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Weasels

Long-tailed Weasel *(Mustela frenata)*

Ermine *(Mustela erminea)*

Least Weasel *(Mustela nivalis)*

Description

All weasels have long, slim bodies, short legs, long necks, small heads, catlike muzzles, and small rounded ears. Weasels, along with ferrets, minks, skunks, otters, martens, fishers, badgers and wolverines, belong to the Family Mustelidae, or general "weasel family". These mammals are noted for the musky odor secreted from their anal glands. Most of the mustelids are also noted for their luxuriant fur. The weasel's underfur is short, dense and fine; longer guard hairs are abundant, glossy, and richly colored or white.

The summer pelage (fur) of the long-tailed weasel (sometimes called New York weasel) is a uniform light to dark chocolate brown, extending along its back, to its feet, and along most of the long, furred tail. This animal's underbody, including its belly, chin and inner sides of legs are creamy white or light yellowish. The tip of its tail is black. The ermine is similarly colored, except it has white feet. The least weasel also shares this overall

color pattern, but lacks a black tail tip. From mid-October to early November nearly all long-tailed weasels, ermines, and least weasels in New York State undergo a molt to acquire dense, white winter fur. During the winter, long-tailed weasels and ermines retain their black tail tips. Further south, fewer weasels turn white; instead, they grow a lighter brown coat. From mid-February to early March, weasels regain their summer coats. Males and females, adults and young are all marked alike.

Since weasel species are similar in appearance, identification is somewhat difficult. A combination of certain characteristics helps distinguish between the weasels living in New York State (see Table 1). Weasels may be easily differentiated from minks since minks do not have white bellies and do not turn white in winter. A mink, however, may have a small white blaze on its chest.

Size may aid in species identification, but should not be the sole factor in differentiating weasels because their size ranges overlap between species (see Table 2). The long-tailed weasel is slightly smaller than a mink, and the ermine is approximately the same size as a red squirrel (just slightly longer). The least weasel is North America's smallest carnivore.

