VERMONT FISH & WILDLIFE DEPARTMENT

Vermont Furbearer Management Newsletter

Volume 3, Issue 1 Fall/Winter 2002

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.

Inside this issue:

Harvest Information

Forty-four bobcat, 479 fisher, and 172 otter were reported and pelt-sealed by law enforcement personnel during the 2001/02 season. The carcasses that are turned into the wardens are processed by us at our lab in Roxbury to determine the sex, age (see article on Carcass Collection & Processing) and condition of each of the animals. These data allow us to monitor changes in population levels from one year to the next. Our ability to accurately predict whether the populations are increasing, decreasing, or staying relatively stable allows us to more confidently defend trapping and hunting seasons and ensure that these animals exist for future generations of Vermonters.

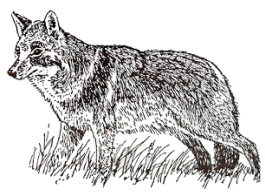
Figures 1-3 show the geographic distribution of the bobcat, fisher, and otter harvest by Wildlife/Watershed Management Unit. Figure 4 graphs the harvest of beaver, otter, fisher, red fox, mink, raccoon, coyote, and muskrat against the trapper effort (# traps x # nights) for each species. These data are derived from the yearly trapper mail survey. It is easy to see from these graphs how trapper effort influences the harvest. It follows, therefore, that these data are critical to the accurate interpretation of harvest information and to the true forecasting of 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)

Best Management Practices for Trapping — An Update

After a lengthy review process, we anticipate that the final copy of the coyote BMP will be available to state agencies this spring. Once we receive the document, Department staff will meet with the Trap Standards Committee to discuss dissemination and implementation.

In addition, the International Association of Fish and Wildlife Agencies' (IAFWA) website is being revised and will be available in mid February (www.furbearermgmt.org). Additions to the website will include outreach materials such as fact sheets and the two videos — *Trapping Matters*, and *Regulated Trapping and Furbearer Management in the U.S.*



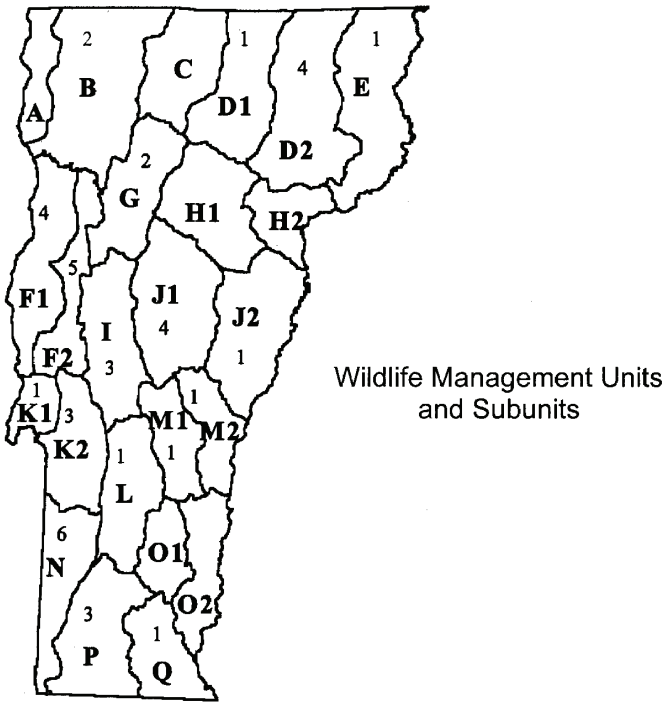


Figure 1. Distribution of 44 bobcat taken during the 2001-02 season.

