



# VERMONT FURBEARER MANAGEMENT NEWSLETTER



*The MISSION of the Vermont Fish & Wildlife Department is the conservation of fish, wildlife, and plants and their habitats for the people of Vermont. In order to accomplish this mission, the integrity, diversity, and vitality of all natural systems must be protected.*



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## Bobcat Habitat Study Begins This Fall

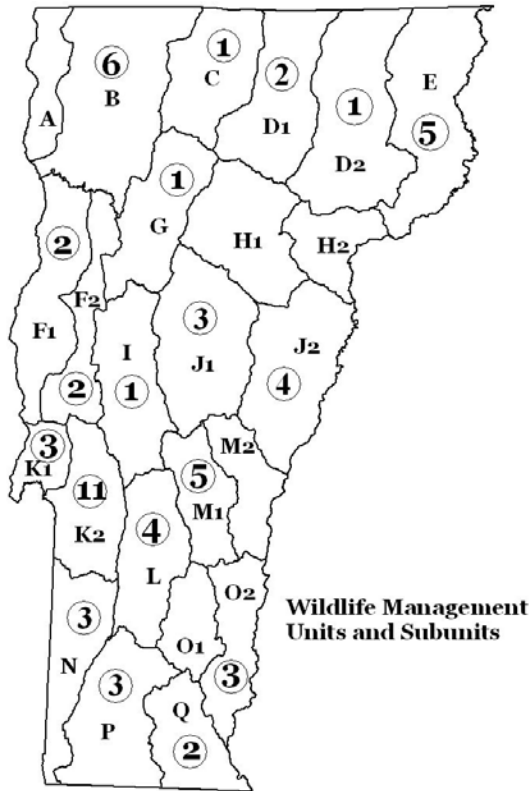
The Vermont Fish & Wildlife Department is contracting with the University of Vermont to begin a study of the critical habitat needs of bobcat. We plan to fit 10-20 bobcats with Global Positioning Systems (GPS) collars and to follow their movements for up to two years. The GPS collars collect data on latitude/longitude, altitude, time, activity, and temperature every four to six hours via satellites. The collars will allow us to locate den sites and document kitten production, bobcat travel patterns, and their death sites. We will map this information to determine the importance of steep, rocky ledges used by bobcats, and evaluate the impacts of roads and human development on bobcat movement and survival. The study will improve our understanding of the relationships between landscape features and bobcat reproduction and survival, and strengthen our efforts to conserve bobcat habitat in Vermont.



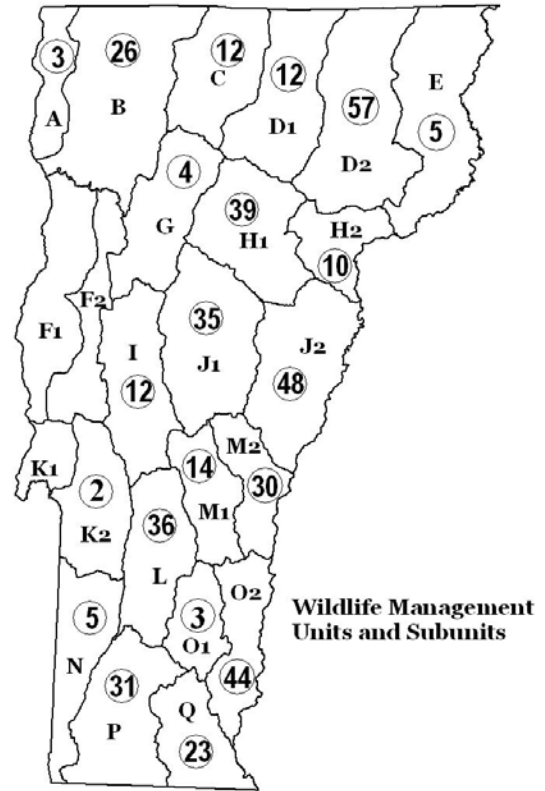
## Season Results 2003-04

Sixty-two bobcat, 451 fisher, and 116 otter were reported and tagged by Vermont's Wardens during the 2003-04 season. Wildlife biologists examined each carcass to determine their sex, age, and physical condition. These data are used to monitor changes in population levels. We need to assess trends in furbearer numbers to set and defend trapping and hunting seasons, and to ensure that these animals exist for future generations of Vermonters.

