

NATURAL HERITAGE HARMONIES



SUMMER 2005

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.

Planning Ahead Helps Protect A Rare Snake

A new rule signed in April of 2005 removed three bird species from the state's Endangered and Threatened Species List, while adding two snake species as threatened. For the eastern racer, formerly known as the black racer, the change in status was, some might say, a good thing.

"We thought this snake had been extirpated from Vermont because there was no evidence of its existence since 1985," said Jim Andrews, a herpetologist from Middlebury College and author of the Vermont Reptile and Amphibian Atlas. "Then in the summer of 2003, a soil surveyor

contacted me about a large black snake in the southeast region of the

state. We'd been keeping an eye on this area

because this region of the state had the most recent historic sightings for the eastern racer."

Andrews and a group of high school students headed south to investigate. They found evidence of at least three individuals and managed to capture and photograph an adult racer.

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Exploring the Role of Our Natural Heritage Program

by *Leif Richardson*



Sampling a vernal pool at Roaring Brook Wildlife Management Area.

When you think about the work of Vermont's Nongame and Natural Heritage Program, you are likely to think of our involvement in protecting the state's rare, threatened and endangered species, such as peregrine falcons, common loons and spiny softshell turtles. You may even be familiar with our collaboration with partners to protect federally listed endangered species in Vermont, including the Indiana bat and barbed-shouldered bulrush. While conservation efforts on these nongame species are a key part of our work, a less heralded though no less important part of our mission is concerned with our "Natural Heritage" functions.

What does a Natural Heritage Program do? First, we conduct a variety of inventories on public and private lands. In some cases those inventories target a particular threatened species. In others they look at one type of natural community in a variety of locations. Many of our inventories provide baseline information on rare and common biological resources. We use this information in making management decisions for state-owned lands.

Second, we maintain a large database of information generated by these inventories. Known as Biotics, this computerized database currently houses nearly 7,000 records detailing

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Inside Highlights

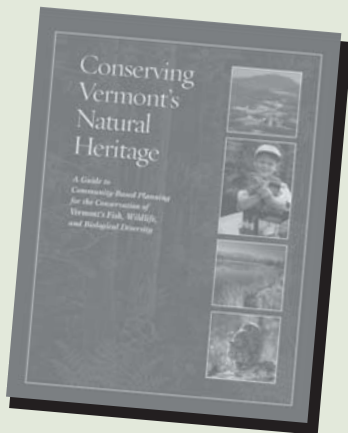
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DEPARTMENT UPDATE

By Ron Regan, Director of Operations

The Vermont Fish & Wildlife Department has a long history of providing informational materials, regarding habitat management and conservation, to landowners and local governments. Given the high percentage of land in private ownership, it is absolutely essential that the department promotes cooperative management to conserve habitat – the bedrock of the healthy and abundant wildlife populations we all enjoy in our state.

In this spirit, the department is pleased to present a new manual entitled, *Conserving Vermont's Natural Heritage – A Guide to Community-Based Planning for the Conservation of Vermont's Fish, Wildlife and Biological Diversity*. This manual is designed to offer technical guidance for identifying important wildlife and natural heritage resources in communities, or areas of interest, and for understanding information related to the conservation of those resources. It also provides ideas, options, and opportunities for communities and others to consider when planning for the long-term conservation of wildlife in Vermont. This document is not regulatory in nature, nor does it intend to direct land use regulation as the primary tool for wildlife and habitat conservation. This document is also available on the department's website at: www.vtfishandwildlife.com. Click on the Department Library in the side bar and then go to Documents and Reports. Copies also are available by calling the department at 802-241-3700.



Please note that Craig McLaughlin, the department's Director of Wildlife for the past year, has decided to take a position in Utah, working with big game species. I will be assuming the day-to-day managerial responsibility for the Wildlife Division, including wildlife diversity and threatened and endangered species conservation.

Nongame and Natural Heritage News

Every year the Vermont Fish & Wildlife Department and our contractors participate in over 70 nongame and natural heritage projects. Here are highlights of just a few of our conservation efforts.

Plants

This summer's plant fieldwork has yielded new discoveries as well as some rediscoveries. Over 150 plants of rue anemone were discovered in a new area in southwestern Vermont. This plant had been previously known from only a single location, last observed nearly 20 years ago. The site also is home to a population of the state threatened lyre-leaved rock cress. And during a recent inventory of a softwood swamp, a new population of the rare spring cress, a rare mustard, was found.



Persistence has paid off with the rediscovery of a population of Canada horse-balm, a rare member of the mint family. This population was last observed twenty years ago in southwestern Vermont, despite revisits and searches on three other occasions.