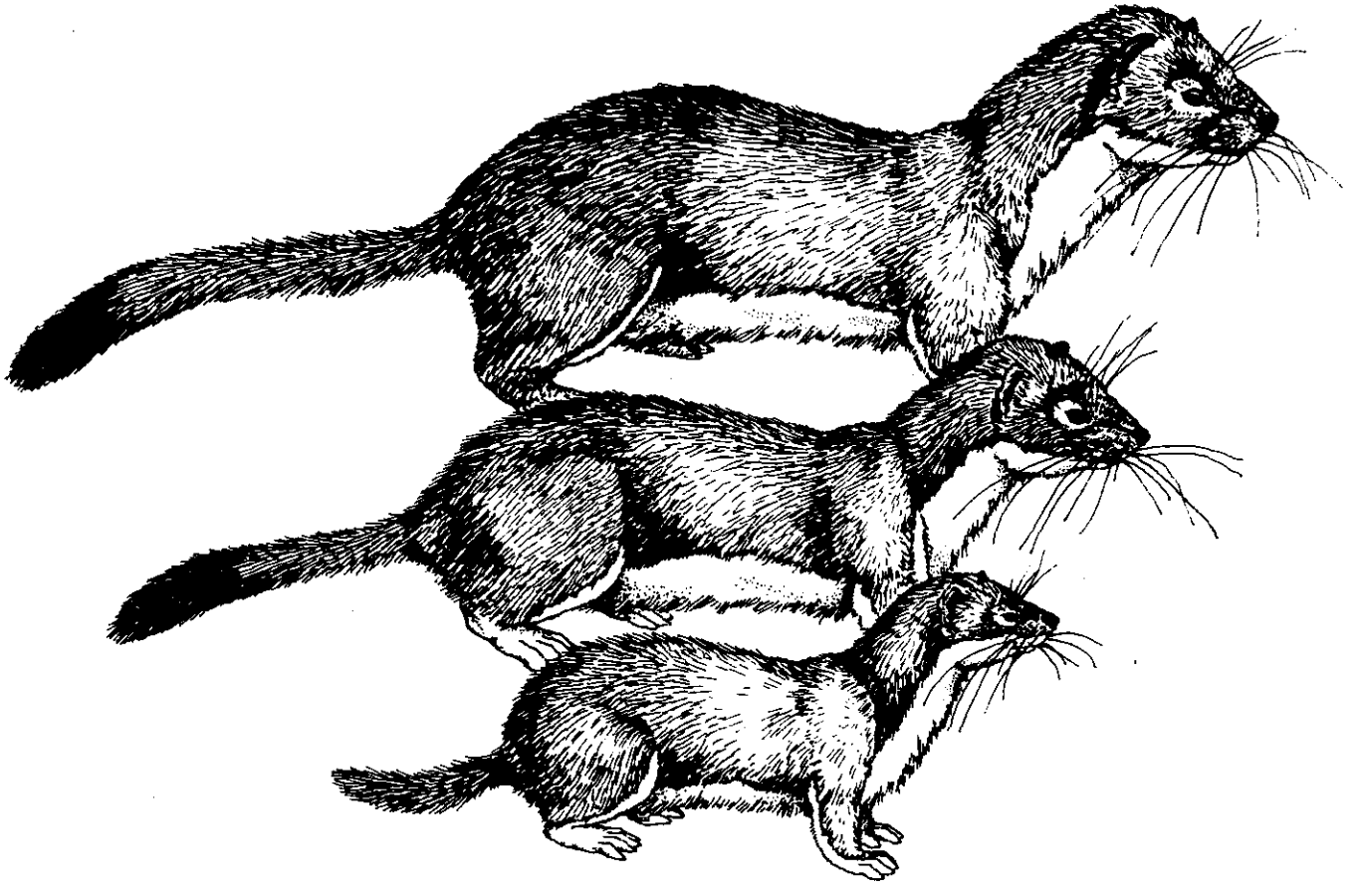


Table 1. Distinguishing features of three different species of weasels in New York State.

Common Name	Has black tail tip	Has white feet
Long-tailed weasel	yes	no
Ermine	yes	yes
Least weasel	no	yes

Table 2. Some physical dimensions of adult weasels.

Common Name	Total length cm (in)	Tail Length cm (in)	Weight g (oz)
Long-tailed weasel[a]			
Male	37.4-44.5 (15-18)	12.4-15.3 (5-6)	196-267 (7-9)
Female	30.6-36.2 (12-14)	9.5-11.7 (4-5)	71.5-126 (3-4)
Ermine[a]			
Male	25.1-29.5 (10-12)	6.5-8.0 (2.5-3.2)	66-105 (2-4)
Female	19.4-25.5 (8-10)	4.4-6.5 (1.7-2.6)	45-71 (1.5-2.5)
Least Weasel[b]			
Male	18.9-20.6 (7-8)	3.2-3.8 (1.2-1.5)	59 (2.1)
Female	18.1-19.2 (7-8)	3.1-4.4 (1.2-1.7)	38-43 (1.3-1.5)

[a]Data for weasels of New York State as presented in Hamilton, 1933.

[b]Data for weasels of Pennsylvania as presented in Doutt et al., 1977.

This elongate mouse-sized animal is barely larger than some of its prey. Males and females of a given species differ markedly in size (a characteristic called "sexual dimorphism"). Male long-tailed weasels and ermines average a third larger than females in most dimensions, and are also about 50% heavier. Male least weasels are slightly larger than females of this species. A particularly large male ermine may weigh the same as a female long-tailed weasel. A large male long-tailed weasel may be approximately the same size as a small mink. Thus, pelage coloration remains one of the best characteristics for species recognition. Tail length relative to body length may sometimes prove useful. The long-tailed weasel's tail is about one-third of the animal's total length, whereas the ermine's tail is about one-fourth or less of its total length. Hence, the ermine is also called the short-tailed weasel.

Distribution and Abundance

The long-tailed weasel is found in southern Canada, throughout the United States, Mexico and Central America, and south to Peru. It is only absent from a small area in the southwest U.S. The distribution of the ermine in North America is more northerly. It occurs from the Arctic Circle south throughout Canada, the northeastern U.S., northern midwest, and parts of the Pacific Northwest and Rocky Mountain States. Both the long-tailed weasel and the ermine are distributed throughout New York State. In 1933, the State's population of these two species was estimated at 300,000. In the past, however, the term "ermine" has been used for any species of weasel taken in its white, winter phase (usually for use in the fur trade). For this reason, historical accounts concerning abundance of ermine may be confusing. Today, the relative numbers of these two weasels vary from area to area; in the northern part of the State, ermine may be slightly more abundant, whereas in the southern half, long-tailed weasels may be more plentiful than ermine. Population levels also fluctuate over 4- or 7-year cycles. These fluctuations are believed to be related to cyclic abundance of rodent prey.

