

Vermont Osprey Recovery Plan

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note: in some cases this document has been updated to include
1996 and 1997 information

Cover Sheet

Vermont Endangered and Threatened Species Recovery Plan

Species: Osprey (*Pandion haliaetus*) dated 17 September 1996

Approved by the **Scientific Advisory Group (SAG)** as a recommendation to the Conservation and Education Subcommittee to accept.

signature: Sam B Langille date: 12 Nov 1996
SAG Chair

Approved by the **Conservation and Education Subcommittee** as a recommendation to the Endangered Species Committee to accept.

signature: Sam B Langille date: 14 April 1997
Subcommittee Chair

Approved by the **Endangered Species Committee (ESC)** as a recommendation to the Agency of Natural Resources to accept.

signature: Tan A. Worley date: 11-10-98
ESC Chair

Signature below indicates acceptance of this Endangered and Threatened Species Recovery Plan by the **Agency of Natural Resources (ANR)**.

signature: J. B. Kneel date: 4/12/98
Secretary, ANR

Vermont Osprey Recovery Plan

Preface

Osprey (Pandion haliaetus) recovery in Vermont is underway and is expected to continue. This plan will serve as a guide for management activities and will establish recovery goals for this state-endangered species. Emphasis will be given to those activities that are both feasible and practical for a management agency and cooperators to accomplish, while acknowledging other needs such as research.

Introduction

Ospreys are large, fish-eating birds of prey. They are sometimes referred to as fish hawks and are smaller and more streamlined than eagles. They build large stick nests in the tops of dead trees or on nesting platforms in open areas near water containing their fish prey. If nesting sites are limited they will attempt to nest in other locations, even on low structures and the ground. Ospreys are long distance migrants and may be observed in Vermont from March through October. They winter as far south as northern South America.

Ospreys in Vermont return in April, generally incubate during May, with 1 to 4 young hatching by mid-June. Incubation takes about 5.5 weeks. Nestlings usually fledge (fly from the nest) in Vermont in late July or early August after being in the nest for 7.5 weeks. Eggs hatch in the order they are laid and differences in size and vigor among nestlings may be quite apparent. If food is limiting, younger nestlings may not survive. For more information on osprey ecology and management see Poole (1989).

The historical record of ospreys in Vermont is sketchy at best. The few older documented osprey nesting sites in Vermont occurred in 1962 at Shelburne Pond, 1965 at South Bay of Lake Memphremagog, and in Barton in 1975 (Laughlin and Kibbe 1985). These accounts are subsequent to the major land-use changes wrought on Vermont following European settlement. Much of Vermont was cleared of trees and harvest of wild animals was not always regulated (Parren 1988). It is difficult to imagine that the productive waters of the state did not once support an osprey population, especially along the shores of Lake Champlain. One possibility is that the earlier presence of ospreys simply went unrecorded. During the 1600s and 1700s, Vermont was very different than during the 1800s (Parren 1988). Vermont is once again a forested state and probably is more similar to the landscape Samuel de Champlain first encountered, but with many more people.

Ospreys, like some other birds of prey that are at the top of the food chain, suffered the devastating effects of widespread use of the pesticide DDT. By the 1960s the effects of DDT became apparent as reproduction of ospreys declined. Eggshells were thinner and cracked under incubating adults. Osprey populations crashed. In spite of the nesting attempts in the 1960s and 1970s, the osprey was declared a state-endangered bird on 9 March 1972 in recognition of the potential that it could be lost as a breeding species in Vermont. This status was reaffirmed on 13 April 1987 following passage of the Endangered Species Act of 1981, because osprey breeding was still a very rare event.

With the banning of DDT in Vermont on 31 December 1971 and in the U.S. on 31 December 1972, the harmful effects of this compound lessened, allowing ospreys to recover. No artificial releases of birds (hacking or translocation) were attempted in Vermont, although this technique was used in other states (e.g., Pennsylvania). Spitzer (1988) reported that a Pennsylvania-hacked bird nested in Vermont so we have benefitted from hacking efforts in other states. As the regional population has recovered, Vermont has slowly attracted nesting adults. It is likely that some of our current nesters were fledged in Vermont, although we do not have band data to confirm this.

Osprey Management in Vermont

The Vermont Department of Fish and Wildlife installed 2 osprey nesting platforms at South Bay of Lake Memphremagog (Coventry) in the late 1970s, but no ospreys have occupied this site. With the establishment of the Nongame Wildlife Program (now part of the Nongame and Natural Heritage Program) in 1986, a concerted effort to enhance osprey nesting was begun. From 1987 through 1990, 18 platforms were placed and osprey nesting was monitored (Pence 1991). Nesting attempts were few, and a total of only 8 young were fledged between 1988 and 1990.

Nesting attempts and fledgling numbers have increased, with over 20 ospreys fledged per year since 1994 (Table 1). Most nesting attempts have been in the Champlain Valley from Addison to Swanton (Fig. 1). Active monitoring and management have assisted the increase in osprey numbers, but threats persist and osprey recovery requires continued effort. Management has included posting of informational signs to discourage human disturbance at nesting sites, shielding nests from mammalian predators, and placement of new platforms. Over 40 potential nest sites exist statewide. Most are platforms and over 25 are set on poles (Appendix A). Osprey nesting history by site is summarized in Appendix B.