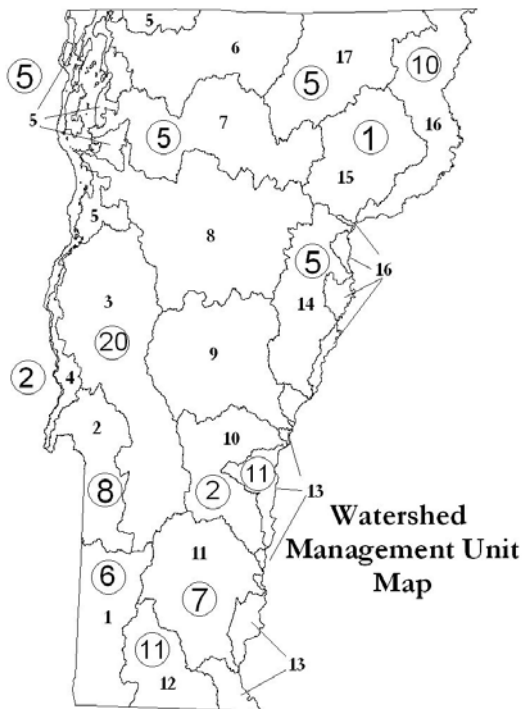
Bobcat and fisher were taken throughout much of the State, with several bobcats coming from WMU K2 in south-central Vermont (Figures 1 and 2). We manage otter by Watershed Management Units, as this species is closely tied to waterways. Western and southern watersheds produced the most otters this year (Figure 3). We monitor the harvest of raccoon, beaver, coyote, muskrat, red fox, mink, fisher, otter, and bobcat through the annual trapper mail survey (Figure 4). This mandatory survey also allows us to track trapper effort (# traps x # nights). Historically, trapping effort has been closely related to harvest size. This strong relationship is a reassuring indicator that we are not over harvesting furbearers in Vermont. We will continue to monitor trapping effort to assess trends in furbearer populations. Thanks to all of you who collect and/or contribute this essential information to the furbearer program. *(Continued on page 2)*



**Figure 1.** Distribution of 62 bobcat taken during the 2003-04 season.



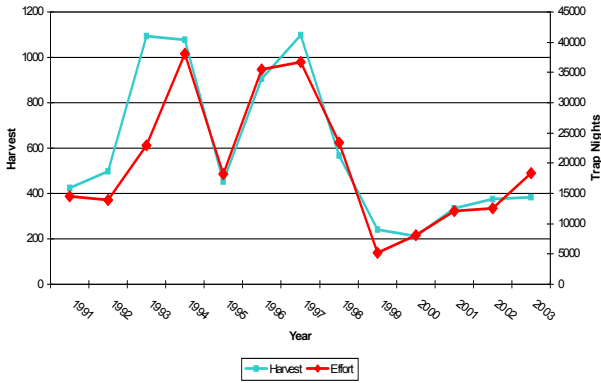
**Figure 2.** Distribution of 451 fisher taken during the 2003-04 season. (WMUs for the remaining 25 fisher are unknown).