The least weasel is distributed throughout Alaska, Canada, parts of the northern midwest (U.S.), and eastward throughout Ohio and Pennsylvania. Its range extends into the southernmost portion of New York State's Southern

Tier. Little research has been conducted on this tiny furbearer and little is known about its life history and ecology. Currently, it seems that the least weasel might be considered rare in New York State, meaning that it is rarely seen by humans; however, it may be that the least weasel is more common than is thought.

Life History

The breeding seasons for the long-tailed weasel and the ermine occur from June through August. These animals seem to be polygamous. In long-tailed weasels and ermine, development of the embryo initially follows the "normal" mammalian sequence, until reaching the blastocyst stage (a cluster of cells). Then, development ceases until the embryo implants in the uterine wall 8 months later (during March). This reproductive phenomenon, called delayed implantation, also occurs in black bears and in other mustelide (see NY's Wildlife Resources, Numbers 8 and 17). Once the embryo is implanted, development resumes for about 27 days, and the litter is born in April or May. Thus, the whole gestation period lasts about 9 months.

The least weasel is unlike the other two weasels in its mode of reproduction; it does not experience delayed implantation. The breeding season appears to occur within no specific time span and the gestation period is only 35 days. A female may give birth to more than one litter per year; young least weasels have even been observed during winter.

A litter of 6-10 is most common in the two larger weasel species. A female least weasel may have a litter of 3-10, with 4-6 most common. The young are born in a small underground nest chamber lined with layers of fur, feathers, and grass or leaves. Least weasels typically line their nests with soft, fine mouse fur. Up to 3 or 4 tunnels lead to the nest, often located in a burrow formerly occupied by a woodchuck, chipmunk, rabbit, or other animal. A weasel may also enlarge and use a hole under a stump, log, building foundation, old stone wall, brush pile, or rock pile.

Newborn weasels are covered with short, fine, white hairs that are barely detectable. Development proceeds rapidly, especially in least weasels. The tiny least weasel grows so quickly that its weight nearly triples in only 4 days. Soon sexual dimorphism in size is evident between litter mates. More details concerning weasel development are outlined in Table 3.

Table 3. Life history details of long-tailed weasels, ermine, and least weasels.

Life History Details	Species: Long-tailed Weasel (*M. frenata*)	Species: Ermine (*M. erminea*)	Species: Least Weasel (*M. nivalis*)
Reproduction			
-delayed implantation?	yes	yes	no
-breeding season	July	June-Aug (implantation-Mar)	no specific time span (1+ litters/year)
-gestation period	9 mo.	9.5-10 mo.	35 days
-litter size	6-10	6-10	3-10 (4-6 commonly)
Development			
-newborn size	3.1 g (0.11 oz)	1.7 g (0.06 oz)	1 g (0.035 oz)
-characteristic of young	-no mane -squeal noisily	-prominent "mane" by 2 weeks -quiet	
-parental care	male (?) and female	male (?) and female	only by female
-growth	4 wks-emerge from den males 39 g (1.37 oz) females 31 g (1.09 oz) 5 wks-eyes open, weaned 7 wks-males 101 g (3.54 oz) females 73 g (2.56 oz) 2 mo-travel with parent(s)	3 wks-16.1-16.7 g (0.578 oz) 30 days-mane no longer prominent males - 25 g (.875 oz) females 22 g (.77 oz) 35 days-eyes open weaned 7 wks-males as large as mother disperse in fall	4 days-weight triples 5 wks-eyes open 6-7 wks-weaned 8-9 wks-hunt on own
-sexual maturity	females 3-4 mo males - 1 yr	females - 3 mo males - 1 year	males and females 3-4 mo
-life span	5 years	5-6 years	5 years
Activity			
-home range	12-20 ha (30-300 A)	12-16 ha (30-40 A)	$\leq$ 0.8 ha (2A)

Female long-tailed weasels and ermine may breed when only 3 months old. Males of these species, however, do not mate until they are about one year old. Female least weasels are able to breed before they are one year old. Most young long-tailed weasels and ermine disperse from the parental area into new home ranges during their first fall. Least weasels, on the other hand, are independent and hunt on their own by the age of 8-9 weeks.