LAKE MEMPHREMA606

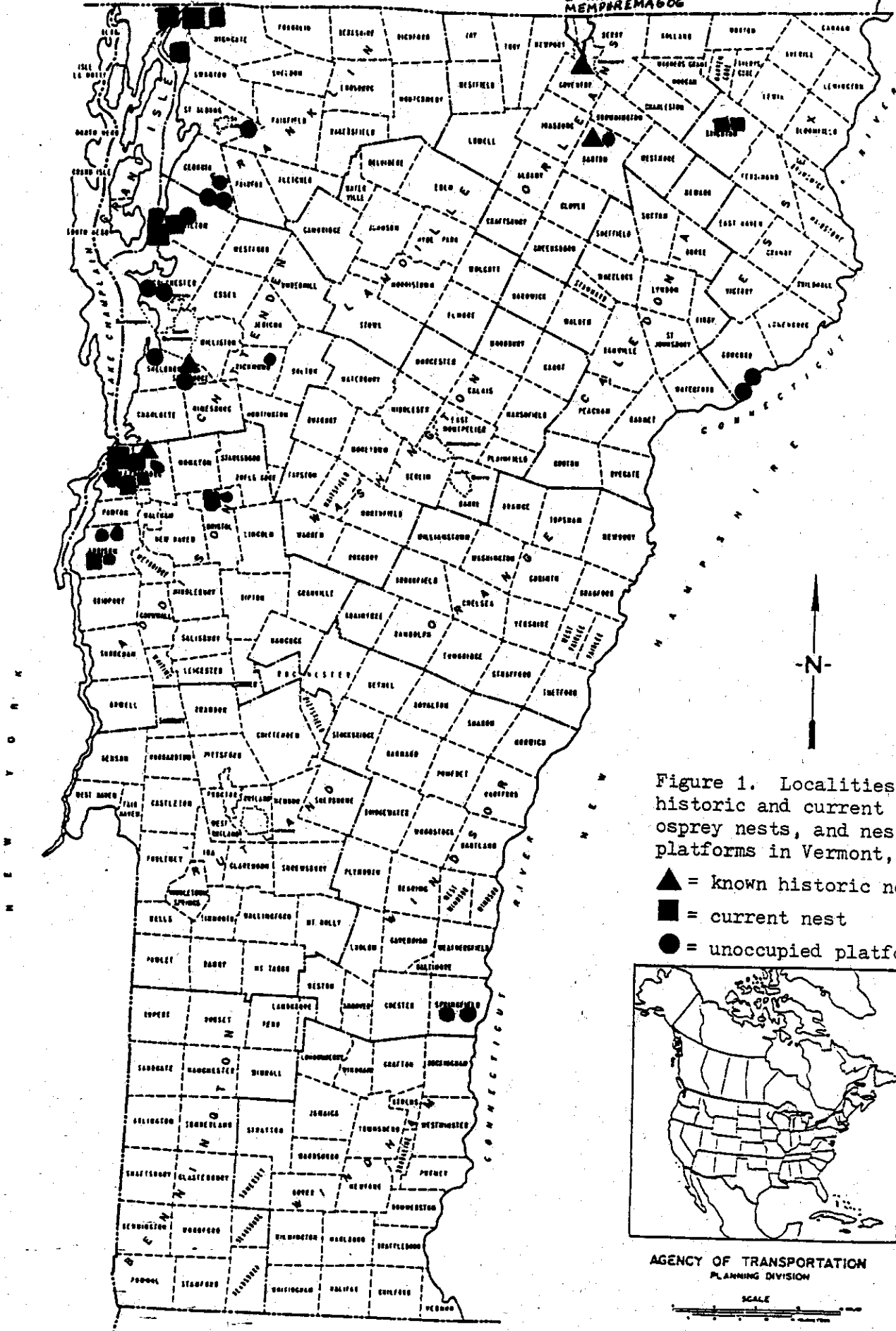


Figure 1. Localities of historic and current osprey nests, and nesting platforms in Vermont, 1995

- ▲ = known historic nest
- = current nest
- = unoccupied platform



AGENCY OF TRANSPORTATION
PLANNING DIVISION

SCALE

JANUARY, 1979

Table 1. Osprey nesting attempts and productivity in Vermont, 1986-1996.

Year	Nesting pairs	Successful nests	Chick* count	Fledgling count	Productivity fledglings/pr
1986	1	0	0	0	0.00
1987	2	0	0	0	0.00
1988	3	2	3	3	1.00
1989	3	1	2	2	0.66
1990	3	1	3	3	1.00
1991	5	4	10	7	1.40
1992	6	3	5	5	0.83
1993	9	6	15	13	1.44
1994	12	9	26	23	1.92
1995	14	10	22	22	1.57
1996	16	14	31	27	1.69

* Nests are viewed from a distance with binoculars or spotting scope, so some young chicks may go undetected.

Threats

Environmental Contaminants: The threat from DDT has been reduced, but not eliminated, and osprey numbers are increasing in the Northeast. Other environmental contaminants such as mercury and PCBs may be a threat to the fish-eating osprey, and there is some concern about these contaminants in Lake Champlain and other Vermont waters. The fact that the osprey is a long-distance migrant also exposes this species to environmental contaminants in Central and South America.

Shooting: A deliberate shooting of an osprey has been documented in Vermont, and legal action was taken in this case involving a stocked fish pond. A permit was granted to another owner of a fish pond to allow non-lethal methods to scare away ospreys fishing a stocked fee-fishing pond. At least one osprey has been recovered shot during waterfowl hunting season. The extent of shooting losses to ospreys here and in other states and countries is not fully known.

Human Disturbance: Ospreys nest close to fishable waters and may be disturbed when their nests are approached by boats or shoreline anglers. Because ospreys appeal to many people, they may also be disturbed by wildlife photographers and bird watchers who closely approach a nest. At one Vermont nesting site on a small island, anglers and birdwatchers/photographers kept adults off the nest too often, and their young chick perished. Informational signs requesting a 200-foot no entry zone reduced

human disturbance the following year and 2 young fledged. Ospreys in Vermont appear to be less resistant to human disturbance than some populations that nest in more southern states.

Food Shortage: Vermont appears to have adequate fishing opportunities for ospreys. Three, and even 4, fledglings per nest have been documented, indicating abundant food and good provisioning of nests near Lake Champlain. If an osprey site is not located near abundant food, nesting success will be reduced or nesting might fail. The repeated unsuccessful attempts by a male osprey to maintain a mate in Brighton (northeastern Vermont) in spite of 3 large nests, might have been due to poor provisioning of the nest by the male osprey. If fish populations were to decline, perhaps due to acid precipitation or other reasons, osprey nesting success could be negatively impacted.

