner — and have your copy of Vermont Wilds autographed! — at a **VNRC Vermont Wilds Book-Signing Party** this summer. See page 26 of this issue for details on these Montpelier and Manchester events.

August 28 - December 11

The University of Vermont will offer a new 3-credit fall course in **Environmental Restoration**. Study the emerging field of repairing and restoring ecological systems and natural landscapes damaged by human activity and neglect. The course will cover historical development of the field through practical application. Wednesdays 4-6 p.m., plus several Saturday lab sessions. Contact Rick Paradis, 656-4055.

September 7

The **VNRC 1991 Annual Meeting** will feature a keynote address by former senator Gaylord Nelson, a special address by Patrick Leahy, plus field trips and workshops on a variety of topics. Please join us from 10:00 a.m. to 4:00 p.m. at Shelburne Farms on lovely Lake Champlain — the public is welcome! VNRC members will receive their invitation in the mail. Call VNRC at 223-2328 for further details.

September 27 - 29

"The Urban Environment: New England from an Historical Perspective" is the theme for the annual conference of the **New England Environmental Education Alliance**, to be held in New Haven, CT. Workshops and field trips will highlight historical and environmental issues. For information, call Alberto F. Mimo, (203) 566-8108.

September 28 - October 14

Paintings, sculptures, carvings and other work by national and internationally known artists will be featured at the Vermont Institute of Natural Science's 12th Annual Wildlife Art Exhibition and Sale in Woodstock. Free and open to the public, 10:00 a.m. - 5:00 p.m. daily. Call 457-2779 for more details.

The Environmental Exchange is a new national non-profit organization that collects and disseminates information about environmental action. If you have examples of effective grassroots actions taken to improve the environment, contact them at 6 Library Court SE, Washington, DC 20003, (202) 544-9136.



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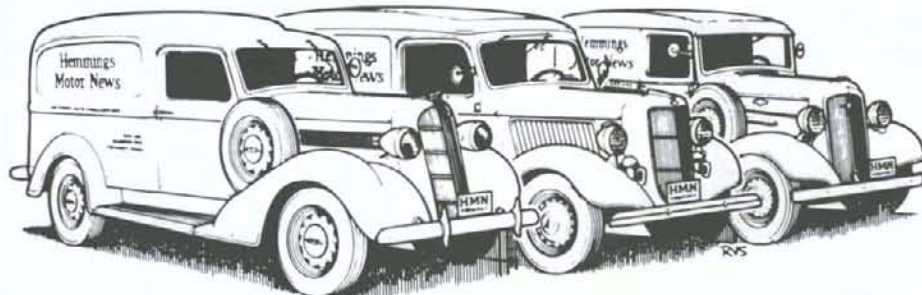
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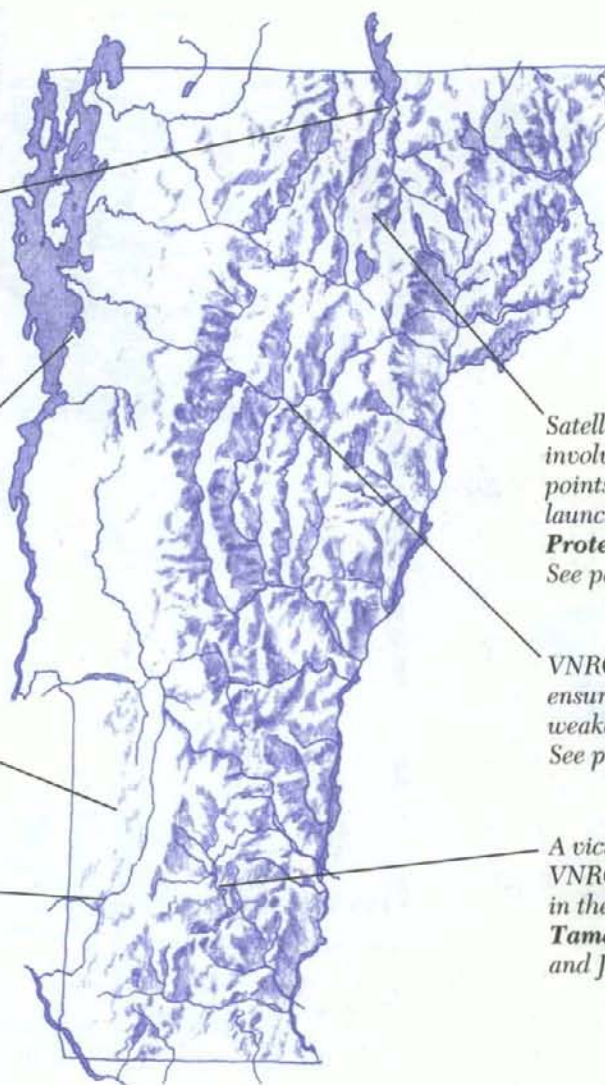
V.E.R. Hot Spots

In Newport and several other towns across the state, new **bike paths** will be used as a transportation alternative — and to enhance downtown vitality. See page 22.

VNRC's 1991 **Annual Meeting** will be held at Shelburne Farms, featuring guests Gaylord Nelson and Patrick Leahy. See page 25.

The **Dorset Marsh** may soon be considered as the state's first Class One wetland. See page 9.

Students and citizen volunteers will monitor the **Battenkill** and other area rivers for pollution, thanks to a VNRC initiative. See page 11.



Satellite images and citizen involvement will be focal points of VNRC's newly launched **Northern Forests Protection Project**. See page 5.

VNRC will be working to ensure that **Act 250** is not weakened by amendments. See page 6.

A victory for the bears! VNRC wins a critical round in the fight for habitat in the **Tamarack** case in Stratton and Jamaica. See page 7.

VERMONT

Environmental Report

Vermont Natural Resources Council
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Forward and Address Correction

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