

# NATURAL HERITAGE HARMONIES



WINTER 2006

A publication of the Nongame and Natural Heritage Program

Vermont Fish & Wildlife Department  
Agency of Natural Resources

*Conserving Vermont's fish, wildlife, and plants and their habitats for the people of Vermont.*

## Cerulean Warblers Finding winter warmth but uncertain future

By Lilla Stutz-Lumbra

Slipping my coffee, I gaze out at the snow-blanketed fields and mentally brace myself for the cold—the kind that freezes your eyelashes together.

Days like these make me wonder what it would be like to spend the winter in warmer climates, like many of Vermont's neotropical migratory songbirds that nest in Vermont during the summer and travel to the tropics for the winter. The bright blue winter sky brings to mind the Cerulean Warbler—a small, sky-blue songbird



that often eludes birdwatchers because it spends most of its time high in the upper canopy of mature forests.

Once abundant in parts of eastern United States, the Cerulean Warbler is rapidly disappearing. Its breeding range extends from the lower Great Lakes region, southern Quebec and New England south to northern Louisiana and northwestern Georgia.

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## Restoring Vermont's Rare Sandplain Forests to Chittenden County



Lilla Lumbra

*Dave Winward of Green Mountain Power collects pitch pine cones as part of the department's efforts to restore Vermont's rare sandplain forest.*

High above the ground, Dave Winward, a lineworker for Green Mountain Power, leans out of the bucket of the line repair truck and clips a branch from the tall pitch pine. Below, Bob Popp, Fish & Wildlife Department botanist, and contractor Brett Engstrom anxiously look on, hoping the pitch pine cones attached to the branch hold viable seeds.

The seeds collected from the pitch pines growing at the Sandbar Wildlife Management Area (WMA) in Milton are part of an effort to restore sandplain forests to Chittenden County.

“Pine-Oak-Heath Sandplain Forests

are one of Vermont's rarest – and certainly one of its most threatened – natural communities,” said Popp. “With their deep, well-drained soils, areas occupied by this community are in great demand for residential and industrial development. It's estimated Chittenden County had about 15,000 acres of sandplain forest before European settlement. Today we have only about 650 acres. Much of the rest is now housing developments, airports, commercial areas, pine plantations, and agricultural fields.”

Sandplain restoration efforts began in the early 1990s at Camp Johnson in Colchester. Pitch pine is an important

*continued on page 3*

# DEPARTMENT UPDATE

*By Ron Regan, Director of Wildlife*

I am pleased to announce that Vermont's Wildlife Action Plan, the product of a two-year planning effort to conserve wildlife and wildlife habitat was recently accepted by the U. S. Fish and Wildlife Service.

A blueprint for the conservation of all of Vermont's wildlife, the Wildlife Action Plan is the largest planning effort of its kind in Vermont's history. Development was led by the Fish & Wildlife Department who worked with representatives of more than 60 local, state and national agencies, sportsmen and conservation groups, academics, land managers and other wildlife experts.

The Action Plan emphasizes acting before wildlife become threatened or endangered. It's chock full of conservation strategies that all Vermonters can help implement—from state and federal agencies to local communities and non-profit groups to individual landowners.

All U.S. States and Territories agreed to develop Wildlife Action Plans and submit them to the U.S. Fish and Wildlife Service by October 1, 2005, as a condition of accepting State Wildlife Grant Program funding.

The State Wildlife Grants program is a vital new addition to the traditional, and overstretched programs, that fund state wildlife management. Most importantly SWG provides additional monies for the conservation and restoration of the wildlife that our Nongame & Natural Heritage Program specializes in.

**A thoughtful gift is now a bargain too:** Your tax-deductible donations to the Nongame Wildlife Fund have always been important to the conservation of Vermont's wildlife. Now, thanks to the State Wildlife Grant program, those donations can be effectively doubled—and even tripled! Why? Because federal funds come with a state match requirement, so your \$100 donation leverages between \$200 and \$300 of SWG funds.