Predation: Potential osprey predators include great horned owl (Bubo virginianus), fisher (Martes pennanti), and raccoon (Procyon lotor). Eggs and young are most at risk, and raccoons are responsible for most nest losses in Vermont. In a few cases, raccoons have scaled predator shields (3-foot aluminum flashing wrapping a tree or pole), leaving behind telltale scratches and a cascade of sticks at the nest edge. Tree nests are more difficult to shield, because flashing bulges and bends due to the irregular contour of the tree bole. A nest without a predator shield in the Champlain Valley is very likely to suffer raccoon predation.

Conflict between Ospreys: Ospreys defend their nest sites from intruders. This may be done merely by alarm calls and slow chases, or by real conflict. One osprey recovered from the water near an active osprey nest had numerous puncture wounds, which were likely inflicted by the territorial pair. In one large wetland complex, 5 pairs of ospreys attempting to nest built at least 7 nests. Their lack of success was likely due to known raccoon problems at nest sites without predator shields. The resulting renesting activity may have caused conflict between nesting pairs, resulting in reduced productivity at 2 sites with predator shields that had higher productivity the previous year.

Weather/Dead Trees: Severe weather can negatively impact ospreys at any time of year. During the nesting season, strong winds can topple trees in which nests are located or blow nests out of the treetops. Two large nestlings were lost at one site when a storm snapped their nesting tree. At another site, strong winds stripped the entire nest from the treetop. The pair stayed on territory and rebuilt their nest in the same tree, but they did not nest again that year. Maintaining alternate nests may allow nesting ospreys to switch to another nest if one is lost without having to build a new nest. In New England, only 10-20% of the population builds a second nest (Poole 1989). A platform on a

live tree or a pole is more likely to withstand strong winds than a nest in a dead tree.

Accidents and Migration: Ospreys are sometimes retrieved due to injury or poor health. Downed birds are transported to qualified wildlife rehabilitators who cooperate with veterinarians experienced with wildlife. Recovery of downed birds appears to peak during fall migration when passage birds (young-of-the-year birds during their first migration) become grounded due to the energy demands and hazards of migration. Like other birds, many fledglings probably don't survive their first year. Spitzer (1980 cited in Poole 1989) determined that 60% of fledglings survived their first year.

Some concern has been voiced about potential electrocution of ospreys by power lines, although no documented case is known in Vermont. Osprey built a nest on a small power line during 1996 and nest sticks shorted out the line. This nest was removed by Green Mountain Power Corporation with support by the Vermont Fish and Wildlife Department (VFWD) to avoid potential electrocution. A pole platform was installed as a replacement nesting site in March 1997.

Recovery Goals

Downlisting Goals: Ospreys in Vermont should be downlisted to state-threatened status if (on average) for 5 years, there are at least 20 nesting pairs and at least 0.8 fledglings are produced per active nest, or 20 fledglings per year are produced.

Northeast osprey populations appear to stabilize when 0.80 young are produced per active nest (Spitzer 1980 cited in Poole 1989). For the 5-year period, 1991-1995, Vermont had a productivity rate of 1.52 fledglings per active nest.

Ospreys are reported to nest in loose colonies in some situations (Poole 1989), and ospreys are known to nest within the same marsh in Vermont. Although ospreys are not documented as having had clustered nesting in Vermont in the past, they do appear to concentrate in some wetland complexes in the state today. The osprey nesting occurrences goal to allow downlisting to threatened status (20) was set at twice the number of occurrences in the listing criteria for state-threatened (see Appendix C) to account for their potentially bunched distribution. These criteria serve as guidelines only, and knowledge of the life history of the specific species should also be considered when setting recovery goals.

Delisting Goals: Ospreys in Vermont should be removed from the Vermont List of Endangered and Threatened Species if (on average), for 5 years, there are at least 30 nesting pairs and at least 1.0 fledglings are produced per active nest; or 30

fledglings per year are produced, and there are at least 2 distinct nesting areas with 5 or more nests, separated from other nests by at least 40 air miles.

The goal of 30 nesting occurrences is triple the listing criteria for state-threatened. The lack of an historical benchmark for ospreys, other than the few nests documented after Vermont's landscape was greatly altered by European settlement, requires that a recovery goal be based on what we currently know about ospreys and what makes sense for their continued presence in Vermont as a breeding species. Thirty active nests with productivity of 1.0 fledglings per nest or 30 fledglings per year are considered sufficiently large to withstand short-term impacts to the species. If negative trends were detected, corrective actions and changes in status could be taken.

Having more than one distinct nesting area in the state more than 40 miles apart spreads the risk of localized impacts to Vermont's osprey population. There are now 2 areas in the state that are over 40 miles apart: Swanton with 6 nesting pairs and Ferrisburgh with 4 pairs.

Actions Needed for Recovery

1. Continue to monitor sites with osprey nesting activity.
2. Develop a network of volunteer monitors to assist in the monitoring and protection of nesting ospreys.

Build on the informal network that already exists. Three sites were monitored by a volunteer during 1995. Other volunteers and power companies assisted the VFWD efforts to install platforms and raise awareness. As osprey numbers grow, monitoring will likely need to shift more to volunteers. The challenge is to establish qualified observers who are able to commit to monitoring sites at regular intervals throughout the nesting season.

3. Place a predator shield on all new nest trees discovered as soon as new nests are located to minimize the threat of mammalian predation.
4. Install new pole platforms in appropriate areas.

The VFWD, in cooperation with others, is installing a few pole platforms each year. This generally requires heavy equipment. A few poles with wood frame and plywood platforms have been raised with a 4-wheel drive truck and strong arms, but this does not appear to be an adequate technique. Some success has been had hand raising cedar poles and installing a wood frame and wire mesh nesting platform on the top. A similar platform has been used on dead treetops.

