



News from the Forest

Spring 2004

Redefining “Productive” in The Northern Forest

“Healthy forests are the source of many good things and many good deeds. However, the limits to these things and deeds are very real. We must attempt to limit our demands. We must choose wisely. Most important, we must pay close attention to the consequences of our choices on the forest. To receive real feedback from the forest, the forestry must be as local, as personal, and as community-based as is humanly possible.”

— Finding Common Ground: Conserving the Northern Forest

The Northern Forest Lands Council’s report, *Finding Common Ground: Conserving the Northern Forest* (1994), made it very clear that the public has many, diverse, and sometimes conflicting expectations of the Northern Forest. These include goods such as timber, water, and game and services such as habitat, pretty views, and soul restoration. The NFLC concluded that these demands on the forest require *sustainable* management and then listed nine principles of sustainability.

A forest’s productivity can give insights into the suitability of a particular forest to provide particular goods and services, products and benefits. In his book, *Forest Ecosystems*, David Perry wrote, “Forests are the most productive ecosystems on the earth.” What does this mean and how does it influence our expectations of the forest?

Ecologists define forest productivity as “the accrual of matter and energy in forest biomass.” Matter and energy are stored in forests in many ways. Trees and other green plants are primary producers, storing matter and energy in biomass by using energy obtained directly from the sun to turn carbon dioxide, water, and nutrients into biomass. Animals and microbes are secondary producers that store matter and energy by consuming plant tissues. Primary and secondary producers both play essential roles in the productivity of forests.

Forestry has focused on the accrual of matter and energy in one component of the forest: the trees. American forestry under the leadership of Gifford Pinchot determined long ago that the job of foresters was to establish and then grow high quality trees more quickly. Pinchot said that foresters could influence forest productivity positively if they did three things well:

- prevent damage by destructive insects, fire, and thieves;
- balance the age class distribution so there was a sustained flow of timber; and
- grow many high quality trees that were ripe and ready for the axe.

Today forest productivity is still described in timber terms, such as the number of cords, tons, or board feet grown per acre per year. Silvicultural guides have been developed for nearly all commercial species in the Northern Forest and these guides are, to quote the US Forest Service publication, *Silvicultural Guide for Northern Hardwoods*, by Leak, Solomon, and DeBald, “primarily concerned with timber production.”

Forest inventory systems continue to focus on timber. Even tax abatement schemes often define productivity mainly in terms of timber. For example, in Vermont, forested wetlands are considered *non-productive* because they do not produce 20 cubic feet of timber per acre per year even though forested wetlands accrue very substantial volumes of non-timber matter and energy.

One of the ways Webster defines “productive” is “of or engaged in creating economic values, or the producing of goods and services.” Webster describes “working” as “a part of a mine, quarry, etc. where work is or has been done.” It follows that a ‘working forest’ is that part of the forest where work (i.e. timber growth and extraction) is or has been done. But forests are not mines or quarries. Forests are

living, fragile ecosystems. We can and must do a better job of understanding what makes our forests tick if we are to help conserve their health over time.

Defining “productive” and “working” primarily in terms of timber production and removal does not begin to describe the true economic, ecological, social, and spiritual values, goods, and services of the Northern Forest. All Northern Forests are productive and working even when timber has not been removed. Northern Forests that are managed for timber are more productive when their non-timber values, goods, and services are recognized up front and then carefully conserved.

Timber can and should be used as one measure of forest productivity. However, a more comprehensive interpretation of “productive” is needed to describe non-timber goods and services resulting from the accrued energy and matter in forest biomass. We need to re-examine our interpretation of forest productivity so that it recognizes the other essential goods and services of forests to include such things as carbon cycling and sequestration, cat-ion exchange, water quality protection, diverse habitats, and perhaps even scenic beauty and soul restoration.

Some would say that it is not enough to rely on an expanded view of forest productivity—listed in terms of human benefits—to conserve the forest. This is undoubtedly true. But this expanded view of forest productivity *is* a small step in the right direction that will help conserve the health of the forest. And if humans are seen as the primary beneficiaries of all this conservation, who will complain? Surely not the forest.

May the forest be with you!