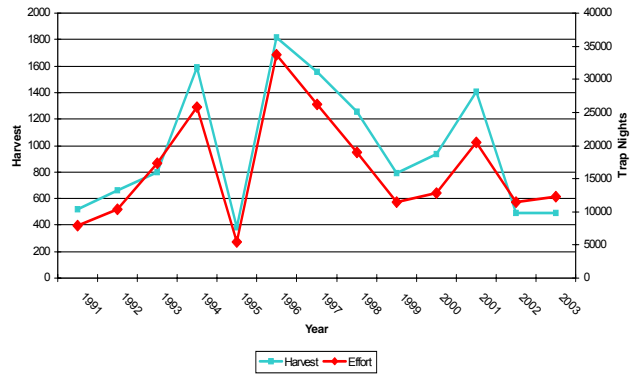
1. Batten Kill, Walloomsuc, Hoosic
2. Poultney, Mettawee
3. Otter Creek, Little Otter Creek, Lewis Creek
4. Lower Lake Champlain
5. Upper Lake Champlain, LaPlatte, Malletts Bay, St. Albans Bay, Rock, Pike
6. Missisquoi
7. Lamoille
8. Winooski
9. White
10. Ottauquechee, Black
11. West, Williams, Saxtons
12. Deerfield
13. Lower Connecticut, Mill Brook
14. Stevens, Wells, Waits, Ompompanoosuc
15. Passumpsic
16. Upper Connecticut, Nulhegan, Willard Stream, Paul Stream
17. Lake Memphremagog, Black, Barton, Clyde

**Figure 3.** Distribution of 116 otter taken during the 2003-04 season. The remaining 17 are unknown.

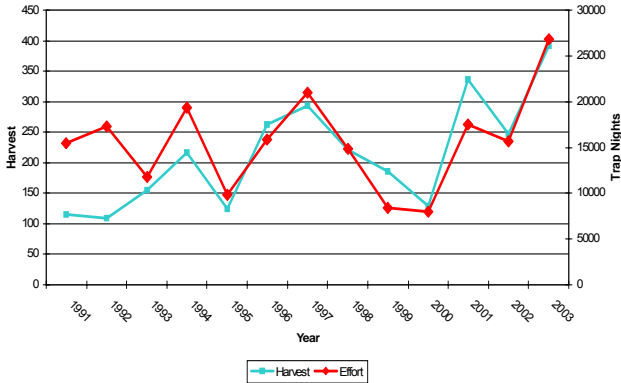
### Raccoon



### Beaver



### Coyote



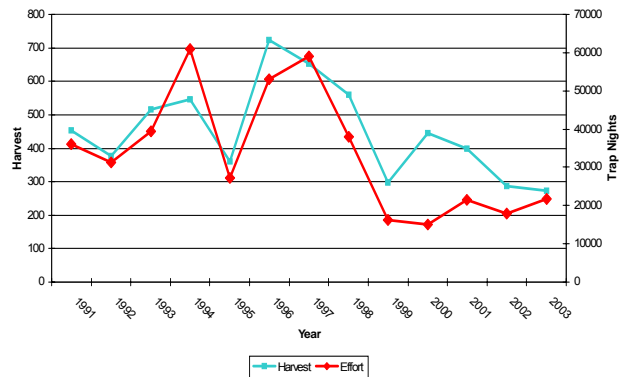
### Muskrat



### Red Fox

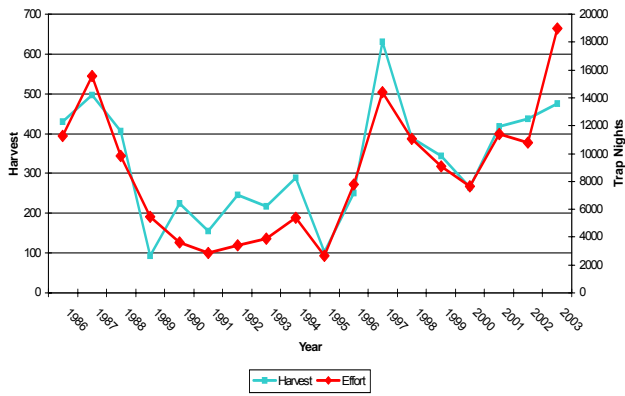


### Mink

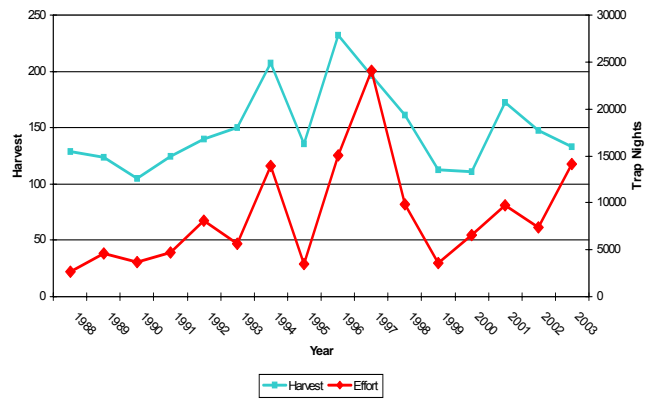


**Figure 4.** Harvest vs. Trapper Effort in Vermont (data from annual Trapper Mail Survey returned by trappers – thank you!).