5. Improve informational materials for landowners and conservation groups who are interested in installing osprey platforms.

Some landowners and conservation groups are interested in installing platforms and request information from the VFWD, which sends out a packet on several platform designs and siting requirements. VFWD is still experimenting with alternate designs that could be hand raised but still solid enough to outlast nest sites in trees. Several years ago one landowner hired a backhoe operator to raise a platform for about \$200, and a conservation group hand raised a lightweight pole and platform. Neither of these platforms have been used by ospreys, possibly due to inadequate siting.

6. Continue outreach and educational efforts including informational signs, news releases, newsletter articles, media coverage, and fact sheet distribution.

Appendix D is a copy of the Vermont fact sheet about ospreys. Landowner contacts are made each year, and osprey nesting is

included in an annual press release. An article on ospreys was published in Vermont Life, and VFWD biologist Steve Parren is listed as a contact. Several schools and other institutions have osprey mounts used for educational purposes.

7. Continue to facilitate transport of grounded ospreys to rehabilitators able to care for ospreys.

VFWD wardens have transported injured ospreys needing medical care, and VFWD has been invoiced for some of the costs associated with osprey care.

8. Encourage use of non-lethal means for fish pond owners to discourage osprey depredation.

As osprey numbers increase in Vermont, so do the observations of ospreys hunting stocked ponds and the resulting complaints about osprey impacts. Information on scare balloons and other relatively benign methods of discouraging osprey depredations are provided. Based on discussions with the state and federal wardens, the VFWD has been willing to authorize the use of cracker shell scare techniques to manage human-osprey conflicts at stocked ponds.

9. Continue law enforcement efforts to limit harassment/killing of ospreys according to state and federal law.

Actions Not Anticipated at This Time

1. Contaminants studies and collection of eggs for such analyses would provide useful information, but staff and funding are not available for this activity which is better suited to a research institution. Such studies are unlikely to be conducted by the Agency of Natural Resources at this time and should only be encouraged if anticipated risks to nesting ospreys and people climbing to nests is well justified.

Actions Not Being Recommended

1. Hacking/Translocation is not recommended because ospreys appear to be building in numbers without these expensive artificial population enhancements.

2. Banding of ospreys is not generally recommended. The potential impacts to nesting birds and possible damage to nest trees and predator shields, as well as risk of injury to the researchers, can not be justified given Vermont's low number of nesting ospreys and the availability of larger concentrations of nesting ospreys in other states. Banding would be advisable if an osprey is recovered and is likely to be released to the wild.

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APPENDIX A

Table 1. Osprey nest and platform locations in Vermont, 1987-1997

	TOWN	YEAR	LOCATION	TYPE	SET BY	LANDOWNER
+	Addison	1992	Whitney Creek, Channel	Pole	CVPS/VFWD	R. Anderson
	Addison	1992	Whitney Creek, Field	Pole	CVPS/VFWD	R. Anderson
+	Addison	1994	Dead Creek , East Slang	Pole	VFWD	VFWD
	Addison	1997	Dead Creek , Route 17 South	Pole	GMP	VFWD
	Barton	1994	Wetland Near I91 Orleans Exit	Pole	G. Hennemuth	VFWD or TNC
	Brighton	1992	Brighton Wetland (3 nests in trees)	Tree	Shields/VFWD	T. Maule
+ *	Bristol	1993	Bristol Pond Island	Tree	Shield/VFWD	O. LaFrance
	Bristol	1993	Bristol Pond, Southeast Shore	Tree/Platform	VFWD/Owner	P. Aube
+	Bristol	1996	Bristol Pond, South	Tree/Platform	VFWD	VFWD
	Burlington	1988	Heineberg Wetland, Winooski R.	Pole	GMP	WVPD
	Colchester	1988	McCrea Farm, Winooski R.	Pole	GMP	WVPD
	Colchester	1997	Colchester Pond, SW Shore	Pole	VELCO	W. Penrod
	Colchester	1997	Colchester Pond, South Wetland	Pole	VELCO	P. Simoneau
	Concord	1989	Moore Reservoir, South	Tree	NEP/LI	NEPCo
	Concord	1989	Moore Reservoir, North	Tree	NEP/LI	NEPCo
+ *	Ferrisburgh	1987	Little Otter Creek, North	Tree/Platform	VFWD	L. Hawkins
+	Ferrisburgh	1988	Porter Bay	Pole	GMP	VFWD
	Ferrisburgh	1988	Ft. Cassin Access, Otter Creek	Pole	GMP	J. Hawkins/VFWD
+	Ferrisburgh	1988	Oxbow Pond, Otter Creek	Pole	GMP	J. Hawkins/VFWD
+	Ferrisburgh	1994	Lewis Creek	Pole	GMP/Owner	J. Appleton
+	Ferrisburgh	1994	Little Otter Creek, South	Tree	Supports/VFWD	J. Hawkins
	Ferrisburgh	1997	Little Otter Creek, South	Pole	GMP	J. Hawkins
+	Ferrisburgh	1997	Little Otter Creek, North	Pole	VFWD	VFWD
+	Ferrisburgh	1997	Otter Creek, Corn Field	Pole	GMP	C. Brands
	Georgia	1990	Arrowhead Mtn. Lake, Shore	Tree	CVPS	M. Zedderstrom
	Georgia	1990	Arrowhead Mtn. Lake, Shore	Pole	CVPS	CVPS
+	Georgia	1994	Arrowhead Mtn. Lake, Island	Plastic Pole	CVPS	CVPS
+	Maidstone	1994	West Mtn. Pond	Tree	Shield/VFWD	Champion
	Middlebury	1990	Otter Creek Pole Platform	Pole	?	?
+	Milton	1989	Sandbar Refuge, South (Interior)	Pole	GMP	VFWD