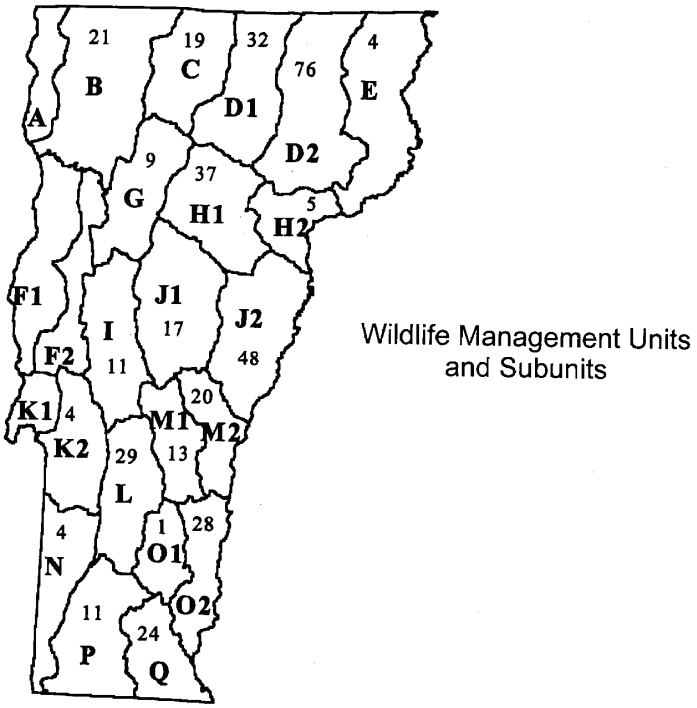
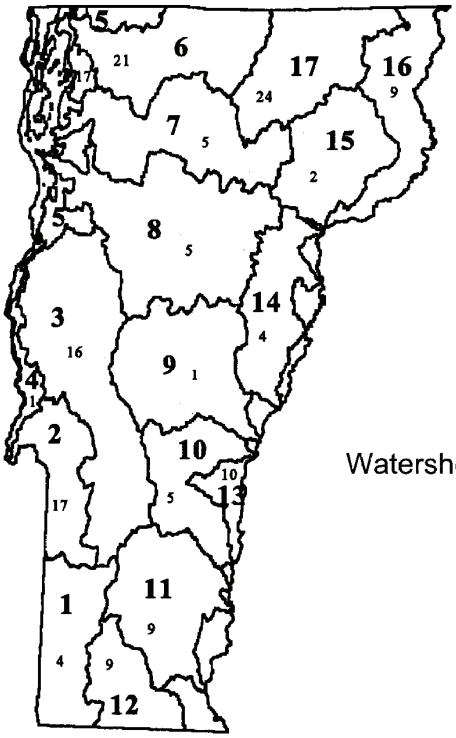


Figure 3. Distribution of 413 fisher taken during the 2001-02 season. (WMU's for the remaining 6 fisher are unknown).



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 2. Distribution of 159 otter taken during the 2001-02 season.