### Fisher



### Otter



### Bobcat

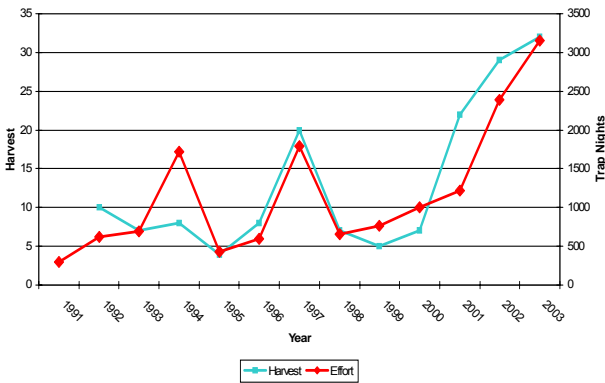


Figure 4. Harvest vs. Trapper Effort in Vermont (cont.).

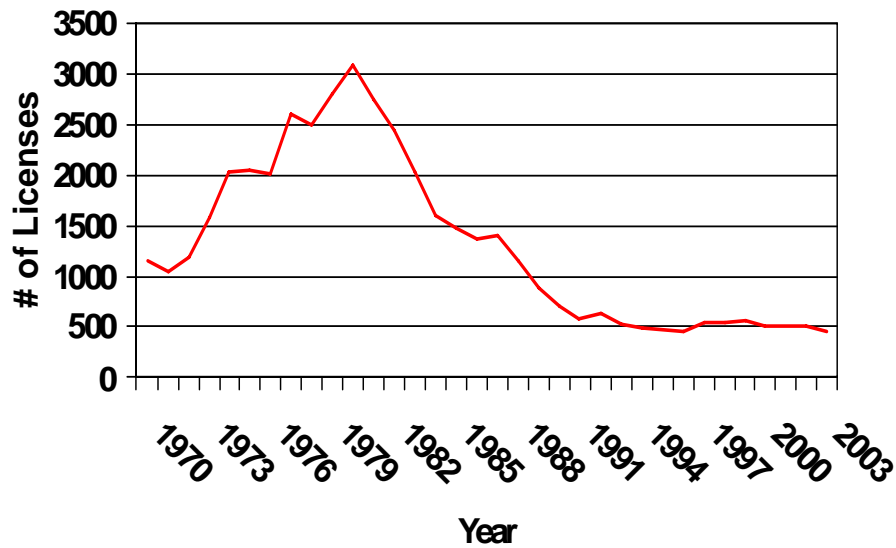


Figure 5. Total number of resident trapping license sales in Vermont by calendar year.

## BMPs: Better Efficiency for Trappers, Better Welfare for Captured Animals

Let's face it. Successful trapping doesn't just happen overnight. It takes years of experience and just the right tools and techniques. A little patience doesn't hurt either.

State fish and wildlife agencies are committed to helping trappers across the nation reach their fullest potential. So committed, in fact, that their membership organization, the International Association of Fish and Wildlife Agencies (IAFWA), is developing best management practices (BMPs) for trappers. A practical tool for trappers of all skill levels, BMPs are carefully and extensively researched recommendations that address the welfare of captured animals and identify the safest, most efficient, selective and practical trapping techniques and equipment.

Over a period of seven years, eight Vermont trappers and their field observers have participated in this scientific trap testing effort – testing a variety of traps and trap designs for coyote and fisher. Participants have provided valuable advice and technical know how to the BMP effort. As a result, all BMPs combine field experience with the latest scientific information (see photo).