Protection efforts for the state-threatened northern wild comfrey also are proving fruitful. Prior to erecting an enclosure in 2001 to keep out grazing animals, the population was reduced to only a few vegetative plants. This year 32 plants were observed within the enclosure, 20 with fruit. Only three vegetative plants could be located outside the enclosure.

Natural Communities

The inventorying of cedar bluff communities is complete and the final and individual site reports will be available in September. Cedar bluff communities are rare in Vermont. These dark, mostly coniferous forests are dominated by northern white cedar, and occur on limestone or dolomite bluffs and outcrops. Some excellent examples of this community type can be found on the rocky headlands of Lake Champlain. A total of 29 sites were inventoried.

The pilot project to determine the effectiveness of using aerial photographs to identify and map vernal pools is complete. According to Mark Ferguson, NNHP zoologist, the technique is useful for identifying vernal pools in hardwood forests in combination with ground surveying. However, smaller vernal pools and those in coniferous forests were more difficult to locate.

Our state land ecologist, Leif Richardson, has been busy

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with natural community mapping and ground inventories on state lands. The information is used in developing management plans for state lands. This year we will assist in developing management plans for Groton State Forest, Camels Hump State Forest and Niquette State Park. Fieldwork also is planned for the Narrows Wildlife Management Area (WMA), Dead Creek WMA and Ascutney Management Unit.

Wetland, Woodland, Wildland, A Guide to the Natural Communities of Vermont has been revised and reprinted. Co-authored by Elizabeth Thompson and Eric Sorenson, the guide describes over 80 community types, providing valuable information about species associated with the community types, ecological values, conservation concerns, and locations of community type examples. The book may be ordered at local bookstores.

Beetles and Butterflies

The White River was resurveyed to locate a known population of the cobblestone tiger beetle. The survey found good numbers of this state-threatened beetle in the area. We hope to locate more cobblestone tiger beetle populations when our contractor, a UVM post doctorate, surveys the West and Connecticut Rivers. He also will be looking for the state-threatened beach-dune tiger beetle along Lake Champlain and assisting with the tiger beetle recovery plan.



Data collection for the Vermont Butterfly Atlas is in the fourth year of this five-year project to document the state's butterfly and giant silk moth species distribution. This year, State Wildlife Grant funds are helping

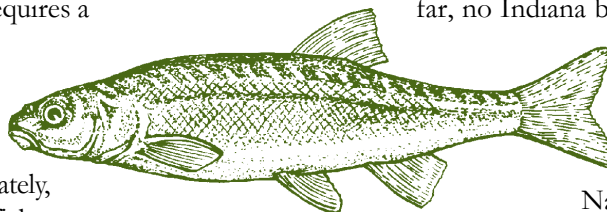
complete the surveying of the priority blocks that have not been surveyed by citizen volunteers. There are 184 priority blocks, each about nine square miles. In order for the survey sample to be considered valid, these blocks must be surveyed. To learn more about the project visit the website: www.vinsweb.org/vbs.

Mussels and Turtles

Exciting new research is underway to determine the fish hosts for several native mussels, including the state-endangered pocketbook and fluted-shell mussels. Mussels in their larval stage attach to the gills of fish as part of their life-cycle. Often a mussel species requires a specific host species of fish. Unfortunately, the host fish species is unknown for many of the native mussels occurring in Vermont.

To learn more about this critical link, adult female mussels that are ready to release their larvae are collected and placed in a tank with various fish species. The newly released larvae are exposed to the fish. The fish are later examined to see if the larvae attached to the gills and remained attached until reaching the juvenile stage. If juvenile mussels are found attached to the gills, the fish may be a host in the wild.

The turtle-nesting season went well with very little nest predation early in the year, but skunks found some nests when hatchling emerged in late summer. Steve Parren, Vermont Fish & Wildlife Department's Nongame and Natural Heritage Program Coordinator, and Audubon Vermont are again planning a turtle-nesting beach cleanup later in October. Volunteers are welcome to help clear vegetation from the shale cobble beaches along Lake Champlain. These beaches are nesting sites for the state-threatened spiny softshell turtle



as well as map turtles, painted turtles and snapping turtles. If you are interested in helping, contact Audubon Vermont (802-434-3068 or email vermont@audubon.org) to be placed on their call-list for this program. You will be contacted when the date is set for the clean up.

Bats and Birds

Vermont Fish & Wildlife biologists continued surveying portions of the Champlain Valley to better determine the boundaries of the summer range of the Indiana bat in Vermont. The known range of this federally endangered species is from Ferrisburgh south to West Haven. So far, no Indiana bats have been found

north of this range.