To learn more about the Action Plan and the SWG and how you can help implement go to [www.vtfishandwildlife.com/swg\\_cwcs\\_report.cfm](http://www.vtfishandwildlife.com/swg_cwcs_report.cfm). To learn more about tax-deductible donation to the Nongame Wildlife Fund go to [www.vtfishandwildlife.com/support\\_nongame.cfm](http://www.vtfishandwildlife.com/support_nongame.cfm) or call 802-241-1454.

## Hot Off The Press...

### *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*

The second edition of this beautiful and useful resource is now available. The book describes the eight biophysical regions and the 80 natural community types recognized in Vermont. This 456 page paperback book may be purchased from bookstores for \$24.95. The full reference is: *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*. E.H. Thompson and E.R. Sorenson. 2000 and 2005. Published by The Nature Conservancy and Vermont Department of Fish and Wildlife, distributed by University Press of New England. ISBN 1-58465-077-X. An electronic version can be found in the library section of the department's website: [www.vtfishandwildlife.com](http://www.vtfishandwildlife.com).



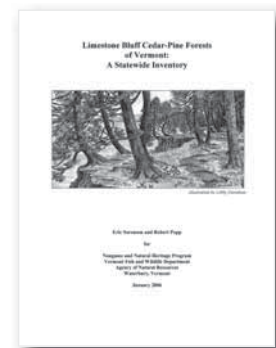
### *Baitfish of Vermont*

This 38-page guidebook is designed to help baitfish dealers and anglers identify the species of baitfish that are legal to use for fishing in Vermont. Sixteen species of approved baitfish are described, including color photos and key identifying features. The booklet also has important information on non-native invasive fish species. To obtain your free copy, call 802-241-3700, e-mail [fwinformation@state.vt.us](mailto:fwinformation@state.vt.us), or visit a Fish & Wildlife office.



### *Limestone Bluff Cedar-Pine Forests of Vermont: A Statewide Inventory*

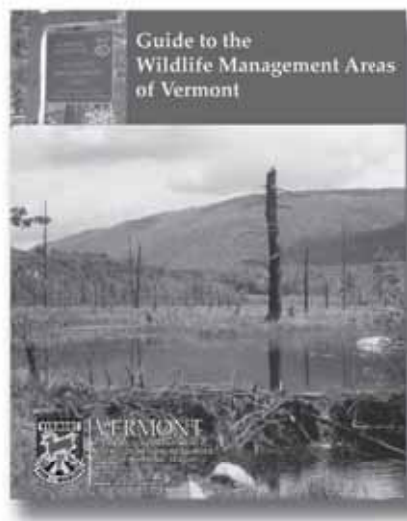
The rugged limestone bluffs rising from Lake Champlain topped with stunted, wind-swept cedars and a carpet of wispy sedges make Limestone Bluff Cedar-Pine Forests one of Vermont's most beautiful natural communities. They also are one of the rarest and most threatened. Twenty-one significant cedar bluffs were visited during a two year statewide inventory and the results are described in this recently completed department report. The report can be viewed on-line at [www.vtfishandwildlife.com/wildlife\\_nongame.cfm](http://www.vtfishandwildlife.com/wildlife_nongame.cfm) and limited printed copies are available by calling Eric Sorenson at 802-241-3714.



# Coming soon...

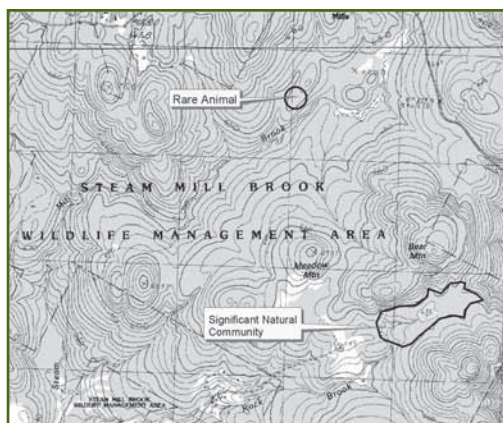
## Guide to Wildlife Management Areas of Vermont

The Vermont Fish & Wildlife Department manages 81 Wildlife Management Areas totaling over 118,000 acres. This guide is designed to help Vermonters and visitors experience the richness of the wildlife resources of our beautiful landscape. It features detailed colored maps of each Wildlife Management Area with UTM coordinates, plus a general description, a brief history of the land and its acquisition, habitat features, and what common fish and wildlife you may see while visiting the area. For more information call 802-241-3700, or e-mail [fwinformation@state.vt.us](mailto:fwinformation@state.vt.us).