Figure 4. Harvest vs. Trapper Effort in Vermont

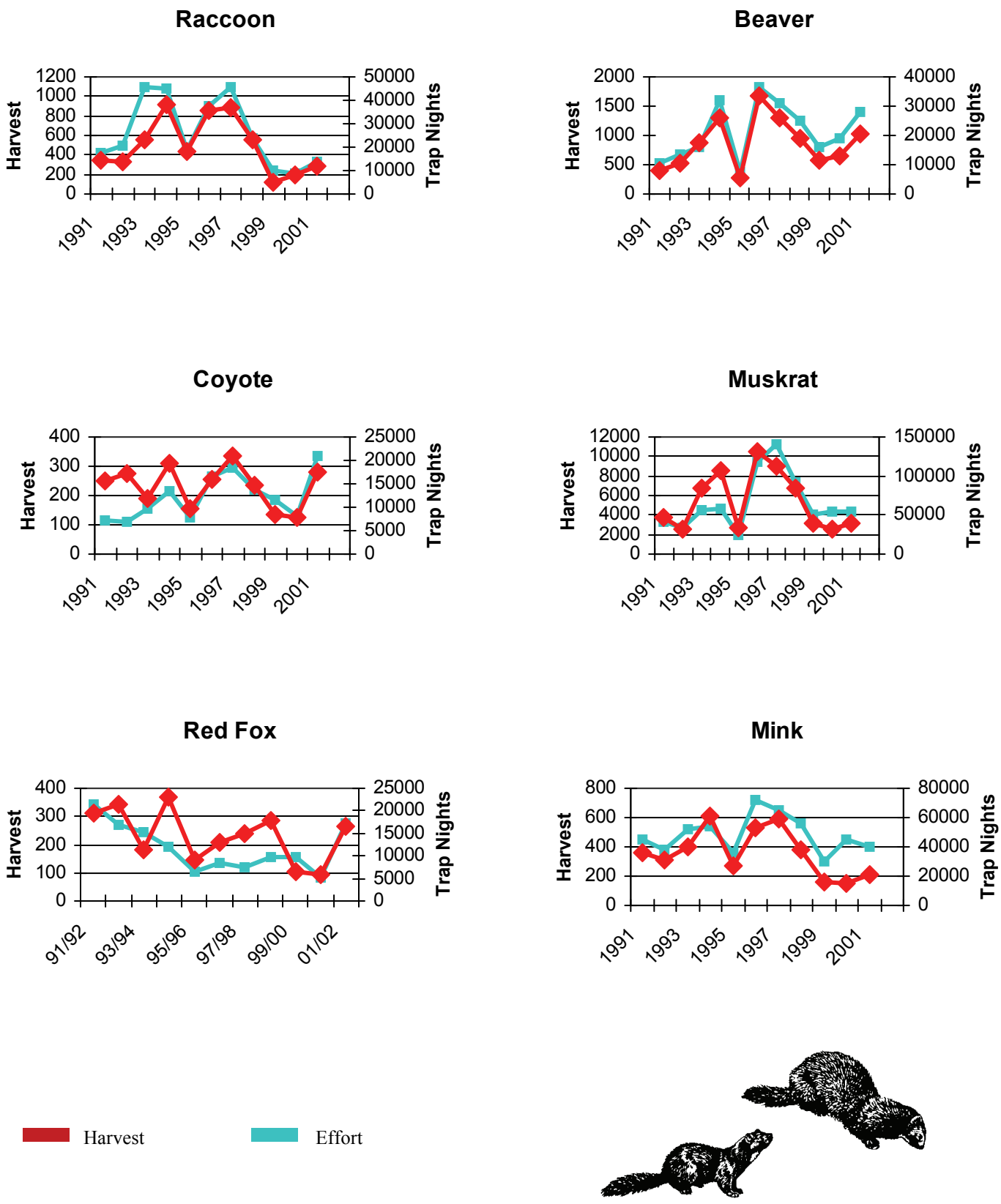
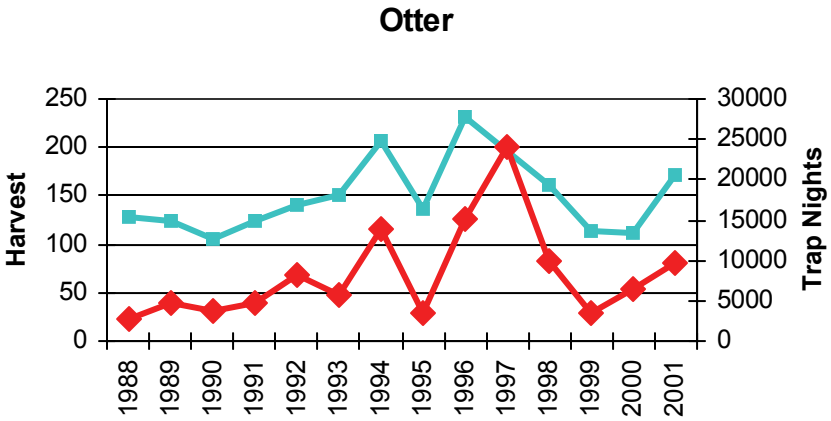
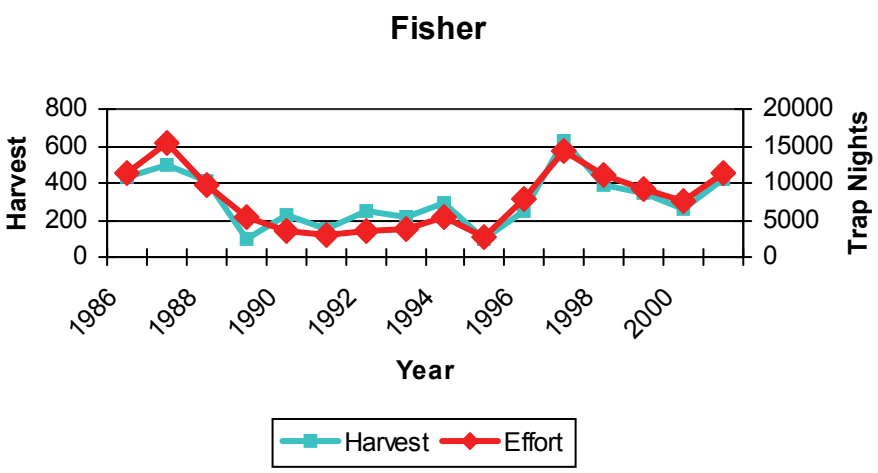
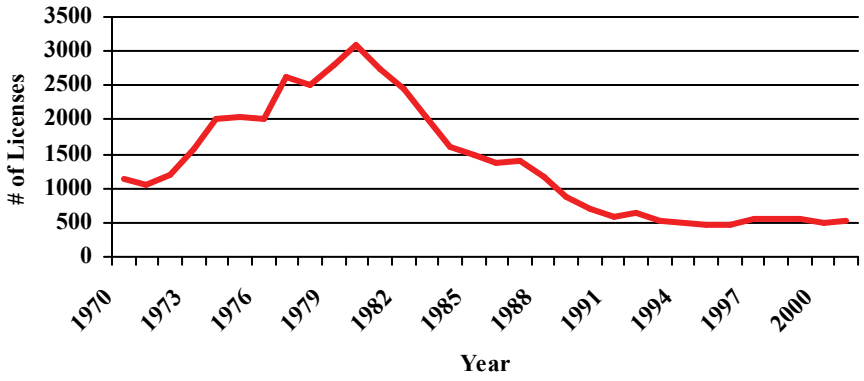