David Brynn
Founder, Vermont Family Forests

Certification News

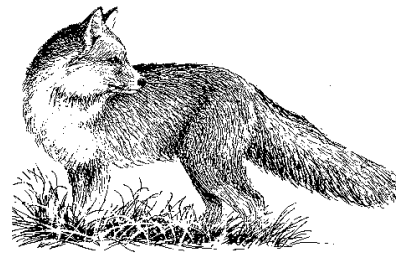
Branching Out

Until recently, VFF has focused its certification and ecological forestry efforts in and around Addison County, in the watersheds of the New Haven River, Little Otter Creek, and Lewis Creek. Limiting our scope helped us to stay “narrow and deep,” knowing that once we established a working model of community-supported forestry, we could extend our efforts to other parts of the state. Though VFF’s community-supported forestry model remains a work in progress, we have honed our certification process to a point that we feel comfortable offering VFF certification to landowners in other parts of the state.

Since January, two new forests—one owned by Katherine Tiballi and Peter Stern, of Shelburne, and the other by the World Learning Center, of Brattleboro—have joined the VFF certified pool. In addition, two forests in Washington County—owned by Richard Czaplinski of Adamant and Paul Cate of Montpelier—are well on their way to certification.

Anyone interested in joining the certified pool should contact us to set up a site visit. During this visit, we’ll take a walk through your woods with you and look at your management plan to determine if and how you would need to modify it to comply with certification standards. VFF will create a preliminary natural community map—based on soils, aspect, topography, and current cover type—which you and your forester can use in creating your management plan. We have put much effort into streamlining and

simplifying the certification process. Our newly certified landowners can attest to the success of these efforts. ♦



A New Kind of VFF Landowner Gathering

For the past two years, VFF has held an annual gathering to bring landowners together and to update them on VFF’s past, present, and future activities. But let’s face it—they were a little on the dry side and didn’t get to the heart of what we’d like such a gathering to accomplish. All of us who are involved with VFF are connected by our love of our forests, and our aim is to celebrate that connection.

So this year, our annual gathering will take place in the woods, in the form of our **First Annual Beltane Community Forest Celebration** (see page 5 for more details). We’re opening our gathering to the community at large, and we hope to see you here to celebrate the return of spring to Vermont’s forests. ♦

EROSION CONTROL REMINDER!

Now that spring is here, you can see, firsthand, where and to what extent your forest access roads need work.

Check your roads—

- Are they rutted? Lacking adequate drainage features like broad-based dips, water bars, and culverts?
- Do they drain directly into streams, vernal pools, or other water sources?
- Would you like to add new access trails but aren’t sure where or how?

Creating and maintaining good access roads is one of the keys to good water quality and is an issue on most private forests.

VFF can to help you build and maintain excellent, affordable access roads.

What we’re proposing:

If you think you have some access road work to be done, let us know. David Brynn, Addison County Forester, will walk your land with you, assess your access needs, and let us know how many hours of work your forest needs. We will then pool all landowner access requests and create a work schedule for this summer (when forests are dry) with a local excavator well-versed in VFF standards. Such pooling will allow him to move efficiently from one job to another for as many days or weeks as it takes to complete all access work. This means that your work will be done as quickly and economically as possible.

What you have to do:

Give us a call! VFF will make all the arrangements for site assessment and work scheduling for July or August.

What about Markets?

Once you have certified your forestland, you can then—if you choose and if doing so fits with the recommendations of your management plan—proceed with a certified harvest. VFF currently offers two ways to help landowners market their harvest. We provide potential customers with a list (you can view this on our website, under “Local Goods and Services”) of any landowners who have FSC certified *lumber* to sell. Currently only one landowner qualifies to sell certified lumber.

All certified VFF landowners are eligible to sell certified *logs*, and VFF offers these landowners the service of listing their standing trees that have been marked for harvest within our portfolio of “trees the forest is willing to yield.” Although several landowners have expressed interest in having their trees included in the portfolio, to date no one has completed the steps (few and straight forward!) necessary for such inclusion. If you want to take advantage of this service, you need to give us a call to find out how. We receive many, many calls from people

interested in purchasing certified logs and lumber. We can send them your way once you add your marked trees to the portfolio.

In our last newsletter, we described a USDA grant we were seeking to help VFF landowners launch a Landowner Cooperative. Four landowners stepped forward to participate in the grant process, and many others were interested in and supportive of the effort. The USDA didn’t offer funding for the project, so it is on hold at the moment.