## GIS update of the Endangered Species Layer

The department's Nongame and Natural Heritage Program will be posting an updated rare species and significant natural community GIS layer with the Vermont Center for Geographic Information (VCGI) in early March. This layer has been converted from point data to polygons. It includes the approximate boundaries of the species or natural



Here's an example of how information is displayed on the updated rare species and significant natural community GIS layer.

community, or is represented by buffered points. The attribute data indicates if there is a plant, animal or natural community, its legal status and rarity rank. The name of the species is not provided.

Download this data from the VCGI website: [www.vcgi.org/](http://www.vcgi.org/) and then click on the data warehouse tab.



# Restoring Vermont's Sandplain Forests

*continued from page 1*

component of this rare natural community and Camp Johnson is one of the few remaining sites of pitch pine populations in Vermont. About 200-300 mature pitch pines grow on this property.

Pitch pine seeds were collected from Camp Johnson and Colchester Point. Genetic analysis was done to compare these seeds with ones collected from other areas. The remaining seeds were germinated and planted.

Pitch pine is well adapted to fire. Its bark protects the trees from light fires that can kill other species. Fire helps remove competing plants, and pitch pine seeds germinate only in bare mineral soil such as that left after a fire burns away the leaf litter.



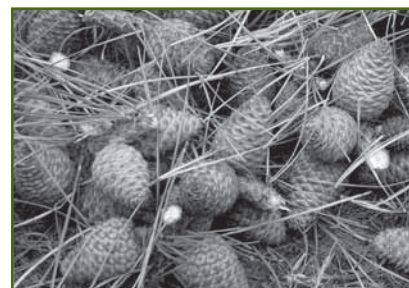
Lili Lumbrera

Brett Engstrom and Bob Popp check pitch pine cones collected at Sandbar WMA in Milton for viable seeds.

“We conducted two ecological burns at Camp Johnson to help regenerate the pitch pine stand,” explained Popp. “In 1995, eight acres were burned. They were burned again in 1998 along with an additional six and a half acres. During the second burn we protected about 20 pitch pine seedlings that had naturally germinated following the first prescribed burn.”

Over 400 pitch pine seedlings have been planted at Camp Johnson following the prescribed burns, the result of seed collections done years earlier. Management activities continue at this site, including cutting back competing tree sprouts and brambles in areas where pitch pine was planted, and treating the young pines with a chemical repellent to deter moose browse.

“We are now considering restoration actions for the sandplains at the Sandbar WMA, and the seeds we collected in October 2005 will be useful in this effort,” said Popp. “This is the third largest sandplain remnant in the state, comprising approximately 150 acres. Sandplain forests are part of Vermont’s natural heritage and restoration will help ensure that examples of this natural community remain for future generations to enjoy.”



Lili Lumbrera

Seeds from these pitch pine cones will be used for future plantings.

## Cerulean Warbler *continued from page 1*

It is most abundant in southern Missouri and Wisconsin, eastern Kentucky, eastern Ohio and West Virginia.

In Vermont, the known Cerulean Warbler population is very small, varying from four to six pairs.

It was confirmed as a Vermont breeding species in June, 1977. Vermont's first Breeding Bird Atlas (1985) reported Ceruleans from only two areas along the eastern region of Lake Champlain. They were observed in the tall riparian forest next to the extensive swamps along the Lamoille River. Silver maples and eastern cottonwood are the dominant trees in the area.

Evidence of probable breeding has recently been observed at sites in Colchester, Essex Center and Highgate Center as part of the 2003-2007 Vermont Breeding Bird Atlas.