Figure 4. Harvest vs. Trapper Effort in Vermont *(cont.)*







Total Number of Resident Trapping License Sales in Vermont by Calendar Year.

New Furbearer Curriculum

The Northeast Furbearer Resources Technical Committee (NEFRTC) is developing a furbearer curriculum package geared at middle school aged students in the Northeast. The overall goal is to assist teachers in helping students develop a knowledge base about furbearers in the Northeast including aspects such as habitat needs, history, use, trapping, and management. The final product will include four curriculum units: (1) Meet Your Furbearers; (2) The Many Values of Wildlife/Furbearers; (3) Furbearer Management and Conservation; and (4) The History of Furbearers in the Northeast. Each section will include 3-4 activities addressing the objectives, student reading sheets, a resource list, and evaluation. The curriculum will be part of a larger kit which incorporates some of the trapping videos already available, the updated furbearer booklet (see below), replicas of furbearer tracks, historical and modern day products made from furbearers, furbearer skins and skulls, mammal field guide, and website connections. This effort is being funded through a grant from the U.S. Fish and Wildlife Service. We hope to have enough money available to develop 8 to 10 kits per state. If anyone is interested in donating fur products, skins, or skulls for the Vermont kits, please contact Kim Royar (802-885-8831). We hope that the curriculum will make it easier for teachers to incorporate information about furbearer management and trapping into their classrooms.

Two New Outreach Tools Available

The **booklet** ***Trapping and Furbearer Management in North American Wildlife Conservation*** has been revised and updated and is available for distribution. The booklet discusses all aspects of furbearer management and conservation and is an excellent resource for anyone who has questions regarding furbearers or trapping. The Department has a supply of booklets. If you would like a copy or know someone else who might be interested, please contact Kim Royar (802-885-8831).

In addition, the Department is putting together a small brochure called ***Trapping in Vermont***. The brochure is patterned after one done in Connecticut and is designed to provide information on trapping in a format that is more condensed than the booklet.