We know that much more needs to be done to address the economic constraints that small forestland owners face in marketing forest products, and we encourage any of you interested in value-adding and marketing to actively participate in moving this forward. If such marketing is to be sustainable, landowners must take a leading role in the process. Vermont Family Forests, in its capacity as a non-profit education foundation, will offer as much support as possible to landowners pursuing these market initiatives. ♦

Research and Demonstration Projects

VFF Evaluates Biomass Potential for Middlebury College

Looking for ways to reduce carbon emissions and meet more of its energy needs locally, Middlebury College hired VFF to conduct a study to assess the potential for regional forests to sustainably supply biomass (namely woodchips and logs) to fuel the College’s heating plant. The VFF research team members, including team leader and ecologist Marc Lapin, Mel Gullikson, Deb Brighton, David Brynn, Lee Perlow, and Netaka White, launched the study in mid-November, submitted a draft on New Year’s Eve and a final report on January 31, 2004.

The College currently uses 2 million gallons of #6 diesel fuel oil annually. The Biomass Study assessed the availability of 30,000 green tons of biomass from Addison and Rutland Counties to replace that fuel oil consumption, a move that would reduce the College’s carbon emissions by about 50 million pounds per year. Since its involvement with the then-fledgling VFF organization in 1998, when we provided 95,000 board feet of green-certified lumber for construction of Bicentennial Hall, Middlebury College has demonstrated its concern and support for local, sustainably managed forests and the regional economy.

The College plans to make the Biomass report available to the public in the near future through a link on their website, and we encourage you to take a look at it. ♦



A Burning Question

How can burning wood instead of fuel oil reduce carbon emissions? Trees capture and store carbon during photosynthesis, a process known as carbon sequestration. Although the carbon is released when the wood is burned, if wood is harvested and burned at the rate it grows in the forest, there are no net carbon emissions. Burning a gallon of diesel fuel releases 24.7 - 26 pounds of carbon dioxide.

Great Forestry Resources

New England Wildlife, by Richard M. DeGraaf and Mariko Yamasaki. University of New England Press, 2001.

Part one of this excellent book provides habitat, natural history and distribution information on birds, mammals, reptiles and amphibians, while part two provides tables that show which species will be found in which habitat types—a great tool for any forest steward.

<http://tnc-ecomagement.org/Forest/Resources/>. On this web page, you’ll find The Nature Conservancy’s down-loadable *Forest Operations Manual*, an excellent resource for information on practicing ecological forest management.

<http://forestryjudging.nres.uiuc.edu/>. This site, created by the University of Illinois Extension Forester, offers easy-to-understand instruction in basic forestry skills, including tree and tree fruit identification, using a tree scale stick, and using a compass. ♦

SPOTLIGHT ON VFF'S FOREST MANAGEMENT CHECKLIST

At the heart of VFF's vision of ecological forest management is its Forest Management Checklist. If landowners adhere to these 36 management practices, they will protect water quality, conserve or enhance site productivity, and maintain or improve native biological diversity on their forest lands. Below, we highlight one of the 36 practices, explaining what it's about and how you can achieve it. For a complete listing of the 36 practices, visit our website, www.familyforests.org, under "Publications," or give us a call (453-7728) and we'll mail you a copy.

Narrow and Light

by David Brynn, Addison County Forester

VFF Forest Management Practice: "Use equipment that is as small as possible and that exerts the lowest possible ground pressure."

"In tapping the lower levels of water in the subsoil – forest trees are like great pumps drawing at a deep well – they also tap the minerals dissolved therein."

– Sir Albert Howard, in "The Soil and Health," 1945

Healthy soil has been described as a placenta that allows living things to feed upon the earth. One characteristic of a healthy soil is its physical condition as indicated by its water infiltration capacity, aeration, and root growth.

Healthy soils in our temperate forests can absorb over 20 inches of rain per hour. Some surface forest soils have been reported to absorb rainfall at the rate of 250 inches per hour! These soils are well aerated deep into the subsoil. This allows trees to dig deep, to gain access to more nutrients and more water, and to grow rapidly. It also allows them to resist being blown over by gusty winds.

The high infiltration capacity and aeration of forest soils is the end result of many ecological processes. Excavating critters such as earthworms and white-footed mice and plants like our tap-rooted oaks and calcium-mining beeches can have positive impact on a forest's infiltration capacities*. Large amounts of



Paul Cate skids logs under frozen winter conditions with his Vimek forwarder while VFF board president Paul Ralston and Director of Forestry Laura French look on.