Ceruleans migrate south in late summer. They travel across northeastern North America to New England and the Maritimes, then over water through Bermuda and the Lesser Antilles, arriving in western South America by October. They inhabit the eastern slope of the Andes from Columbia and Venezuela through Ecuador to Peru. Ceruleans are generally restricted to mid-elevation forests (500-1800 meters) in their wintering area.

In the spring, their migration takes them through the West Indies and Bahamas to the northern Gulf Coast of the United States and northeastward through the Mississippi and Ohio river valleys. Ceruleans are nocturnal migrants and usually arrive on their breeding areas in late April or early May.

The Cerulean Warbler's breeding population has declined faster than any other warbler species in eastern North America. Since 1966 its numbers have dropped 70 percent.

Ceruleans nest in mature deciduous forests that feature large, tall trees and an open understory. They appear to be "area sensitive" in that they require large, relatively undisturbed areas to breed successfully. The loss

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***The Cerulean Warbler's breeding population has declined faster than any other warbler species in eastern North America. Since 1966 its numbers have dropped 70 percent.***

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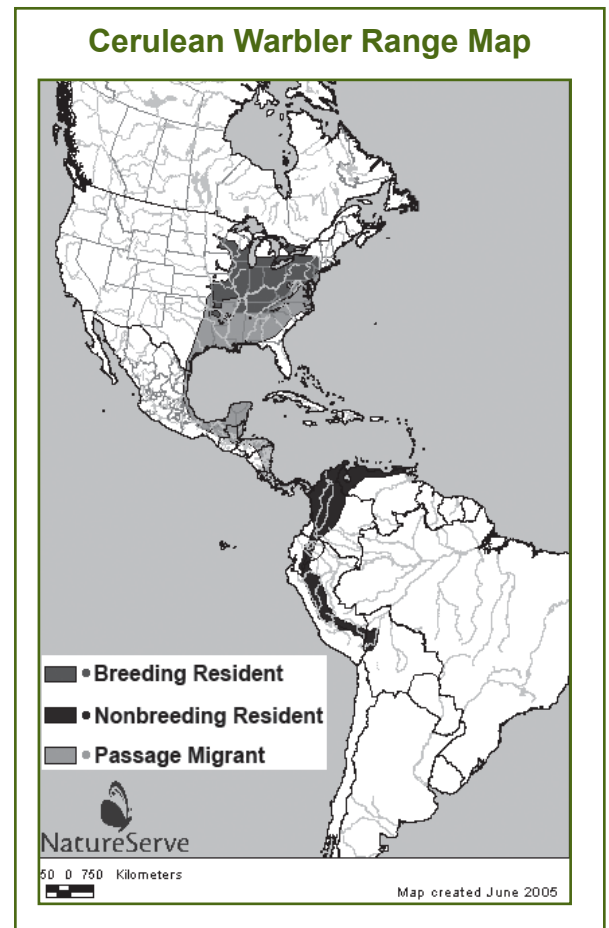
and fragmentation of these forests to logging, agriculture and other human development are believed to be contributing to their decline. The forests where Ceruleans winter are among the most threatened in South America and are being seriously impacted by coffee, tea and cacao production.

Although the Cerulean Warbler numbers have declined across their range, researchers have observed a subtle shift in their range toward the northeast. This may be in response to large-scale maturing of the forest in this region. More investigation is needed to determine if the shift is a true range expansion or a re-colonization of habitats that were occupied decades earlier. Most scientists agree, however, that a secure future for this bird will require the conservation of large unbroken tracts of forest in their breeding and wintering grounds.

The Cerulean Warbler is not currently listed as an endangered species in the U.S., although a petition was submitted to the U.S. Fish and Wildlife to list it

as a threatened species under the Endangered Species Act in October 2000. In Canada, it is listed as a "Species of Special Concern," and it is receiving considerable attention on a state-by-state basis. In Vermont, Ceruleans are not listed as threatened or endangered, but they are considered rare, a species of special concern, and were recently designated a "Species of Greatest Conservation Need" in Vermont's Wildlife Action Plan.