So how exactly do BMPs benefit trappers, even highly experienced ones? BMPs identify techniques and traps that reduce injuries to captured animals and feature recommendations for modifying existing traps that can be adapted to virtually any trapline. BMPs also specify the types of traps that limit the risk of capturing non-furbearers, such as dogs and cats.

As for the specific species that BMPs address, trappers can take their pick: Eastern coyotes, Western coyotes, red foxes, beavers, gray fox, raccoons, river otters, bobcats, nutria, and muskrats are just some of the species for which BMPs are being developed. While all BMPs are national in scope, regional notations are included when applicable.

Trapping is an important wildlife management tool. BMPs promote humane and effective trapping practices which, in turn, result in stronger furbearer programs and better trappers.

## UVM Wildlife Biologists Team Up With Dogs

Researchers at the University of Vermont are using specially trained dogs to learn more about Vermont's black bear, bobcat, and fisher populations. In 2001, doctoral student Robert Long began employing "scat detector dogs" to find feces from these wide-ranging forest species. Over the last three summers, Long and his field crew have located approximately 2,000 scats from across the state. Combining scat data with data collected from remote cameras and other survey methods, Long hopes to better understand how Vermont's carnivores are using the landscape and how roads and development affect animal movement and habitat use.

A scat can impart a wealth of knowledge about the individual that deposited it. For example, DNA and other contents from a single sample can reveal the sex, individual identification, fertility status, diet, parasites, and pathogens of its former host. In some cases, stress hormones also can be analyzed to determine the stress level of the animal.

The idea of training dogs to systematically detect scat was developed in the late 1990s by Samuel Wasser, director of the Center for Conservation Biology at the University of Washington, along with several colleagues. Scat detector dogs were initially used to study grizzlies, kit foxes, and several other western carnivores. The Vermont project was the first to bring these dogs to eastern North America, and to survey such a diverse group of species.

Results from Long's work will increase our understanding of these Vermont carnivores and should be available in the fall of 2005.



*Vermont trapper participating in BMP study*

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## Featured Species: Fisher (*Martes pennanti*)

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*The fisher, also known as the fishercat, pekan (French), otchock (Cree), otschilik (Ojibwan), and historically as the wejack (early European settlers), is a member of the weasel family. The variety of names attributed to this animal hints at its wide ranging, northern distribution. Other similar and closely related animals include the pine marten (Martes americana) and mink (Mustela vison). The common name fisher is likely derived from early European settlers in their acknowledgment of the animal's superficial resemblance to the European polecat (Mustela putorius) which is sometimes referred to as the ficht or fitch. In 1794, Samuel Williams described the fisher in his publication, The Natural and Civil History of Vermont, as a "fierce and ravenous" animal "of great activity and strength." He wrote on to say that the fisher could not "be tamed, or made to associate with our common cats." Although the latter of these statements may be true, this relatively small, forest-dwelling carnivore is often characterized by many as being more savage than is actually deserved. Whereas the fisher has always been valued as a fur resource, it is only in more recent times that its predatory nature has been an appreciated part of Vermont's healthy, functioning ecosystems.*

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### Food Items

Fisher feeding behavior is best described as being opportunistic – eating everything from small mammals, songbirds, turkey, and grouse to apples, beechnuts, and acorns. Of unique interest is the fisher's appetite for porcupine. There is much speculation as to how a fisher subdues this prickly meal but as evidence indicates, porcupines are most certainly a routine part of their diet. It is believed that a fisher will crowd a porcupine to the outer limits of a tree's branches thereby forcing it to fall. The dazed, and probably injured, porcupine is then more susceptible to an attack on the ground. It also is believed that a fisher can overcome a porcupine without the advantage of a forced fall by repetitive attacks to the unquilled face. Either way is proof of the fisher's amazing agility aloft in the trees or on the ground.