Weasels remain active year round. These carnivores are nocturnal (active at night) as well as active during the day. Weasels have been called "tireless hunters" for their energetic hunting style. A weasel begins foraging in a fairly random manner until it encounters a scent trail left by potential prey. It may pause occasionally, sitting up on its hind feet to get a better smell (its sense of hearing and sight are not as important nor as keen). This long, lithe predator often hunts prey by darting in and out of burrows where their prey seeks refuge. Because of their "hit or miss" hunting method (high search rates and low capture rates in relation to energy spent), weasels require a large home range (area of daily hunting activity). Distances weasels travel vary according to the amount and types of cover in a locale. In New York State, a long-tailed weasel may journey up to 11 km (7 mi), but this is usually within an area of 5-10 ha (12-24 A). Estimates of weasel home range size vary from 12-16 ha (30-40 A) to as much as 80-120 ha (200-300 A). Table 3 presents estimates of home range sizes for ermine and least weasels.

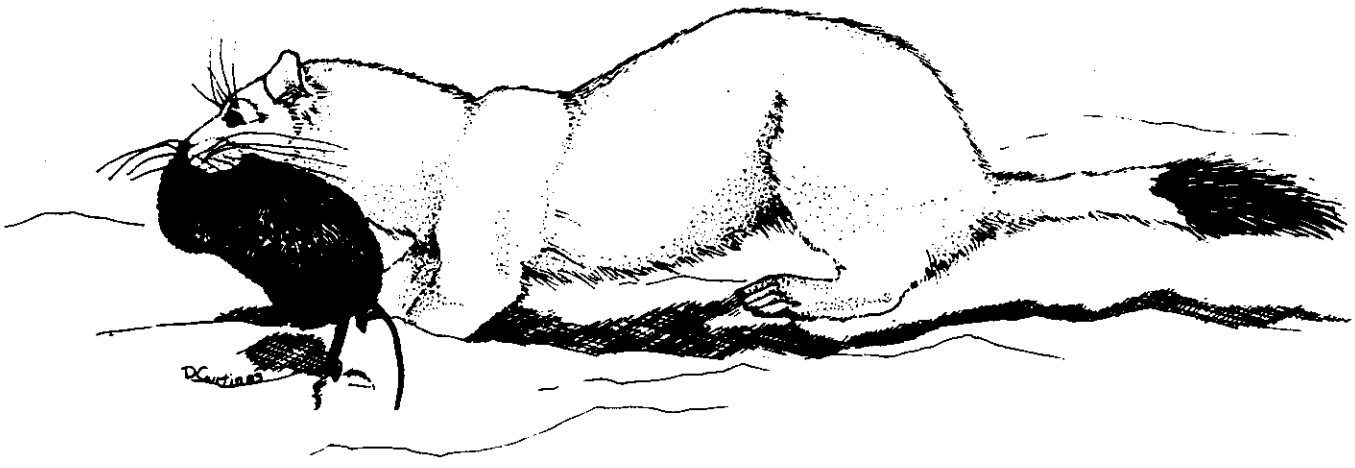
Another possible reason for the weasel's nearly incessant activity is its great food needs. The weasel has a high metabolic rate, the sum of all the processes in which food is converted to energy. Thus, a weasel's heartbeat, digestion, respiration, and other

metabolic functions are very rapid. For example, an ermine's heart beats 300-420 times per minute. To meet these great energy requirements, a weasel may eat the equivalent of one-third of its own weight each day. Least weasels and captive young weasels require 40% of their own weight (or the equivalent of 1 mouse) in food per day. The least weasel's metabolism is so rapid that one mouse may pass through its digestive tract in only 3.5 hours. The weasel was not designed for energy conservation; for its size, it has a large amount of surface area from which it may lose heat. This is why, in winter during its short periods of inactivity, it curls into a flattened disc-shaped position. This posture decreases the animal's exposed surface area, thus slightly diminishing the rate at which heat is lost from its body. In the summer, the weasel still pays a high "energy cost" for being long and thin.

Although the food "cost" of being long and thin is high, the animal's predatory abilities are greatly enhanced by its shape. Its strength and shape allow it to carry prey nearly its own size. Its elongate body is efficiently designed to burrow under snow, to climb trees to moderate heights, and especially to follow prey into burrows barely larger than its head. It has been reported that long-tailed weasel is able to squeeze into mouse tunnels less than 1.3 cm (0.5 in) in diameter.