Staff also surveyed The

Narrows WMA in

West Haven, Tinmouth Channel WMA in Tinmouth, and Podunk WMA in Strafford to collect information on resident bat species. The bat surveys are often part of a comprehensive environmental assessment involving other species of wildlife and plants.

Increased interest in developing wind farms has spurred efforts to learn more about the potential effects on bats, especially Vermont's three migratory species—hoary, red and silver-haired bats. Findings from other ridge top wind farms in the East indicate migratory bats are particularly vulnerable to collisions with the turbine rotors. The number of bat fatalities associated with these wind farm projects raises concern about their long-term effects on migratory bat populations. More research will help us better understand bat migration patterns, reasons why bats seem to be vulnerable to collisions with turbines, and ways to reduce bat fatalities.

Although the common loon, peregrine falcon and osprey were

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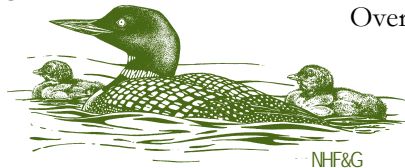
removed from the state's Endangered and Threatened Species list, monitoring their populations is important to track population trends and identify steps needed to keep them off the list. Recent nesting season results show a positive trend.

In 2004, there were 28 territorial pairs of peregrine falcons, with 27 pairs nesting and 18 pairs producing a total of 40 fledglings. Preliminary results for the 2005 season indicate it may be the most productive year yet. Thirty territorial pairs have been confirmed and two more are suspected. At least 25 pairs nested with 19 known to be successful. Fifty young peregrines fledged and at least five more fledglings are suspected. The cliffs located in the central and eastern portion of the state had one of the most productive years ever, with several nests producing three to four chicks.

During last year's nesting season, 43 pairs of common loon nested. Thirty-four of these pairs successfully hatched 54 eggs, with 44 chicks surviving through August 2004. The 2005 nesting season appears to be a banner year for new loon nesting sites. Seven new sites have been confirmed, bringing the number of loon nests to 53. Seventy chicks hatched out and 61 survived into August.

Signs also indicated that ospreys are continuing to do very well. In 2004, there were an estimated 75 osprey nests and 102 chicks survived to fledge.

The second field season of studying the Bicknell's thrush at East Mountain in East Haven seems to indicate that this area is an important nesting site in the Northeast Kingdom for this rare migratory bird. The Bicknell's thrush returns from the Caribbean island of Hispaniola in late May to nest in the montane spruce-fir forest of Vermont's rugged mountaintops. In



2004, ten males and eight females were captured and banded. Four nests were located and two of the nests successfully fledged young. This summer, ten females and fifteen males were captured and banded. Nests of five females were found and monitored. All five fledged young, even though three females were forced to re-nest after losing their first nest to predators. One of the females, banded in 2004, returned to nest within two meters of last year's nesting site.

This summer also marks the second season for the Vermont Bald Eagle Restoration Initiative—a project to help establish a breeding bald eagle population in Vermont. In 2004, eight eaglets were raised and released from the hack site at the Dead Creek WMA in Addison. This summer eleven eaglets have been fed and nurtured until they were ready to fly.

Over 40 volunteers logged in hundreds of hours preparing food, feeding and monitoring the young eagles while they were in the hack box and after their release.

Volunteers also have logged in over 6,000 hours as part of the Vermont Breeding Bird Atlas project. Results of their work show changes in the distribution of some bird species since the first atlas 25 years ago. Newcomers to Vermont include tufted titmouse, turkey vulture, Carolina wren, Canada goose, and double-crested cormorant. In 2004, great egrets were confirmed nesting for the first time in the state. Other species, however, appear to be occurring less frequently in Vermont, including the whip-poor-will, common nighthawk, yellow-throated vireo, and olive-sided flycatcher.

Citizen participation in many of our projects is key to our successful conservation efforts. Whether volunteers clean up a turtle nesting beach, search for butterflies and birds



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for the state atlas, or care for young eagles, their help is making a difference. Contributing to the Nongame Wildlife Fund is another way to participate in conserving Vermont's natural heritage.

Our thanks to all of you who roll up your sleeves and join us in the field as well as to those who contribute to the Fund on your Vermont income tax form, purchase a Conservation License Plate, or donate directly. Together, we are protecting and conserving Vermont's precious fish and wildlife resources.

Exploring Natural Heritage *continued from page 1*

Vermont's best examples of natural communities as well as its rarest and most highly threatened species.

The value of all of this information collection and archiving is in its application to conservation issues throughout Vermont. For example, department staff regularly consult Biotics when reviewing Act 250 permit applications, insuring that known locations of sensitive natural resources are not threatened by development. Having a statewide list of rare species populations allows us to track

trends in an organism's distribution and guides decision-making about when an animal or

plant should be put on (or taken off) Vermont's Endangered and Threatened Species list.