* Scientists are currently exploring the negative impacts of non-native earthworms on northern forest soils—see *Northern Woodlands*, Autumn 2003 issue, pg.44, for a related article. Also, see the Spring 2004 issue of *Northern Woodlands*, pg. 19, for more information about forest soil compaction.

organic matter deposited in the form of leaves, branches, and whole trees can make forest soils act lack sponges.

Soil organisms live in the soil pores. This is also where the roots grow. Compaction can greatly reduce these soil pores and, consequently, soil health. Timber harvesting equipment – including bulldozers, log skidders, and forwarders -- can have a significant impact on the physical condition of a forest soil. Small machines with excellent weight displacement are one way to protect the physical condition of a forest's soil.

Cable and grapple skidders are the most common machines used to move felled trees from the stump to the landing. When used with real care – under frozen winter conditions with well-designed trails and maintained trails – negative impacts to the physical condition of soils can be limited. But there is better equipment on the way!

In Europe, forwarders have replaced skidders in many countries. Forwarders come in a variety of shapes and sizes. The Vimek Forwarder, for example, is only six feet wide. It has six wheels where most skidders only have four, better facilitating weight displacement. Paul Cate, a forester and logger operating in the Montpelier area, operates a Vimek forwarder. Other forwarders have eight wide tires, and some have tracks that help displace the weight.

Another important characteristic of the forwarder is that the logs are loaded on a bunk and then rolled out of the forest. Logging slash can be lopped to the ground and the forwarder can roll right over the top of it. This reduces the exposure of bare mineral soil which is easily compacted.

So, when working in the woods, keep the amount of bare mineral soil to a minimum through excellent planning and by harvesting under frozen conditions. Use small equipment with excellent weight displacement. And consider using a forwarder.



Remember, VFF sells a variety of ecological forestry products, including non-petroleum bar and chain oil, water-based boundary marking paint, and organic shade tree fertilizer. See the insert enclosed in this newsletter, or visit our website "Local Goods and Services" page for details!
www.familyforests.org

VFF Events

GAME OF LOGGING, LEVEL I

April 17, 2004, 8:00 a.m.-4:30 p.m.

\$125 (fee includes ½ gallon of Greenbar non-petroleum bar and chain oil.)

Because the Game of Logging workshop series provides such useful information for chainsaw users of all skill levels, VFF offers GOL training twice a year. In Level I, participants learn the fundamentals of saw handling and control, systematic chain saw maintenance, and how to maximize equipment performance. They also learn site evaluation techniques, as well as new techniques for precise felling, limbing and bucking. The course will be held at the Waterworks property in Bristol and is limited to 10 participants. Pre-registration required.

BELTANE COMMUNITY FOREST FESTIVAL

May 1, 2004, 5:00 p.m.

This spring, VFF will hold its first annual Beltane Community Forest Festival at the Waterworks Property in Bristol. Beltane, also known as May Day, celebrates the coming of spring. Co-sponsored by The Watershed Center, the Beltane Festival will include a lake-side bonfire, potluck dinner, music, drama, dancing, and more!

HOW HEALTHY ARE MY FOREST SOILS?

May 15, 2004, 9:00 a.m. – noon

\$15

Soil health is critical to forest health and productivity. Come explore soil ecology with UVM soils scientist Don Ross at the Waterworks property in Bristol. Participants will gain hands-on experience in determining soil types and measuring soil pH, and will learn what defines soil health and how to manage a forest to maintain or improve forest soils.

BIRD HABITAT STEWARDSHIP IN THE FAMILY FOREST

May 29, 2004, 9:00 a.m.-noon

Ornithologist and naturalist Warren King and VFF Director of Forestry Laura French will lead participants on a walk through Lincoln's Colby Hill Town Forest to identify birds, learn about their habitat needs, and find out how to manage forestland to maintain or enhance these habitat conditions. This free workshop is part of the on-going Biodiversity Workshop Series, sponsored by the Colby Hill Fund, Vermont Community Foundation.



Ben Shepard (left), of Shepard Maple Production, answers a sugaring question for VFF landowner Chris Johnson (center). The Art of Maple Sugaring workshop took place January 31, 2004, at the Elder family sugarbush.

Come Celebrate Beltane!

*Come all ye lads and lassies
Join in the festive scene
Come dance around the maypole
That will stand upon the green.*

Better known as May Day, Beltane celebrates the height of spring and the return of greenery and abundance to our northern world. Mid-way between the spring equinox and the summer solstice, May 1st also marks the beginning of solar summer, the three months in the Northern Hemisphere with the most daylight hours. The name Beltane comes from the Irish Gaelic “Bealtaine” or the Scottish Gaelic “Bealtuinn,” meaning “Bel-fire”, the fire of the Celtic god of light (Bel or Belinus).