Small mammals usually constitute more than 96% of the long-tailed weasel's yearly diet. In a study conducted in New York State, meadow voles occurred in 33.6% of the stomachs of long-tailed weasels. Cottontail rabbits occurred in 17.3%, mice (species undetermined) occurred in 17.1%, white-footed mice in 11.3%, rats in 9.1%, shrews in 5.9%, squirrels in 2.7%, chipmunks in 1.0%, moles in 0.8%, and muskrats in 0.8% of stomachs analyzed. Long-tailed weasels will occasionally eat hares (especially young), small birds, eggs, small snakes, earthworms, and insects. They may consume the blood of their prey and may feed on carrion. Several observers have noted that weasels will cache food short distances from their den. A pile of small rodents may be buried under hay, under a stump, or in a burrow.

Like the long-tailed weasel, the ermine is also an active carnivore requiring large amounts of food. Its diet is similar to that of the long-tailed weasel, except it may include a larger proportion of smaller prey (especially where the 2 species occur together). White-footed mice and



meadow voles constitute 50-90% of the ermine's diet throughout most of its range. In a New York study, meadow voles occurred in 35.7% of ermine stomachs examined, "undetermined mice" in 16.3%, shrews in 20%, white-footed mice in 11.4%, cottontail rabbits in 9.0%, rats in 4.4%, and chipmunks in 3.6%. Ermine also eat hares (especially young), moles, squirrels, birds, frogs, snakes, lizards, eggs, insects, earthworms, and carrion (though rarely). They will consume the flesh, bones, blood, and fur or feathers of their prey.

Least weasels, or "mouse weasels" as they are sometimes called rely even more heavily on small prey. Mice, shrews, other small mammals and insects comprise most of their diet. Only rarely will they prey on young squirrels, rats, and rabbits.

Although weasels may live up to 5 years in captivity their life span in the wild may be somewhat shorter due to several mortality factors. Weasels are preyed upon by foxes, coyotes, and bobcats. Young weasels may be taken by large snakes. Large birds of prey, including rough-legged hawks, goshawks, great horned owls and barred owls, occasionally prey on weasels. Human-related mortality occurs via domestic dogs and cats, traps and automobiles. The ermine, because it is smaller than the long-tailed weasel, may even be preyed upon by other mustelids including the mink, marten and fisher. Because of its mouselike size, least weasels have more predators than the other weasels. Even the long-tailed weasel preys on the tiny least weasel.

The least weasel's best defense is its speed and agility in escaping into the narrowest of mouse holes. Sometimes a threatened weasel may attack its antagonist. In extreme situations it exudes a foul-smelling musk odor from its anal glands. This defensive secretion is not as pungent as that produced by the weasel's "cousin", the skunk. (The weasel's anal secretions may also serve in marking territorial boundaries, in attracting a mate, and in relocating food caches.)

Fleas, ticks and lice are among the many exernal parasites of weasels. Internal parasites of weasels include cestodes (tapeworms), nematodes roundworms), and trematodes (flukes).

A weasel has 5 toes on each foot, but usually only 4 are discernable in its tracks. A weasel's trail appears as a line of paired prints, since hind and front tracks are superimposed. Its trail may weave in and around burrow holes, logs, stumps, and stone walls. The pairs of prints may seem far apart, considering the animals' size, because weasels travel mainly by leaping in an undulating manner. All weasel species share the same general track pattern, but tracks of the 3 species vary in size (see Table 4). In softer materials, tracks are larger. If the weasel is carrying prey, front tracks will appear deeper and drag marks may be present.

As with tracks, scats (fecal droppings) of different weasel species are difficult to differentiate. They are long, slender, and dark brown or black. Sometimes they are spiral-shaped. Frequently, scats contain bits of fur, bone or feathers. A few weasel scats may be found along a snow trail or, in summer, on prominent objects along the trail. Accumulations may be found near dens.

Although these carnivores are rarely seen by humans, they do emit a few characteristic noises. In general, trills, chirps, screeches, squeals, and hisses are common to all weasels, but vary in pitch with the size of the animal.