Vermont Forest Carnivore Project

The Vermont Fish and Wildlife Department and the University of Vermont are involved in a cooperative effort to study the effect of habitat use and land use changes on northeastern forest carnivores. The objectives of the study are: (1) to develop habitat models for the bobcat, black bear, and fisher; (2) to evaluate potential changes in the distribution of these species as a result of projected land use changes; and (3) to evaluate the effects of habitat fragmentation and human disturbance on stress levels in bobcat, bear, and fisher. Researchers will be using a variety of techniques to collect information about these species including camera boxes, hair snares, and scat-sniffing dogs (dogs that walk with their handler and are trained to find the scats of specific wildlife species). Information on this study will help to guide the Department as well as Town and Regional Planning Commissions in their habitat conservation efforts.

Otter Mercury Study

Last winter the Fish and Wildlife Department sent hair samples from 20 Vermont otters to a lab in Maine to test the mercury levels in otter taken from different watersheds around the state. Otter are very sensitive to pollutants such as mercury because they are at the top of the food chain. Due to this sensitivity and to the availability of the carcasses supplied by trappers, otter can be tested and used to indicate the health of a watershed ecosystem. In addition, it is important to collect baseline information on mercury levels due to the impact of mercury on otter and other wildlife species. A study done by G. Mierle et al. in Ontario, Canada found that otters trapped in townships with high mercury levels were half the mean age of otters taken in low mercury townships. Otter survival appears to be lower in areas with high mercury concentrations due to stress on their health. Of the 20 otters tested, two animals showed elevated levels of mercury. If funding becomes available, additional otter will be sent to Maine for testing in the future.

Featured Species: Beaver *(Castor canadensis)*

A beaver is easily recognized by its broad, flat, leathery tail which it uses for storing fat, as a paddle and rudder, for balance, and as a warning device, and by its large, yellowish-orange teeth. Its fur is usually dark brown with lighter highlights. Coarse, shiny guard hairs protrude from the dense short underfur which insulates and waterproofs the beaver. It is the underfur that was so greatly sought after during the historical fur trade years. The fur was felted to create warm, waterproof material for hats.

Castor canadensis is the largest of the rodent family, averaging 40 to 60 pounds, but sometimes weighing in at as much as 100 pounds. It has short, muscular legs with strong claws for digging on its front feet and large, webbed hind feet for swimming and walking across mud. The second toe from the inside of each rear foot has a large, open-split nail the beaver uses to comb its fur and catch parasites. (During the combing process, a yellowish-brown substance secreted from the anal glands is spread through the fur making it water repellant and providing scent clues for other beavers. Castoreum, a yellowish, pleasant smelling oil produced by the castor sacs, is deposited on mud patties as another form of communication.)

Beavers are found throughout Vermont along wooded streams, ponds, small lakes, and marshes where there is an abundant supply of desirable trees for food and building activities. They prefer the bark of deciduous trees, especially aspen, birches, maples, and willow, but will also eat hemlock, white pine, balsam fir, and larch if the others are not available. During the summer months, they include bulrushes, sedges, pond lily roots, and other aquatic plants in their diet. They are one of the few species who creates their own habitat. Built with sticks, stones, mud, grass, and leaves, the dams and lodges they construct are diligently maintained. (A family of beavers can construct a dam 35' in length in one week, and even large breaks in the dam are repaired overnight.) They are most active in the late afternoon and throughout the night.

Beavers normally mate for life. The adult male and female, yearlings, and kits for the year comprise a colony sharing one lodge. Breeding season is from mid-January through mid-March, with the gestation period averaging 106 days. Prior to the kits being born in late winter, the yearlings are forced out to establish their own colony. A single litter averaging three to five fully-furred kits is born from mid-May through early June. They can swim after a few days and eat solid food at about 2 1/2 weeks. They are weaned at about six weeks. Captive beavers have been known to live for 20 years, but their life span in the wild is probably considerably less.