Fishers are active both day and night with heightened activity occurring in the early morning and late evening. They travel long distances during short periods of time in search of food. One radio-collared male, for example, was found traveling over 60 miles in a three-day period. While traveling, fishers will periodically stop to investigate possible food sources such as porcupine dens. In areas where prey is more abundant and predictable, such

as in dense, coniferous forest, they will zigzag back and forth, flushing possible prey from its hiding cover. While hunting, their body temperature falls forcing them to seek the warmth of shelter afterwards. Temporary dens are most often found under logs, root wads, and brush piles, in the cavities of hollow trees, or beneath the snow.

While fishers will dine upon domestic cats, the occurrence of cat in their diet is relatively low. One study, conducted in north-central Massachusetts, examined 169 scats and 57 gastrointestinal tracts of fishers in an attempt to determine their seasonal food habits. Even though domestic cats were common in the semi-rural study area, cat remains were identified in only 2% of the samples collected.

### Abundance Throughout History

Fisher are endemic to North America and have persisted here for at least a million years as evidenced by fossil records. Historically, fisher occurred in broad bands extending southward along the ranges of the Appalachian, Rocky, and Pacific Coast mountains and were prevalent throughout all of New England and most of Canada northward to the Yukon, Northwest Territories, and Labrador. Within the last 200 years, however, their distribution has varied dramatically as a result of human influence. The landscape-scale removal of forests, European settlement, and unregulated trapping characteristic of the 1800s, severely reduced or eliminated fisher populations from much of their southern habitat including Vermont. Thankfully, throughout this time period, a stronghold of fisher remained in the northern portion of their range.

In reaction to the possibility of complete extirpation, the Vermont legislature closed the fisher trapping season in 1929. This season closure, combined with the effects of reforestation resulting from farm abandonment during the early 1900s, set the stage for fisher population recovery.

In the 1950s, an incentive to control porcupine populations elevated the importance of fisher population recovery. The porcupine population, which flourished in the fisher's absence, was

(Continued on page 7)

damaging the regenerating forests due to their bark-eating habits. By this time, the State had already spent \$162,336.45 on porcupine bounties with little to no effect on the population. In 1958, the Pest Control Division of the Department of Forests and Parks proposed to "reestablish fisher to a normal level and thereby restore a balance which since broken has permitted abnormal development of porcupine populations." Acting on this proposal in cooperation with the Vermont Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, 124 fisher were live-trapped in Maine and subsequently released into 37 Vermont towns between the years of 1959 and 1967. By 1974, fisher were positively identified in 96 towns throughout the state and the reintroduction was deemed a success.

Today, fisher are once again common throughout the state and can be found in virtually every town.

### Current Management Effort



Fisher trapping is permitted during a heavily-regulated season each year. The health of the population is monitored annually by information collected from trapper mail surveys and by examining the age and sex structure of each year's harvest. In recognizing the fisher's important ecological role as well as its renewable resource value, the Vermont Fish & Wildlife Department strives to conserve the species in order to maintain ecosystem integrity. At the same time, diverse opportunities to safely and ethically view, harvest, and utilize this unique furbearer are provided.

## Recipes

### Muskrat Stew

1 muskrat cut into pieces  
flour  
salt and pepper  
2½ tablespoons butter  
7 cups boiling water  
1 teaspoon thyme  
1 cup corn  
3 potatoes, cubed  
¼ teaspoon cayenne  
3 medium onions, sliced  
2 cups canned tomatoes with juice



Roll the muskrat pieces in flour, salt, and pepper. Brown in butter. Add muskrat and all other ingredients (with the exception of the tomatoes) to the boiling water, cover, and simmer for ½ to 2 hours. Add the tomatoes and continue to simmer another hour. Serves 4.

*From [www.nearctica.com](http://www.nearctica.com)*

### Fricasseed Raccoon

1 raccoon, cut into serving pieces  
¼ cup flour  
1 teaspoon salt  
1/8 teaspoon pepper  
3 tablespoons fat  
2 cups water

Remove fat from lean meat. Combine flour, salt, and pepper in a bag. Add meat and shake bag to coat. Fry in hot fat until brown. Add water, cover and simmer 2 hours or until tender.