Habitat

Weasels found in New York use a variety of habitats, ranging from old fields and brushland to extensive, mature open forests. They are most often seen along brushy hedgerows or stone walls, but they will also inhabit golf courses, backyards, marshes, brush piles, and wood piles. Sometimes these

Table 4. Relative track size of long-tailed weasels, ermine, and least weasels.[a]

Track characteristic	Species		
	Long-tailed weasel (*M. frenata*)	Ermine (*M. erminea*)	Least weasel (*M. nivalis*)
Hind track length	4.4 cm (1.75 in)	3.8 cm (.15 in)	2.3 cm (0.94 in)
Track pattern width	7.5 cm (2.9 in)	roughly 5.6 cm (2.25 in)	3.1-4.1 cm (1.25-1.63 in)
Length of leaps	50-128 cm (20-51 in)	33-100 cm (13-40 in)	58 cm (23 in)

[a]Data primarily from Murie, 1975.

carnivores live near humans, establishing dens under buildings or in stone walls or foundations. In general, they may be found wherever rodent prey is abundant.

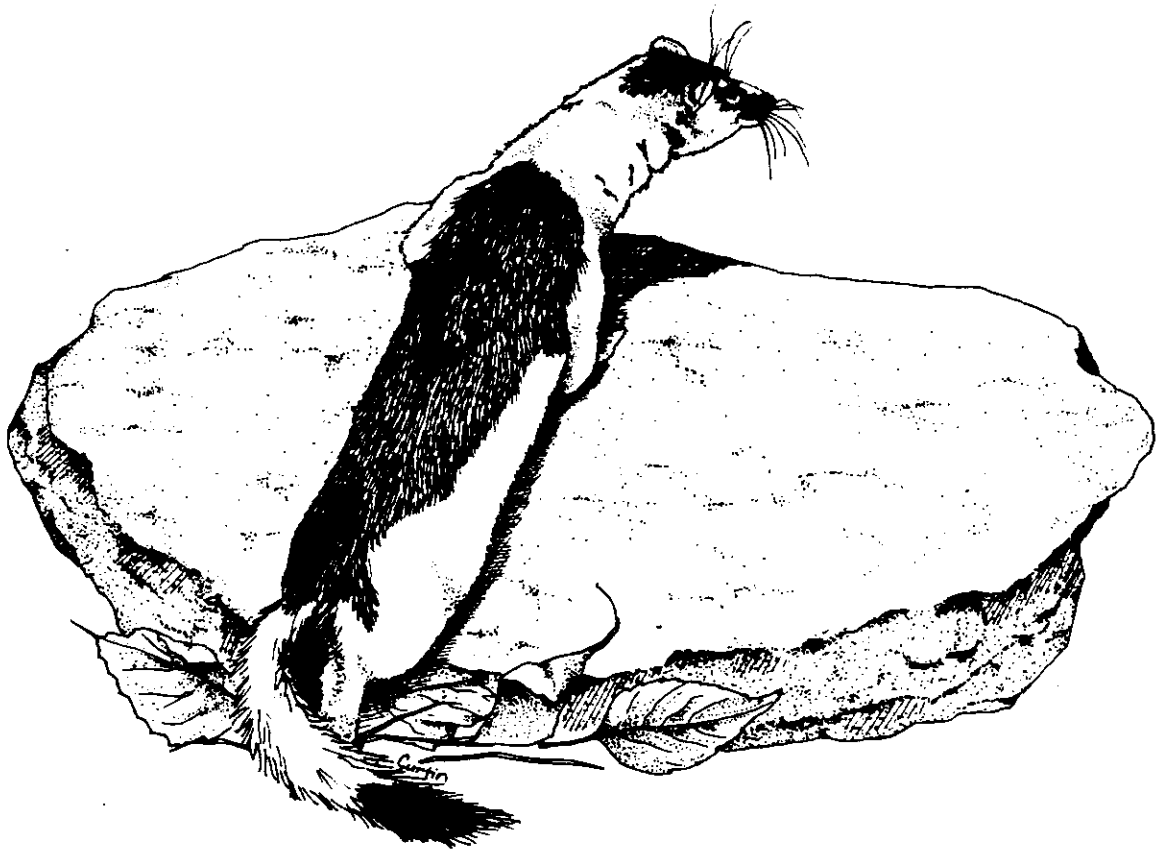
Weasels seem to need standing water as part of their habitat and are seldom found far from water. In Central New York, they are common in swampy lowlands and around marsh borders. Weasels, however, are not as water-oriented as their mustelid "cousin", the mink.