Prior to the settlement of North America by the Europeans, beavers could be found in abundance in Vermont and throughout the United States and Canada. The demand for fur in Europe, especially beaver, was a driving force in the exploration and settlement here by the French, English, and Dutch. The fur trade introduced the Indians to metal utensils, guns, and beads; and beaver pelts quickly became the main item of trade. Eight pelts made a 100-pound pack and brought $300 to $500. If a trapper averaged three pelts a day, he earned well above that of a farmer. By 1670, nearly a quarter of a million beaver pelts had been shipped to London from the Connecticut River Valley.

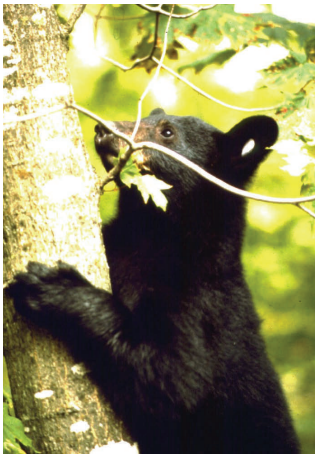
The combination of unregulated trapping and destruction of habitat, however, led to the extirpation of beavers in Vermont by the mid-1800s. Zadock Thompson in his ***Natural History of Vermont***, wrote in 1853, "The beaver, though formerly a very common animal in Vermont, is probably now nearly or quite exterminated, none of them having been killed within the state, to my knowledge, for several years." By 1910, the realization of the loss of a valuable natural resource prompted laws to protect the beavers in Vermont.

During the 1920s and 1930s beavers were reintroduced to Vermont from New York and Maine. The abandonment of farms and resulting reforestation of Vermont coincided with this reintroduction, and the increase in habitat allowed for a gradual return of the beaver population. A survey taken in 1941 found an estimated 400 beavers in the state. By 1944, their numbers had increased to over 1,100, and they were beginning to cause damage to farms and highways. In 1950, when the population was estimated at 8,000, the first open trapping season of 15 days was set. The season was expanded to 30 days in 1953. Since then, the trapping season has varied in length but has never been less than a month.

Today, the beaver population is healthy and prospering and is managed by the Vermont Fish & Wildlife Department as a renewable resource. Beavers create critical wetland habitat — homes for a diversity of wildlife. (In addition, their rooting, feeding, and digging activities help to circulate nutrients within the flowage, and the dams they build actually help to reduce flooding and erosion). When consumed, they are a terrific source of natural protein, and they provide a variety of social benefits to Vermont citizens such as trapping, fishing, and wildlife watching. Though low prices and competition have influenced trapping for beavers in recent years, the annual take during 1994-1995 season in the U.S., valued at $6,604,417, is evidence of their importance as a renewable resource.

Conservation Planning Booklet Soon to Be Available

The Department is almost ready to go to print with an updated version of the booklet ***How to Include Fish and Wildlife Resources Into Your Town Plan***. This document is a manual that suggests a process that communities can use to protect the natural resources of their town. Part of the recommended process includes collecting information from hunters, trappers, and anglers to help identify important habitats in the town or region. In other similar efforts around the state, these folks have proven to be an incredibly valuable source of information for planners. As stated in the introduction to the booklet, *"Conserving Vermont's natural heritage is the first step toward conserving many of the things Vermonters value: the working landscape, a rural lifestyle, abundant and healthy wildlife, great fishing and hunting, a sustainable economy, diverse landscapes, wild forests, wetlands, open hilltops with their stunning view, native plants, and all the other pieces of a healthy ecosystem from the tiny to the huge."* It is hoped that this manual will help cities and towns conserve the rural character, culture, and landscape of their area for the people and wildlife that live there.



What's Up With Wetlands?

The beaver baffle program has continued for the third consecutive summer. Beaver baffles and/or culvert fences are devices designed to maintain the water in a beaver flowage at a level compatible with the wishes of the landowner. In some cases, the installation of the baffle is coupled with the removal of some of the beaver in the flowage. The ultimate goal is the conservation of the wetland habitat in areas where beavers have historically occupied the site. Over the past 3 years, 36 baffles and 12 culvert fences have been installed, and 639 acres of wetland have been conserved. If funding continues, additional structures will be installed and sites will be monitored and evaluated for long-term success.