Finishing my coffee, I feel better knowing I'm drinking shade-grown, organic, fair-trade coffee because its production has less impact on the wintering habitat of Ceruleans and other neotropical migratory songbirds. Heading out into the cold, I briefly envy the Cerulean Warblers and the tropical warmth of their winter home. Then I think about their long journey to get there and the uncertainty of finding suitable habitat, and decide maybe Vermont winters aren't so bad.



# Cerulean Warbler

*Dendroica cerulea*

Stuart Tingley



**Description:** A small songbird with long wings and a short tail. The adult male is a bright cerulean blue above and white below. He has wide white wing bars, a narrow black breast band and black streaks along his flanks. The adult female is dull turquoise above and yellowish-white below. She also has wide wing bars but no breast band or distinctive streaking.

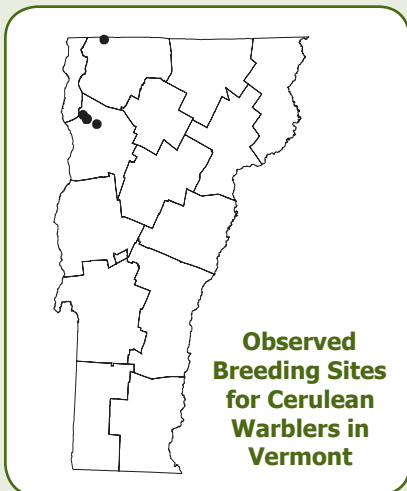
**Song:** Only the male warbler sings. Vocalization is rapid buzzy notes on one pitch followed by a short series of rising and accelerating notes, ending with a high buzzy trill. ZHEE ZHEE ZIZIZIZI zzzzeet.

**Habitat:** Needs large tracts of mature deciduous forest for breeding. Prefers open woods with tall trees and relatively little undergrowth. Often found near bottomlands and rivers, but also occupies upland forest habitats.

In winter found in mature, humid evergreen forests on the eastern slopes of the Andes Mountains.

**Diet:** Insects, especially larval butterflies and moths and during non-breeding season feeds on nectar.

**Biology:** Cerulean Warblers are monogamous and usually raise one brood per breeding season. Typically fledge three to four nestlings. The male Cerulean lives an average of three to four years; the lifespan of the female is unknown.



Stephen D. Faccio



# Thanks !

Thanks to contributions to the Nongame Wildlife Fund, more young peregrines hatched and flew from Vermont cliffs than ever before!

## Donating to the Nongame Wildlife Fund is a Smart Investment.

Your tax-deductible contribution pays big dividends by helping us:

- Conserve wildlife before they become more rare and more costly to protect.
- Protect clean water and air—making both wildlife and people healthier.
- Conserve wildlife and the places they live for our children and grandchildren.

## It's Easy to Donate:

1. **Line 29A on the Vermont tax return**
2. **Section 4 on hunting/fishing license application**
3. **Conservation License Plate**
4. **Direct donations – use the form below or go to our website: [www.vtfishandwildlife.com/support\\_nongame.cfm](http://www.vtfishandwildlife.com/support_nongame.cfm)**

I'm sending \$ \_\_\_\_\_ to help Vermont's wildlife.  
*This is a tax-deductible contribution.*

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E-mail: \_\_\_\_\_

*Please fill out the information below if paying by credit card and be sure the address above is your billing address for credit card.*

Credit Card (circle one) Visa      Mastercard

Card Number: \_\_\_\_\_

Expiration Date (Required): \_\_\_\_\_

Please Sign Here: \_\_\_\_\_

*Send this form, along with your donation, payable to the*  
**Nongame Wildlife Fund, to: Nongame Wildlife Fund,**  
*Vermont Fish & Wildlife Department,*  
*103 South Main Street, 10 South,*  
*Waterbury, VT 05671-0501*



## Thank You

# State Wildlife Grants in Action

From the depths of Lake Champlain (sturgeon and rainbow smelt) to the high elevation montane forests (Bicknell's thrush) the State Wildlife Grants program, along with your donations to the Nongame Wildlife Fund, has made more than 39 wildlife conservation and research projects possible in Vermont. Here are a few project "snapshots..."