	TOWN	YEAR	LOCATION	TYPE	SET BY	LANDOWNER
+	Milton	1989	Sandbar Refuge, North	Pole	GMP	VFWD
	Milton	1990	Petersen Dam, Lamoille River	Pole	CVPS	CVPS
+	Milton	1994	Lamoille River Mouth	Tree	Supports/VFWD	VFWD
	Richmond	1990	Snipe Island Road (Pond)	Pole	Owner	W. Preston
	St. Albans	1990	Fairfield Swamp	Tree/Platform	VFWD	VFWD
	Shelburne	1988	LaPlatte River	Pole	GMP	TNC
	Shelburne	1990	Shelburne Pond	Tree/Platform	VFWD	UVM
*	Springfield	1994	N.Springfield Dam, N. Meadow	Pole	CVPS	US Corps Engineers
	Springfield	1994	N.Springfield Dam, East Field	Pole	CVPS	US Corps Engineers
+	Swanton	1989	Maquam Bay, First Creek	Pole	GMP/CU	VFWD
+	Swanton	1989	Missisquoi Refuge Long Marsh Ctr	Pole	GMP/CU	MNWR
+	Swanton	1993	Missisquoi Refuge, Cranberry Pool	Pole Frame	MNWR	MNWR
+	Swanton	1993	Missisquoi Refuge, Metcalf I. North	Tree	Supports MNWR/VFWD	MNWR
+	Swanton	1996	Missisquoi Refuge - Long Marsh So.	Tree	Shield/MNWR	MNWR
+	Swanton	1996	Missisquoi Refuge, Long Marsh No.	Tree	Shield/MNWR	MNWR
+ *	Swanton	1995	Missisquoi Refuge, Metcalf I.SW	Tree	Shield/MNWR	MNWR
*	Swanton	1995	Cranberry Pool, East	Tree	Shield/MNWR	MNWR

- +
 - *
 - CU
 - CVPS
 - GMP
 - LI
 - MNWR
 - NEPCO
 - TNC
 - UVM
 - VELCO
 - VFWD
- Nesting activity documented
 Tree or platform has fallen
 Citizens Utility Company
 Central Vermont Public Service
 Green Mountain Power
 Lyndon Institute
 Missisquoi National Wildlife Refuge
 New England Power Company
 The Nature Conservancy
 University of Vermont
 Vermont Electric Coop
 Vermont Fish and Wildlife Department

APPENDIX B

Nongame and Natural Heritage Program (NNHP)
Department of Fish and Wildlife
103 South Main St.
Waterbury, Vermont 05671-0501

Osprey History

Addison:

Dead Creek East Slang (1994)

1996 - nest built and bird seen sitting in nest

Whitney Creek (1992 stream channel)

1996 - 2 fledglings

1995 - 3 fledglings

1994 - incubation, no nestlings seen

Brighton:

Beaver Meadow (1992 nests in 2 dead pines)

1996 - pair at site but did not nest

1995 - 3rd nest build in pine; north nest

1994 - adult at southeast nest, copulation nearby

- no activity seen at west nest

Bristol:

Bristol Pond,

1996 - nest tree blew down in winter (1/27) and replacement platform placed in dead tree at south end (2/11);

nested on dead tree at north end and fledged 2 young

1995 - nest blew down and rebuilt by pair

1994 - 2 fledglings

1993 - 1 nestling that did not survive

1992 - nest started in tree on island

Ferrisburgh:

Little Otter Creek - North, (1987 tree platform)

1996 - platform in tree fell during incubation, not replaced

1995 - 3 fledglings

1994 - 2 fledglings

1993 - 3 nestlings but only 2 fledglings

1992 - 1 fledgling

1991 - 2 nestlings lost to raccoon, shield reset

1987 - hatched young prior to platform, no fledglings

1986 - nesting prior to platform, no fledglings

Little Otter Creek - South (tree)

1996 - incubation and copulation observed, but no young

1995 - 1 fledgling

1994 - nest predated, probably raccoon

Porter Bay, (1988 pole platform)

- 1996 - 2 fledged (wet spring, high water, nest sprouted)
- 1995 - 3 fledglings
- 1994 - 4 fledglings
- 1993 - 3 fledglings
- 1992 - 2 fledglings
- 1991 - 2 fledglings
- 1990 - nest, no fledglings
- 1989 - 2 fledglings
- 1988 - 2 fledglings (adults from Little Otter Creek site)

Otter Creek Oxbow Pond, (1988 pole platform)

- 1996 - 1 fledglings (nest veg. sprouted); site acquired by VFWD (new nest built on power pole to north in cornfield; nest removed to prevent electrocution of adult and outages)
- 1995 - 2 fledglings
- 1994 - 3 nestlings, 2 fledged
- 1993 - 3 fledglings
- 1992 - incubation, no nestlings seen
- 1991 - 2 nestlings, only 1 fledgling

Lewis Creek (1994 pole platform)

- 1996 - 1 fledgling (2 chicks had been noted earlier)
- 1995 - adults and fledglings visited
- 1994 - adults visiting newly placed platform

Maidstone:

West Mountain Pond

- 1996 - 1 of 2 chicks fledged from spruce tree nest

Milton:

Sandbar Refuge Interior Marsh, (1989 south pole platform)

- 1996 - 1 of 2 chicks fledged
- 1995 - 2 fledglings
- 1994 - 2 fledglings
- 1993 - 2 fledglings
- 1992 - incubation, no nestlings observed
- 1991 - 1 fledgling
- 1990 - 3 fledglings (one nestling had broken wing pinned)
- 1990 - nest with tree fell during winter
- 1989 - cottonwood tree nest, no fledglings
- 1988 - cottonwood tree nest, 1 fledgling
- 1987 - cottonwood tree nest occupied, outcome unknown

Mouth of Lamoille River (tree snag - nest started in 1993)

- 1996 - 2 fledglings
- 1995 - 3 fledglings
- 1994 - 2 nestlings, both lost when nest blew out
- 1993 - nest started