The Vermont Water Resources Board has put together guidelines for a streamlined wetlands reclassification process. This means that wetlands previously classified as type II or III can be upgraded and afforded more protection if they meet specific criteria defined by the Board. According to the wetland rules, the use of a wetland by hunters and/or trappers is a criteria that actually increases its value.

The document ***Best Management Practices for Dealing with Human-Beaver Conflicts***, has been finalized and signed by the Agency of Natural Resources Secretary. The goal of the document has been to outline a process for dealing with human/beaver conflicts in a way that complies with the potentially conflicting variety of statues and regulations including: Fish and Wildlife and Federal and State water quality statues, and wetland statues and regulations. Anyone interested in a copy of the document should contact Kim Royar (802-885-8831).

Carcass Collection & Processing

Each year as trapping season approaches, most of you will be spending your spare time preparing traps, scouting for trapping sites, and seeking landowner permissions. Likewise, while you busy yourselves getting ready for the season, we'll be gearing up for yet another winter of "carcass processing." We'll be cleaning out our freezers, ordering lab supplies, and distributing the now very familiar fisher, otter, and bobcat blue tags. As anyone who has trapped a fisher, otter or bobcat knows, the Department tags and collects these carcasses within ten days of the season closure. While some deem this carcass collection to be merely a convenient disposal service, others find it somewhat of a mystery or perhaps even a nuisance. Whatever your thoughts might be, the information gathered from the examination of these carcasses is integral to the Department's furbearer management program.

Upon collection, the carcasses are brought to the Department's lab in Roxbury where they are stored in a walk-in freezer. Once a week throughout the winter, 60-80 carcasses are "processed" to determine the sex, general fitness, and age of each animal. To do this, the carcasses are removed from the freezer, thawed, and prepared for processing. Once the sex of the animal is determined, it is weighed, physically inspected, and given a general fitness ranking (i.e. a large, muscular animal with abundant fat reserves would be categorized as excellent whereas a thin specimen without fat would be considered poor). The lower jaw of each carcass is then cut off and placed in a hot water bath for two hours in order to loosen the connective tissues in the jaw. After the water bath is complete, both canine and fourth premolar teeth are cleanly pulled free from the jaws. These teeth are later sent to Matson's Laboratory in Montana where they are analyzed to determine the age of each individual animal. Similar to counting rings on a tree stump, the age is determined by counting the annuli (annual growth ring) of the teeth after being cross-sectioned and mounted on a microscope slide (Figure 1). Once an animal has been processed, the information on its blue tag and its biological data is recorded and its carcass is disposed of in the Department's animal disposal facility.

The biological data collected during these carcass processing sessions is used in a variety of ways. Our primary objective in collecting the data, though, is to track trends in population expansions and declines. To do this, three key pieces of information are analyzed; the juvenile (less than 1 year old) to adult ratio, the juvenile to adult female ratio, and the male to female ratio. Based on many years of data and research, evidence show that in lightly trapped growing or stable populations males and juveniles are more vulnerable and, therefore, the harvest should contain a higher percentage of juveniles than adults and should contain more males than females. We calculate and examine these ratios each year in conjunction with the effort information supplied by the trapper mail surveys in order to ensure that populations are not declining as a result of trapping or other pressures. Season adjustments are recommended based on all of the available information.

In addition to the routine annual biological data, we take advantage of our carcass collection and processing program to gather other important information as well. Over the last several years, for example, we've been compiling a DNA database on fisher and bobcat (refer to DNA article). The DNA samples were all conveniently collected during our processing sessions. Likewise, during the 2001/2002 season, hair samples were taken from 20 of the otters we processed. These hair samples were later examined by a lab in Maine to determine mercury levels (refer to Otter Mercury Study article). We will also occasionally use collected carcasses to determine birth rates by counting placental scars on the uterine wall of female specimens. Assessing birth rates gives us another tool to monitor population trends. As you can imagine, the opportunity to put our hands on every fisher, otter, and bobcat trapped (as many as 850 carcasses a year) allows us to collect information which would otherwise be nearly impossible to obtain.