Celebrated for centuries across Europe, Beltane customs vary from country to country, but all include a bonfire, feasting, and dancing—usually including some variation on the May Pole dance. Traditionally, Celts led their cattle between two Beltane bonfires

before leading them off to summer pasture. Young women bathed their faces in the morning dew on May Day to retain their beauty.

VFF landowners take note—May Day rituals also included walking the boundaries of one's property (“beating the bounds”) and repairing fences and boundary markers. Consider making that part of your May Day celebration, and bring along a paintbrush and a bucket of VFF's water-based boundary marking paint when you go!

At our first annual Beltane Community Forest Celebration, we'll gather at the shores of the Norton Brook reservoir at the Waterworks Property for a bonfire and potluck. Festivities will include a May Pole dance, drama, singing by the Allegra Children's Chorus, drumming, music, and bread baking. Bring your children, bring your friends, bring a drum or other musical instrument if you can, bring a dish to

share and a flashlight in case you stay past dark, and celebrate spring! ♦

Colby Hill Ecological Project

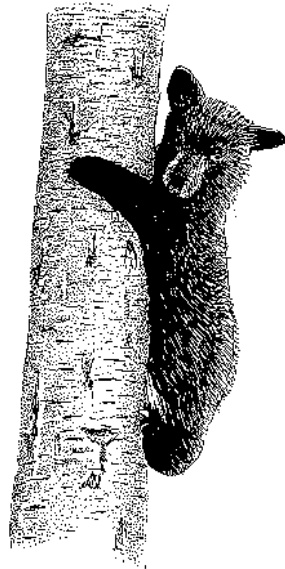
The Colby Hill Ecological Project monitors the biological diversity—plants, amphibians, reptiles, birds, mammals, invertebrates, lepidoptera (butterflies), and odonates (dragonflies)—of 680 acres of private land in Lincoln and Bristol, Vermont. Now entering its sixth field season, CHEP is accumulating information that will help provide baseline ecological data against which the biodiversity, biological integrity, and water quality of other properties in this region can be measured.

Managing for Biodiversity Conservation Across the Landscape

As a landowner, there are many things you can do to conserve your forest's health. You can maintain water quality by carefully planning and maintaining your access roads. You can boost forest soil health by avoiding soil compaction, grazing, and rutting, thereby conserving site productivity. You can maintain snags, dens, large downed woody debris, and vernal pools, which offer habitat for wildlife. But no matter how well you manage your own forest, the health of its native biological diversity depends largely on forest health on a broader level that extends well beyond the boundaries of your property – what ecologists call the “landscape scale.”

In several Vermont communities, residents are collaborating to plan for forest management that maintains contiguous forest tracts, wildlife corridors, riparian buffers, and wetlands across the landscape. In Newfane, Vermont, for example, landowners began talking together about maintaining wildlife habitat. These conversations led to creation of the Newfane Wildlife Habitat Improvement Group (WHIG), an affiliation of landowners that includes 50 properties covering 7,000 acres in three towns. WHIG landowners coordinate management plans to maintain natural communities, wildlife habitat, and travel corridors.

Lincoln's Colby Hill area not only links the Champlain Valley lowlands to the spine of the Green Mountains, but also bridges two significant blocks of conservation land in the Green Mountain National Forest—the Bristol Cliffs Wilderness and the eastern flanks of Mount Abraham. In the coming months,



CHEP will be talking with landowners in this region to explore the idea of collaborative planning to help ensure that natural communities and wildlife corridors on these low-elevation mountain lands remain healthy and intact. Lincoln's landscape is a special place that attracts people with deep interest in land stewardship, and the impetus of the Colby Hill Ecological Project primes the area for cooperative “neighborhood” management.

Ecological diversity is high in the Colby Hill area, with a mosaic of many natural community types, including various upland forest communities, forested and open wetlands, shallow to deep soils, seepy to dry slopes, and sandy to ‘heavy’ loam flats. Plant life, small mammal populations, and insect and spider assemblages have been seen to differ among all these different parts of the landscape.