Sandbar north of causeway (1989 north pole platform)

1996 - activity early then abandoned

1995 - copulation and apparent incubation only

1994 - adults visiting platform with sticks

Arrowhead Mountain Lake island (1994 platform on plastic pipe)

1996 - 3 adults seen; pair to platform carrying some nesting materials but nesting not confirmed; human disturbance throughout season in spite of signs

Fairfield:

Fairfield Swamp WMA (1990 tree platform)

1995 & 1996 - no activity reported

1990 - unmated male on territory

1989 - unmated male on territory, nest had fallen during winter

1988 - male built nest in pine tree, no female

Swanton:

Maquam Bay First Creek (pole platform)

1996 - 3 fledglings

1995 - 3 fledglings

1994 - 3 fledglings

1993 - 2 fledglings

Metcalf Island - North, Missisquoi (1989 nest, waterfowl survey platform)

1996 - 3 likely fledged (long view, 2 for certain)

1995 - 1 fledgling

1994 - 2 fledglings (predator shield placed 1993)

1993 - young not confirmed, probably lost to raccoon

1992 - incubation, no nestlings reported

1989 - Long Marsh pair built nest

Metcalf Island - West (1995 tree nest)

1996 - great-horned owl May; ospreys showed interest later

1995 - adult on nest into August

Cranberry Pool - West, Missisquoi (waterfowl survey platform)

1996 - 2 of 3 fledged

1995 - raccoon bridged predator shield after incubation begun

1994 - 3 fledglings (shield placed early 1994)

1993 - young not confirmed, probably lost to raccoon

1992 - nest started

Cranberry Pool - East, Missisquoi (1995 tree nest)

1996 - nest no longer in tree

1995 - adults still guarding into August (shield installed)

Long Marsh - Center, Missisquoi (pole platform)

1996 - 2 fledglings
1995 - 1 fledgling, suspect intraspecific interference
1994 - 3 fledglings
1993 - 1 fledgling
1992 - 2 fledglings
1991 - 3 fledglings
1990 - nest, no fledglings
1989 - nest, no fledglings

Long Marsh - South, Missisquoi (1995 tree)

1996 - 2 fledglings
1995 - nest begun

Long Marsh - North, Missisquoi

1996 - 3 young fledged from tree nest
1995 - nest on hunting blind likely impacted by raccoons

1996 summary: 14 of 16 nests successful, 31 chicks, 27 fledglings
1995 summary: 10 of 14 nests successful, 22 chicks, 22 fledglings
1994 summary: 9 of 12 nests successful, 26 chicks, 23 fledglings
1993 summary: 6 of 9 nests successful, 15 chicks, 13 fledglings
1992 summary: 3 of 6 nests successful, 5 chicks, 5 fledglings
1991 summary: 4 of 5 nests successful, 10 chicks, 7 fledglings
1990 summary: 1 of 3 nests successful, 3 chicks, 3 fledglings
1989 summary: 1 of 3 nests successful, 2 chicks, 2 fledglings
1988 summary: 2 of 3 nests successful, 3 chicks, 3 fledglings
1987 summary: 0 of 2 nests successful
1986 summary: 0 of 1 nest successful

\STEVE\OSPHIST

APPENDIX C

SPECIES STATUS REVIEW FOR BIRDS

STATE OF VERMONT ENDANGERED SPECIES COMMITTEE

Common Name: _____ Current Status: _____

Scientific Name: _____ Recommended Status: _____

Scientific Advisory Group Chair

Endangered Species Committee Chair

Date

Date

Wildlife and plant species are added to or removed from the list of endangered and threatened species by action of the Secretary of the Agency of Natural Resources, upon recommendation of the Vermont Endangered Species Committee, according to 10 V.S.A., Chapter 123. The Vermont Endangered Species Committee is advised by scientific advisory groups on vascular plants, non-vascular plants, invertebrates, fish, reptiles and amphibians, birds, and mammals.

Definitions

ENDANGERED: A species that normally occurs in the State and whose continued existence as a viable component of the State's wild fauna or flora is in jeopardy, or a species determined to be an endangered species under the Federal Endangered Species Act. [V.S.A. Title 10, Chapter 123, Sections 5401(6) & 5402(b).]

THREATENED: A species whose numbers are significantly declining because of loss of habitat or human disturbance and unless protected will become an endangered species, or a species determined to be a threatened species under the Federal Endangered Species Act. [V.S.A. Title 10, Chapter 123, Section 5401(7) & 5402(c).]

Guidelines for listing as Endangered or Threatened

1. Species (including subspecies and varieties) which may be listed include all wild and free-ranging or naturally-occurring mammals, birds, amphibians, reptiles, fish, invertebrates, vascular and non-vascular plants.
2. Species which may be listed include those native to the State or known to exist as viable, naturalized populations in Vermont.
3. Species which may be listed must have spent at least some portion of their life cycle in Vermont on a sustained basis, breeding or otherwise.
4. Species listed by the Secretary of the Interior as endangered or threatened in the U.S., if occurring as historical or current residents or transients in Vermont, shall be listed in their respective categories.
5. A species shall be recommended for delisting when it no longer meets listing criteria. [Note: A species shall not automatically be recommended for delisting when proactive management is initiated or maintained to protect the species from decline or extirpation.]
6. Attached to this review shall be a SPECIES DOCUMENTATION including the best scientific information available with sources cited.
7. The Endangered Species Committee and its scientific advisory groups shall consider the CRITERIA FOR LISTING when recommending species for listing or delisting, using the best scientific information available and their best expert judgments.
8. Specific numbers cited in the Primary Criteria of the CRITERIA FOR LISTING are guidelines only, and are to be interpreted with respect to the biology of the species. Definitions of terms such as *population* and *reproductive potential* for each species shall be provided by the appropriate scientific advisory groups according to accepted practices in their field of biology.
9. All recommendations based upon the criteria must conform to statutory requirements in the definitions of Endangered and Threatened (see above).