So, as another trapping season comes and goes, please keep in mind the importance of the information these carcasses provide. The data gathered from the carcass collection program allows us to confidently defend your right to trap as well as to ensure healthy populations of furbearers in Vermont. We realize that it can be an inconvenience and appreciate your extra effort. Anyone interested in lending a hand at one of the carcass processing sessions should contact Chris Bernier at 802-885-8833 ASAP.

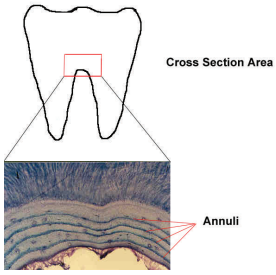


Figure 1. Fisher, fourth pre-molar.

Bobcat & Fisher DNA Analysis

The Vermont Fish & Wildlife Department has been involved in a cooperative project with the University of Vermont to genetically assess Vermont's fisher and bobcat populations through DNA analysis. Over the past three years, tissue samples have been collected by UVM personnel from the fisher and bobcat carcasses turned into the furbearer project from trappers, hunters, and wardens.

Although results are preliminary, it appears Vermont's fisher population has retained a similar genetic structure to that of its source population in western Maine. Both the Vermont and Maine fisher populations show less genetic variability than the New York fisher populations. Dr. William Kilpatrick from the University of Vermont speculates that the Maine population went through a bottleneck in the late 1800s/early 1900s (population was reduced to a relatively small number of animals) which reduced the genetic variability of the Maine animals. Because Maine provided all of Vermont's reintroduced fishers in the late 1950s and early 1960s, Vermont's fisher population still very much resembles (at least genetically) the Maine population. Over time, it is likely that the genetic variability of both populations will increase.

More work still needs to be done on the analysis of bobcat tissue samples. Preliminary data suggest, however, that there are distinct genetic markers in the bobcats that reside in the Northeast Kingdom and Connecticut River Valley versus those that exist in the Taconics and the Green Mountains. More tissue samples will be collected this winter. This important work is possible thanks to trappers, hunters, and wardens who provide the carcasses.

Recipes

Baked Stuffed Muskrat with Carrots

1 muskrat
3 medium potatoes
2 tsp. butter
1½ tsp. salt
1/4 tsp. pepper
1 tsp. dried summer savory
1 cup finely chopped celery
2 large carrots
3 slices bacon

Clean and soak muskrat overnight in salted water (1 tbsp. salt to 1 qt. water). Cook potatoes and mash potatoes with the butter, season with ½ tsp. salt, 1/8 tsp. pepper, savory, and celery. Fill the muskrat with this stuffing and sew it up. Rub muskrat and 1 tsp. salt and 1/8 tsp pepper. Place on a rack in a roasting pan with the legs tied under the body. Place two large quartered carrots on the rack beside the muskrat. Place bacon on the back. Bake in a hot oven (400°F).

After 10 minutes, pour two cups of hot water over the body and continue cooking for 45 minutes. Remove bacon the last 10 minutes to brown the back. Serves 4.

Wild Game Recipes List

Beaver with Sour Cream

2-4 lbs. cut beaver
½ cup flour
1 tsp. salt
1/4 tsp. paprika
½ tsp. salt
½ cup water
1 cup sour cream
oil to cover
1 onion

Clean beaver and soak overnight in salted water (1 tbsp. salt to 1 quart water). Drain, cut up, and roll in ½ cup flour seasoned with 1 tsp. salt and 1/4 tsp. paprika. Fry in fat until browned. Then cover the beaver with sliced onion. Sprinkle the onion slices with ½ tsp. salt. Add ½ cup water. Cover the skillet tightly. Simmer for 1 hour. Add 1 cup sour cream the last 15 minutes of cooking time. Serves 2-4 depending on the size of the animal.

Wild Game Recipes List

Check Out These Web Sites

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

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

VERMONT FURBEARER MANAGEMENT NEWSLETTER

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