Ecological Role

Weasels interact with a variety of wildlife species. They use the burrows of chipmunks, woodchucks, rabbits and other mammals for cover; and they may prey on the burrows' occupants. These active carnivores play an integral role within the ecological communities they inhabit. It has been estimated that weasels may kill approximately 60 million mice and several million rats each year in New York State, suggesting that they may aid in regulating populations of certain rodent species. In turn, when a prey species population declines in number, the predator species declines shortly thereafter. When predators become less abundant and turn to alternate prey species, populations of the previously preferred prey species may recover and increase. These complex relationships contribute to population cycles,

especially if a predator relies mostly on one prey item. This sort of predator-prey relationship may occur between weasels and certain rodent prey. In New York State, weasels feed primarily on meadow voles. Weasel populations in certain locales have been observed to follow 4- or 7-year cycles of "ups and downs".

Weasels avoid competition with one another for food due to their sexual dimorphism in size. Male weasels, which may be twice as large as females of the same species, are able to take somewhat larger prey than females. In this way the species utilizes the food resources in an area more efficiently. The advantage of sexual dimorphism in size is evident when a weasel population is declining. Then, the proportion of males in the population is high presumably because males have a competitive advantage over females. Finally, wildlife ecologists have learned that, where two species of weasels occur together, they differ markedly in size. These size differences allow each species to specialize on different sizes of prey, thus reducing interspecific ("between species") competition for food.



Economic and Social Values

Although the demand for weasel pelts in the fur market is not high today, these animals still represent a valuable fur resource. Their soft, durable fur is used for trimming collars, cuffs, and evening gowns. Today, weasels are seldom trapped commercially, for a single pelt may only bring the trapper $.50. In the past, weasel fur (especially ermine) was used in trimming the ceremonial garments of British royalty. In 1973, about 50,000 ermine pelts were shipped from Canada to Great Britain to make the robe worn by King George VI at his coronation. Although the pelt of the least weasel is too small to be of any value, ermine and long-tailed weasels continue to be of some economic value in the fur industry.

Over the years weasels have acquired bad reputations, largely for their infrequent raids into the backyard poultry houses which were once common in rural New York. Today weasels occasionally prey on chickens and on some game species. They are especially noted for killing more than they can eat, a characteristic for which they have been considered "blood thirsty". Such acts are not conscious decisions. Weasels are genetically "programmed" and physically adapted for their predacious habits. Upon entering a chicken coop (uncommon in rural New York today), the sights and sounds of alarmed prey merely trigger the weasel's natural, fine-tuned predatory response and it may almost "automatically" kill several chickens.

Unfortunately, this animal's undeserved "bad image" has led people to construct myths about its feeding habits. One myth is that a huge stomach parasite causes weasels to take large amounts of prey. This is false; these carnivores' high activity level requires that they consume food to meet their energy needs. Another myth is that a weasel hypnotizes its prey before striking. Any motorist who has seen deer "frozen" in "fear" along the roadside knows how a startled animal may appear confused and remain motionless. The weasel's prey likewise is confused or momentarily motionless, <u>not</u> hypnotized. Another myth states that weasels suck blood from their prey, or eat only the brains and blood. This is false, and probably stems from observations that a weasel kills most prey by piercing the base of the rodent's skull with its sharp canine teeth. Afterwards, a weasel may consume the prey's blood, for this is a high-energy food.

The weasel's "bad predator" reputation plus its occasional forays into poultry pens, led to establishment of bounties on these animals in some areas. From 1915-1935, approximately 50,000 weasels were collected annually for bounties in Pennsylvania. Actually, the bounty system never had a drastic effect on populations.

Weasels play a beneficial role as rodent predators. Mice are highly preferred foods; a large long-tailed weasel may eat two or three per night. Occasionally, a weasel may kill a rat, helping to control populations of these farmyard pests which pose greater threats to poultry than does a weasel. A single rat may kill dozens of chicks per night, kill game, and raid stores of grain causing contamination problems. Weasels, however, only occasionally cause economic losses in farmyards. But, as described above, they have been known to kill more than they are able to eat, leaving the carcasses in piles and perpetuating their bad reputations.

Control Methods

Nuisance weasels are best controlled by trapping. A special box set helps prevent household pets from injury. A bottomless box about 48 x 20 x 20 cm (18 x 8 x 8 in.), with a 5 cm (2 in) entrance hole bored in each end and a trap placed inside each entrance, is an effective set for weasels. Traps may be stapled to the box and bait should be placed between the traps. A piece of raw meat constitutes suitable bait, but weasel scats or urine are probably the best attractants. Weasels are classified as protected furbearers, so check with your local Environmental Conservation Officer concerning legal methods for removing nuisance weasels.

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(Illustrations drawn by Donna Curtin.)

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