Criteria for Listing as Endangered or Threatened

1.0 ENDANGERED

- ___ 1.1 The species is known to have occurred historically and regularly in Vermont but has not been documented in the last 25 years;
OR
- ___ 1.2 The species meets at least one each of these primary and secondary criteria:

PRIMARY CRITERIA

- ___ 1.2.1 There are estimated to be three or fewer nesting occurrences in Vermont. A nesting occurrence is defined as a pair, colony, or aggregation of individuals concentrated in a discrete area or narrowly distributed habitat type.
- ___ 1.2.2 There are estimated to be fewer than 100 reproducing individuals in Vermont.
- ___ 1.2.3 The area occupied by the population(s) is less than 50 acres.
- ___ 1.2.4 The species is known in the last 25 years from 20 or fewer sites throughout its global range.

SECONDARY CRITERIA

- ___ 1.2.5 The species has declined overall or noncyclically throughout a significant portion of its global range.
- ___ 1.2.6 The species has a history of significant decline and/or local extinction in the state with no compensatory establishment of new populations.
- ___ 1.2.7 The species is restricted to localities within or immediately adjacent to Vermont.
- ___ 1.2.8 One or more special factors cause the species to be vulnerable to extirpation:
- ___ 1.2.8.1 The species is in danger of exploitation or is threatened with disturbance.
- ___ 1.2.8.2 The species occurs in rare or specialized habitat vulnerable to loss, modification, or variations in quality.
- ___ 1.2.8.3 The species has low reproductive potential or is experiencing reduced reproductive success.
- ___ 1.2.8.4 The species has other factors that render it vulnerable to extirpation (*list*).

2.0 THREATENED

- ___ 2.1 The species is significantly declining in numbers because of loss of habitat or human disturbance and unless protected will become an Endangered Species.

OR

- ___ 2.2 The species meets at least one each of these primary and secondary criteria:

PRIMARY CRITERIA

- ___ 2.2.1 There are estimated to be ten or fewer nesting occurrences in Vermont. A nesting occurrence is defined as a pair, colony, or aggregation of individuals concentrated in a discrete area of narrowly distributed habitat type.
- ___ 2.2.2 There are estimated to be fewer than 300 reproducing individuals in Vermont.
- ___ 2.2.3 The species is known in the last 25 years from 60 or fewer sites throughout its global range.

SECONDARY CRITERIA

- ___ 2.2.4 The species has declined overall or noncyclically in Vermont or the Northeast region of the United States.
- ___ 2.2.5 The species is restricted to localities within or immediately adjacent to Vermont.
- ___ 2.2.6 One or more special factors cause the species to be vulnerable to decline:
- ___ 2.2.6.1 The species is in danger of exploitation or is threatened with disturbance.
- ___ 2.2.6.2 The species occurs in specialized habitat that is vulnerable to loss, modification, or variations in quality.
- ___ 2.2.6.3 The species has low reproductive potential or is experiencing reduced reproductive success.
- ___ 2.2.6.4 The species has other factors that render it vulnerable to extirpation (*list*).

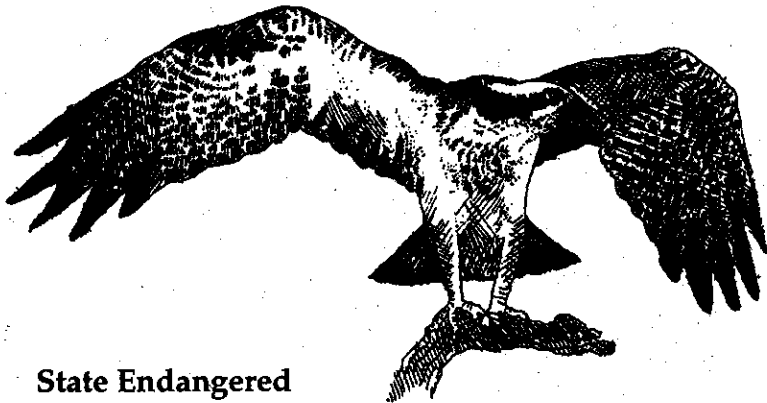
Other Lists

The Endangered Species Committee, for the purposes of maintaining the most up-to-date information possible, shall obtain for reference lists of species which are of special concern, missing from the state, extirpated, known only from unsubstantiated reports, and/or are imported or transplanted.

Vermont's Wildlife Heritage

Nongame and Natural Heritage Program

FACTS ABOUT ENDANGERED AND THREATENED SPECIES



State Endangered

Osprey

Pandion haliaetus

Also known as the "fish-hawk," the osprey is a bird of prey that nests near large areas of water. In Vermont, ospreys can be found along Lake Champlain, Lake Memphremagog, and the Connecticut River. Recent management efforts to provide safe and sturdy nest sites in the best foraging habitats have contributed to increased breeding success.

DESCRIPTION

The crooked bend of the wings in flight is characteristic of the osprey. A dark line through the eye area is another important identifying feature.

The osprey has a dark brown back. The underside is white with a lightly brown-spotted breast. Spotting may be absent in males. Bright yellow eyes stare from a small, narrow head. Sharp talons, used for hunting, protrude from the end of powerful legs. Juveniles have a speckled back and wings and red eyes. Other characteristics include:

■ **Sounds:** Clear whistles to shrill cries indicate increasing levels of alarm.

■ **Size:** Smaller and more streamlined than eagles, ospreys are approximately 21 to 26 inches in body length. Females are somewhat larger than males. Adult birds have a wingspan of 59 to 67 inches and weigh about 3.5 pounds.

■ **Food:** The primary food is fish that swim close to the surface such as perch, suckers, and bullhead that ospreys capture by plummeting from the air and grabbing with their talons.

HABITAT AND DISTRIBUTION

Ospreys breed near large bodies of water with an abundant supply of fish. They nest near lakes and rivers, occasionally in loose colonies.