## Lake Sturgeon

Sturgeon numbers in Lake Champlain dropped dramatically in the first half of the 1990s due to commercial fishing and loss of spawning

habitat. Lake sturgeons are listed as an endangered species in Vermont. With funding from the State Wildlife Grants program, Vermont Fish & Wildlife Department biologists documented spawning activity, by collecting sturgeon eggs or larvae, in all four rivers that had been used as spawning sites in the past. Future efforts such as improving habitat, removing obstructions to historic spawning sites, public education and continued protection efforts should put Lake Champlain's lake sturgeon on the road to recovery.



*Adult lake sturgeon captured during the spawning run in the Winooski River*



*Lake sturgeon larvae collected by driftnets in the Winooski River, 2004*

## Stream Temps

Temperature is a significant factor in determining a stream's fish community. Some of Vermont's coldwater streams are marginally too warm in the summer to support healthy populations of coldwater fish species. Through State Wildlife Grants funding, we are using temperature modeling to explore the effects of land use on stream temperature. This project will help tell us if our efforts to restore conserve vegetated buffer zones along streams are making a difference in improving aquatic habitats and the associated aquatic life. It also let us track trends in the condition of Vermont's stream habitats on a long-term basis.



*Fisheries scientist Rod Wentworth retrieves data from a temperature data logger. Mad River, Moretown.*



*Temperature logger records the stream's water temperature every hour. The data is downloaded to the office computer for analysis.*

*Designing, installing and maintaining better stream crossing structures will restore aquatic habitat connectivity and improve fish and wildlife movement in Vermont's rivers and streams.*



## Better Crossings

There are countless barriers, such as culverts and dams that prevent fish and wildlife from moving up and down Vermont's streams and rivers. Culverts in particular pose a daunting challenge, as there are literally thousands of them in Vermont's landscape with the potential of more being installed every day as Vermont continues to develop.

With funding from the Wildlife Conservation and Restoration Program (the precursor to State Wildlife Grants program), and in partnership with the Vermont Agency of Transportation, the Vermont Fish & Wildlife Department hosted an intensive training session with a national expert where more than 60 transportation managers, fishery biologist and others learned state-of-the-art fish and wildlife friendly road designs.

# Celebrating Success

Folks gathered in early October 2005 to celebrate the recovery and delisting of the common loon, peregrine falcon and osprey. The special event was hosted by the Vermont Agency of Natural Resources as part of the fourth annual Dead Creek Wildlife Day. Lt. Gov. Brian Dubie, ANR Secretary Thomas Tortie and several of the partners involved in the recovery efforts joined in the celebration.



Addison City Chamber of Commerce



Lill Lumbra



## Vermont Fish & Wildlife Wildlife Division Nongame and Natural Heritage Program Department Contributors

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*Natural Heritage Harmonies* is a free, semi-annual publication of the Vermont Fish & Wildlife Department's Nongame and Natural Heritage Program. Please acknowledge the Vermont Fish & Wildlife Department in any reprints.

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## Our Partners in 2005

*The Vermont Fish & Wildlife Department's Nongame and Natural Heritage Program works cooperatively with many individuals, groups, companies, organizations, and agencies.*

### Agencies:

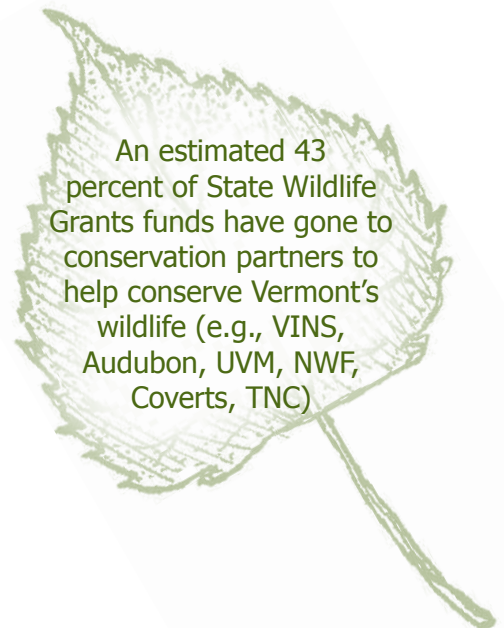
- Green Mountain National Forest
- Missisquoi National Wildlife Refuge
- Northeast Endangered Species and Wildlife Diversity Technical Committee
- Silvio O. Conte National Fish & Wildlife Refuge
- Société de la faune et des parcs du Québec
- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service (Lake Champlain Office and N.H. Endangered Species Office)
- U.S.D.A. Wildlife Services
- U.S.D.A. Natural Resource Conservation Service
- Vermont Agency of Transportation
- Vermont Department of Environmental Conservation
- Vermont Department of Forests, Parks & Recreation
- Vermont Military Department