The database has allowed us to identify most examples of certain natural community types, then rank them by size, ecological health, habitat quality, and a variety of other criteria. For example, all areas of Montane Spruce Fir Forest have now been mapped, and for the first time truly informed decisions may be made about which examples of this uncommon high elevation community

type should be considered the highest priorities for conservation.

Finally, since the database includes a Geographic Information System, it may be queried to investigate patterns of the historic and present distribution of a rare species or community. It also can help us identify threats to the persistence of those resources. For example, if known occurrences of a rare plant are found only at the bases of eroding calcium-rich cliffs, we can use the database to make predictions about additional sites that might

provide habitat for the species.

Our program is part of an international network of

similar conservation efforts taking place in every state and province in North America, as well as much of Central and South America.

NatureServe acts as the central repository for the 73 Natural Heritage Programs and Conservation Data Centers in the Western Hemisphere. Similar to the other 72 programs, ours serves as *the* source of information about Vermont's biological diversity, abundance and distribution. Maintaining this storehouse of conservation data is critical to the success of conservation efforts in Vermont.

“The value of all of this information collection is in its application to conservation issues throughout Vermont.”

Protecting A Rare Snake *continued from page 1*

Unfortunately, the Agency of Transportation (VTrans) had plans to develop the area the snakes were using. But instead of causing problems, finding the snakes gave VTrans and the Vermont Fish & Wildlife Department (VFWD) a chance to proactively work together to protect the snakes.

Fish & Wildlife biologists Steve Parren and Forrest Hammond, Jim Andrews

and VTrans environmental specialist Chris Slesar, developed a plan that would protect the snakes, provide suitable replacement habitat for what would be lost to construction, and minimize the impact on the proposed VTrans project.

VTrans contracted Jim Andrews to monitor the snakes' activities to learn how they are using the property and

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Eastern Racer

Status: state threatened

The eastern racer is a relatively large black snake, measuring up to six feet. It has a slender form, moves rapidly and displays a nervous behavior. The snake has a solid gray underside, tan colored nose and face, large head scales, and smooth scales without keels.

One of the rarest snakes in Vermont, its exact numbers and range are unknown. Before the discovery in 2003, there were only three reliable reports of eastern racers in the state in the last 25 years.

Eastern racers need large dry open fields, open woods, shrubbery and the transition zones between these habitat types. They avoid dense woodlands. They are most often found at low elevations or along low ridges near denning sites. Denning sites are typically rocky areas with deep fissures.

Eastern racers are vulnerable to road mortality, mowing and habitat loss. People who see them near their homes also have killed these snakes.



photos by Chris Slesar



Nongame and Natural Heritage Program

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Your Support Makes a Difference!

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

A Rare Snake *continued from page 5*

gain better understanding of their habitat needs. In July 2004, Andrews captured and implanted radio transmitters in two snakes.



Chris Slesar

“The transmitters let me track the snakes to the denning site,” said Andrews. “This summer we’ve been monitoring the snakes’ movements. We are learning when they use the VTrans property, how often, and what they are doing there.”

At first, Fish & Wildlife biologists were concerned the snakes might be using the VTrans area as a den site. But that doesn’t seem to be the case.

“Jim’s work seems to indicate the snakes are using the area for feeding

and as a travel corridor,” said Forrest Hammond. “The Vermont Fish & Wildlife Department owns property next to the proposed VTrans project and we plan to clear some areas to create suitable racer habitat. We want to complete the habitat work soon so the snakes can begin using the new feeding habitat before construction starts.”

The new rule listing the Eastern racer as threatened provides legal protection for this rare snake. Another important step in securing the eastern racer’s future in Vermont has been the proactive approach by VTrans and VFWD.

“Our approach has been to creatively manage for the snakes while ensuring that the project gets built on schedule,” said Chris Slesar. “It demonstrates how state agencies can creatively problem-solve to ensure both agencies meet their objectives.”

Come Celebrate Wildlife...

Dead Creek Wildlife Day

**Saturday, October 1, 2005
9:30 a.m. to 4:30 p.m.**

**Dead Creek Wildlife Management Area
Addison, Vermont**

Featuring wildlife demonstrations, guided nature walks and family fun, including:

- Live Birds of Prey
- Wildlife Photography
- Decoy Carving
- Hunting Dog Handling
- And much more...

Dead Creek Wildlife Day
offers something for everyone.

Come enjoy the day!

For more information call
(802) 241-3700 or visit our web site
www.vtfishandwildlife.com