The nest is a large, bulky pile of sticks, put together on the top of a tall dead tree, a rocky ledge, telephone pole cross arms, or an artificial platform.

Ospreys lay 2 to 4 white or milky-white eggs, heavily marked with brown.

In the eastern U.S., breeding occurs from Maine to Florida. Many ospreys from Vermont are likely to spend their winters as far south as Central America.

REASONS FOR DECLINE

DDT was used as an insecticide until banned from the U.S. in the early 1970s. It widely dispersed throughout the environment where it takes years to break down. Ospreys ingested the DDT when feeding on fish.

The result was thinner eggshells that broke during incubation. Since the ban of DDT, eggshells are thicker and more young have hatched.

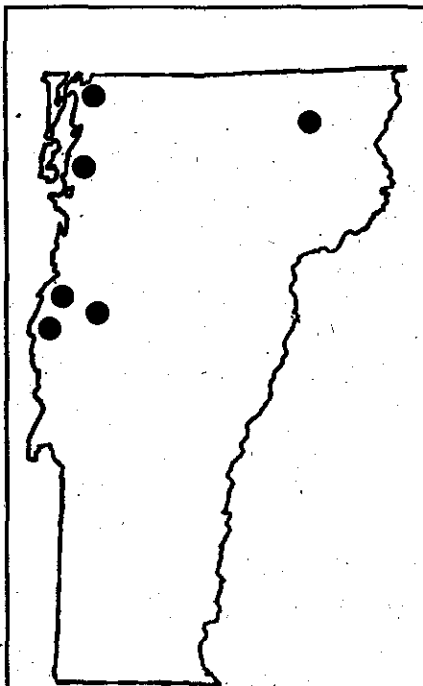
Other circumstances that affect the osprey population include:

■ Ospreys like to nest in tall dead trees, but these trees may fall during the year. Each year some nesting sites are lost, and ospreys must find new ones.

■ In areas where there are dams and channels, the natural flow of water is altered and the availability of fish may change. In these situations ospreys might then need to move to a new location.

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The Nongame and Natural Heritage Program (NNHP) is responsible for managing and enhancing Vermont's native plants, natural communities, and animals that are not hunted or fished (nongame species). A unit within the Vermont Department of Fish and Wildlife, the NNHP's mission includes the preservation of Vermont's rich and varied natural heritage for present and future generations.



General Nesting Areas of Ospreys in Vermont, 1995

■ Disturbances at nest sites such as predation and human intrusion have had some effects on the osprey population.

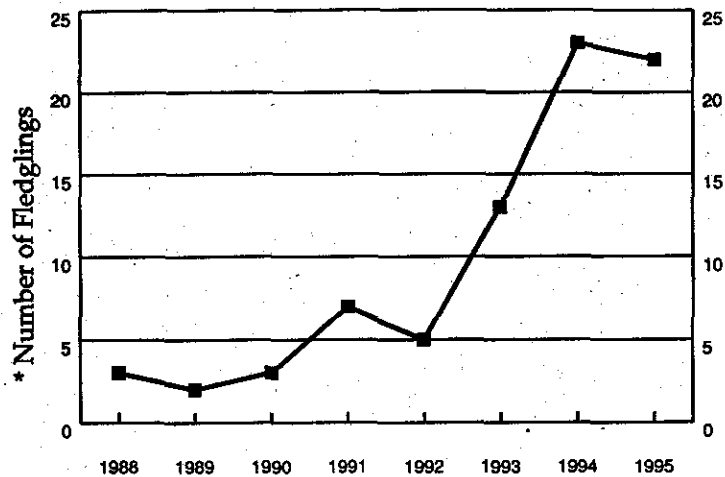
MANAGEMENT EFFORTS

Higher productivity of ospreys in Vermont in recent years has occurred due to the efforts of many people and organizations including the Vermont Fish and Wildlife Department, the U.S. Fish and Wildlife Service, and Vermont power companies. Management activities include:

■ Artificial nesting platforms have been put up in appropriate areas through cooperation with power companies and other landowners. Many have been used by ospreys to build nests and raise young.

■ Bands of metal (predator guards) are placed around trees and platform poles where ospreys are nesting to minimize the approach of predators from the ground.

Osprey Breeding Status in Vermont 1988-1995



* Number of fledglings indicates number of chicks that flew from the nest.

■ Nesting areas are monitored so the number of young raised can be tracked and so that disturbances by people can be minimized through placement of warning signs if needed.

■ Observations are noted as to where ospreys frequently occur so that nesting platforms can be put up in those areas for the next breeding season.

WHAT YOU CAN DO

■ Avoid getting too close to nesting sites during the breeding season. Honor warning signs when posted.

■ Maintain a respectful distance from wild animals. (Travel with binoculars!) If an animal vocalizes when you're near its territory, immediately back off.

■ Observe and report on osprey nesting activities in your area.

■ For information on constructing an osprey nesting platform, write to the address below.

■ Donate any amount to the Nongame Wildlife Fund at the sign of the loon on the Vermont income tax form or on hunting and fishing license applications. (See below.)

This fact sheet was funded by contributions to the Nongame Wildlife Fund. Created by the legislature in 1986, the fund enables people to voluntarily contribute to programs on behalf of Vermont's nongame species. Tax-deductible gifts are used by the Nongame and Natural Heritage Program to manage species and habitats and to provide planning assistance and educational programs. Direct gifts are accepted, payable to:

Nongame Wildlife Fund
Vermont Fish and Wildlife Dept.
103 S. Main St., Waterbury, VT 05671-0501
(802) 241-3700



Nongame Wildlife Fund monies help sustain Nongame and Natural Heritage programs at current levels. The national initiative "Teaming with Wildlife" seeks funds for wildlife conservation, recreation, and education through user fees added to the price of outdoor recreation equipment. Some of those monies could be used to help more of Vermont's nongame wildlife species and habitats. Contact the Vermont Fish and Wildlife Department for an information packet.