*From [www.ces.uga.edu](http://www.ces.uga.edu)*

## Furbearer Education Kits Just About Complete

The Northeast Furbearer Resources Technical Committee (furbearer biologists from 13 northeastern states and 5 Canadian provinces) recently completed furbearer education kits to distribute to each state and province in the organization. The kit includes a curriculum for middle school students, 14 furbearer pelts, skulls, rubber tracks and scat, three mammal and track guide books, two skull keys, a CD of the website [ConserveWildlife.org](http://ConserveWildlife.org), three videos, and more! The curriculum was developed by the New Hampshire Fish and Game Information and Education Division with input from several state Project Wild coordinators, teachers, and a sub committee of furbearer biologists. The curriculum includes three units:

- (1) The Lifestyles and Habitats of the Furry and Diverse
- (2) A Window to the Past; and
- (3) The Nuts & Bolts of Furbearer Management.

The kit will be available to loan to teachers, wardens, trappers, and others interested in conducting school education programs. We expect the demand to be high and eventually hope to generate enough funds to develop kits for use in each wildlife district (Springfield, Rutland, Essex, Barre, and St. Johnsbury).

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## Act 250 – What It Means For You

Chris Bernier, F&W Specialist

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*“We can’t make a national park out of the state, but neither do we need to create a commercial jungle...How can we have economic growth and help our people improve their economic situation without destroying the very secret of our success, our environment.” – Former Governor Deane C. Davis – 1970*

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Working for the Vermont Fish & Wildlife Department over the past ten years, I have been involved in numerous Act 250 cases. Throughout this time, I have been continually amazed by the wide variety of opinions regarding the law and by the public’s general lack of understanding of how it works and what it means for Vermont. While some perceive the law as the savior of Vermont’s traditional working landscapes and our way of life, others deem it as a monster whose entire purpose is to eliminate private property rights and cripple the economy. In this brief article, I’m advocating neither the “monster” nor the “savior” opinion of the law; I will leave that judgment to you. I am hoping, however, to broaden your understanding of the Act and how it relates to the traditions we all enjoy.

Vermont’s Land Use and Development Law (Title 10, Chapter 151), commonly referred to as Act 250, became effective June 1, 1970. It established a statewide system under which subdivision and development of residential, commercial, industrial, and public facilities must receive a permit by the state before construction may begin. To obtain this permit, a developer must satisfy a District Environmental Commission (a three-member panel appointed by the Governor) that the proposed development will meet the requirements of ten criteria. These criteria were chosen by the legislature to assure that the development conforms to local or

regional plans and will not adversely affect the environment or municipal services.

In simple terms, Act 250 was designed to be a public process and to provide opportunity for persons with substantial concerns to be heard. The District Environmental Commission has considerable discretion in deciding who has party status in the proceedings. To be a party means that you have the right to present evidence, to cross examine witnesses, and to make arguments to the commission. The municipality in which the project is located, the municipal planning commission, the regional planning commission, and any affected state agency is automatically granted party status in order to represent the public’s interests. Landowners adjacent to a proposed project, however, have to prove to the commission that their property interests, as relevant to the ten criteria, may be affected by the project in order to be admitted as a party. Through an orderly hearing process, all parties are given the opportunity to testify as to their individual concerns. In consideration of this testimony, the District Environmental Commission then renders a decision. The commission may grant permits outright or may issue permits with specific conditions included in an attempt to alleviate concerns of the affected parties. Permits are rarely denied.

The Vermont Fish & Wildlife Department has been reviewing and commenting on Act 250 applications since the law was enacted. Focusing on the protection of fish and wildlife habitats, the department routinely makes recommendations under the jurisdiction of criterion 8(A), which requires applicants to demonstrate that their project will not imperil necessary wildlife habitat or endangered species. Necessary wildlife habitat is defined as “concentrated habitat which is identifiable and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life.” Using this definition, the department has successfully protected various habitat types including deer wintering areas, mast stands (wildlife feeding areas), wetlands, wildlife road crossings, and habitat for rare and endangered species.