Maintaining connections with natural forest cover and maintaining large areas of the different natural communities is important to the survival and proliferation of many native species. Because genetic exchange and population dynamics occur at large scales, they require intact landscapes where ecological processes can flow across property boundaries. Learning ‘what's where’ on the land is the first step in understanding where human management activities can be most critical, and working together as neighbors is one of the best ways that we can maintain the natural resources we value. ♦

2003 CHEP Field Season in Review

The CHEP research team has completed studies for the 2003 field season. Once researchers have submitted their findings, we'll compile them and create a report of the 2002-2003 field results. You are welcome to stop by VFF to take a look at this report, as well as reports for the previous four field seasons. As in previous field seasons, researchers inventoried birds, plants, reptiles and amphibians, butterflies, invertebrates, and mammals on 680 acres of private land in the Colby Hill region of Lincoln. ♦



CHEP Biodiversity Workshop Series

CHEP's Biodiversity Workshop Series is designed to teach landowners about biological diversity in their backyards and to offer tools for studying and maintaining this biodiversity. Our series began with "Conducting a Biological Inventory in Your Family Forest: A Case Study of Lincoln's Colby Hill Town Forest" in September, 2003. Twenty-five participants learned how scientists conduct such an inventory and learned tips for monitoring and protecting the habitat of wildlife species on their own property.

In January, 2004, we offered a winter tracking workshop during which 20 hearty souls joined tracker Greg Borah in -20° weather to look for animal signs in the Colby Hill Town Forest. (PHOTO)

In May, 2004, ornithologist and naturalist Warren King and VFF Director of Forestry Laura French will team up to lead a workshop entitled "**Bird Habitat Stewardship in the Family Forest.**" In this free workshop, Warren will help participants identify birds and teach about their habitat needs, while Laura will offer suggestions of how to manage forestland to enhance these habitat conditions.

This summer, we plan to offer a two-part natural community mapping workshop. In part one, you'll assemble and interpret maps of your forest (including soils, orthophotos, and topographics) and use these to create a preliminary map that roughly delineates the natural communities on your property. In week two, participants will visit one of these mapped parcels and learn how to field check their map. Part one will be taught by Addison County Forester and VFF Founder, David Brynn. Plant ecologist Eric Sorenson, of the Vermont Nongame and Natural Heritage Program, will teach part two. We'll let you know as soon as we have clarified a date for this exciting workshop.



Bristol resident Cassandra Corcoran (center) and other workshop participants examine bear claw marks in a red spruce with workshop leader Greg Borah (center right) during the Winter Tracking workshop, part of the Biodiversity Workshop Series. Greg performs large mammal monitoring for the Colby Hill Ecological Project.

Forest Tools Library in the Works

At VFF, our most important work is to help landowners connect with their forestland and empower them to gain the knowledge and resources they need to ecologically manage their forests. In that spirit, we offer workshops that teach about forest biodiversity, forest processes, and ecological management techniques.

VFF is also beginning to create a forest tools "library", from which landowners can borrow. Whether or not you plan to record data, these tools can help you learn a lot about your forest. At the moment we have 10-factor prisms to lend, and we'll be looking for grant sources to expand our offerings to include clinometers, increment borers, compasses, diameter tapes, and so on. We plan, during the coming year, to offer a workshop in using basic forestry tools.

We also have tree and log scale sticks for sale. VFF's tree scale stick was made for us by Maple Landmark in Middlebury. Our stick offers all the information included on conventional scale sticks, which allow you to measure tree diameter, lengths of merchantable timber, and board footage. What's more, it provides VFF's tree and log grading charts and a beautiful laser engraving of VFF's logo. \$15.00.

Vermont Family Forests needs your support! ✂

VFF runs a very lean operation to develop and sustain all the exciting education, forestry, community equity, and marketing projects you're reading about in this newsletter. With your help, we can continue and expand our work to conserve the health of the forest community and, when appropriate, to promote the careful cultivation of local family forests for community benefit.

Please help us carry out this good work.

Your tax-deductible contributions make our efforts possible. Please consider sending a gift today.

ρ \$25 ρ \$50 ρ \$100 ρ\$500 ρ\$1000 ρ Other_____

Name_____ Make checks payable to Vermont Family Forests.

Address_____ City_____ State____ Zip_____

For your gift of \$100 or more, we'd be delighted to send you a VFF t-shirt. Please circle size: Child L, Adult

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Who's been to dinner? Honey combs on the ground and a ragged hole in this snag tell of one black bear's sticky meal in Jean Wagner's VFF-certified forest.