### Contractors, Collaborators and Volunteers:

- |                   |                    |                   |
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| Jim Andrews       | Ted Murin          |                   |
| Brett Engstrom    | Ethan Nedeau       |                   |
| Steve Faccio      | Jared Nunery       |                   |
| Doug Facey        | Christine O'Brien  |                   |
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| Patrick Galois    | Reenie Rice        |                   |
| Eric Hanson       | Chris Rimmer       |                   |
| Mark LaBarr       | Nat Shambaugh      |                   |
| Marc Lapin        | Steve Smith        |                   |
| Martin Léveillé   | Erin Talmage       | Diane Wells       |
| Michael Lew-Smith | Elizabeth Thompson | Merri Zetterstrom |

### Organizations:

- Audubon Vermont
- Central Vermont Public Service
- ECHO – Leahy Center of Lake Champlain
- Green Mountain Power
- Invasive Exotic Plant Committee
- Invasive Plant Atlas of New England
- Lake Champlain Land Trust
- National Wildlife Federation
- NatureServe
- New England Wildflower Society
- New England Plant Conservation Program Volunteers
- Outreach for Earth Stewardship
- The Nature Conservancy – Vermont Field Office
- University of Vermont
- Vermont Caver's Association
- Vermont Electric Power Company
- Vermont Endangered Species Committee (ESC)
- Vermont Entomological Society
- Vermont ESC Scientific Advisory Groups
- Vermont Family Forest
- Vermont Institute of Natural Science
- Vermont Land Trust



An estimated 43 percent of State Wildlife Grants funds have gone to conservation partners to help conserve Vermont's wildlife (e.g., VINS, Audubon, UVM, NWF, Coverts, TNC)



## Nongame and Natural Heritage Program

Vermont Fish & Wildlife Department  
Vermont Agency of Natural Resources  
103 South Main Street, 10 South  
Waterbury, VT 05671-0501



### Your Support Makes a Difference!

Please donate to the Nongame Wildlife Fund on your Vermont income tax form. Look for the loon icon.

## Take a Ride on the Wild Side.

Vermont's conservation plate lets everyone know you believe Vermont's fish and wildlife are worth protecting. Proceeds from plate sales go toward the Nongame Wildlife Fund and the Watershed Grant Fund.

### Nongame Wildlife Fund

The Nongame Wildlife Fund supports the Fish & Wildlife Department's Nongame and Natural Heritage Program. Money from the sale of conservation plates helps us:



- Improve and protect nesting sites for loons, peregrine falcons and other birds.
- Learn about natural communities.
- Help interested landowners manage rare populations.
- Provide information about rare, threatened and endangered species to local conservation commissions, planners and developers.
- Inventory a wide array of species including turtles, freshwater mussels, bats, butterflies, marsh birds and tiger beetles.

### Watershed Grant Fund

The Watershed Grant Fund supports grass-root efforts to protect water resources. The program provides grants to towns, nonprofit organizations and community groups with specific watershed projects. Past projects have included:



- Managing storm runoff to protect local streams.
- Improving fish habitat and water quality.
- Developing wetland educational programs for children.
- Improving canoe access to rivers.
- Controlling aquatic nuisance species.
- Protecting shorelines and stream banks.

### So, drive yourself wild.

Applications are available by calling the Fish & Wildlife Department at 802-241-3700 or by visiting our website: [www.vtfishandwildlife.com/support\\_plates.cfm](http://www.vtfishandwildlife.com/support_plates.cfm).