*(Continued on page 9)*



Under criterion 8(A), the department's formula for conservation is simple: avoid, minimize, and mitigate. Working in cooperation with the landowner/applicant, we strive to first avoid impacting necessary wildlife habitats. When complete avoidance is not possible, we then work to minimize impacts and, mitigate for these impacts by permanently protecting similar habitat elsewhere on the project site. Protection of necessary wildlife habitat through the mitigation process typically results in the implementation of perpetual conservation easements, deed restrictions, or permit conditions depending on the magnitude of impacts incurred as a result of the project. Forest/habitat management recommendations are always included as part of any mitigation agreement.

What does this mean for you? As industrial, commercial, and residential developments continue to prosper throughout the state, the Fish & Wildlife Department will also continue to work to ensure that adequate protective measures are afforded our valuable wildlife habitats. Within virtually every Act 250 application, there is an opportunity for economic growth as well as environmental stewardship. Through the Act 250 process, we strive to ensure that the abundant wildlife populations we all enjoy today will be here tomorrow by applying logical solutions to otherwise complex social/environmental conflicts. If you are searching for new places to enjoy your outdoor pursuits, it's a good bet that there is a property conserved by Act 250 in your neighborhood with just the habitat you're looking for.

ACT 250 FACTS AND FIGURES (Source)

- **Average number of Act 250 decisions per year – 620** (*“Act 250 History and Permit Application Activity, 1985-2000” – VT Environmental Board*)
- **Average number of Act 250 applications denied per year – 9** (*“Act 250 History and Permit Application Activity – 1985-2000” – VT Environmental Board*)
- **Act 250 covers only 40% of Vermont's development** (*VT Environmental Board*)
- **From 1980-1994, Vermont's average annual growth in Construction**

**Employment was the highest in New England at over 1% per year** (*Stephen Meyer, MIT, VT Environmental Law Conference, 1995*)

- **Land lost to development each year in Vermont – 6,500 acres** (*VT Agency of Natural Resources, 2001*)
- **Among the 50 states, Vermont ranked first in environmental “green” indicators and third in economic “gold” indicators** (*“Gold and Green 2000” – Institute for Southern Studies, November 2000*)
- **Habitat Impacted by Act 250 regulated development since 1995:**
  - Deer winter habitat – 2,741 acres
  - Black bear habitat – 1,580 acres
  - Wetlands – 498 acres
- **Habitat conserved or otherwise positively influenced through Department efforts via the Act 250 permitting process since 1995:**
  - Deer winter habitat – 24,775 acres
  - Black bear habitat – 20,256 acres
  - Wetlands – 3,506 acres

(VT Fish & Wildlife Department)



NOTE

Dr. Rod Zwick from Lyndon State College will be sending out the Vermont trapper survey to all trappers again this spring (2005). This same survey has been done in 1994 and 2000. Repeating it in 2005 will give us trends about trapper attitudes, trap use and motives, and will be very helpful in tracking changes in activity over time. Please complete and return the survey. We will report the results in next year's newsletter.

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## Check Out These Websites

### Vermont Fish & Wildlife Department

<http://www.vtfishandwildlife.com/>

### Conserve Wildlife

<http://www.conservewildlife.org/>

### Vermont Trappers Association

<http://homepages.together.net/~lrk/INDEX.html>

### National Trappers Association

<http://www.nationaltrappers.com/>

### IAFWA Furbearer Resources Technical Work Group

<http://www.furbearermgmt.org/>

### Furbearers Unlimited

<http://www.furbearers.org/>

### Fur Takers of America

<http://www.furtakersofamerica.com/>

### The Wildlife Society

<http://www.wildlife.org/>

### Keeping Track

<http://www.keepingtrackinc.org/>

## THANK YOU, THANK YOU

Trappers, hunters, game wardens, furbearer team members, and trap standards committee members for your help in the management and conservation of Vermont's furbearers



The Vermont Agency of Natural Resources is an equal opportunity agency and offers all persons the benefits of participation in each of its programs and competing in all areas of employment, regardless of race, color, religion, sex, national origin, age disability, sexual preference, or other non-merit factors.

This publication is available upon request in large print, braille, or audio cassette.

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## VERMONT FURBEARER MANAGEMENT NEWSLETTER

AGENCY OF NATURAL RESOURCES

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