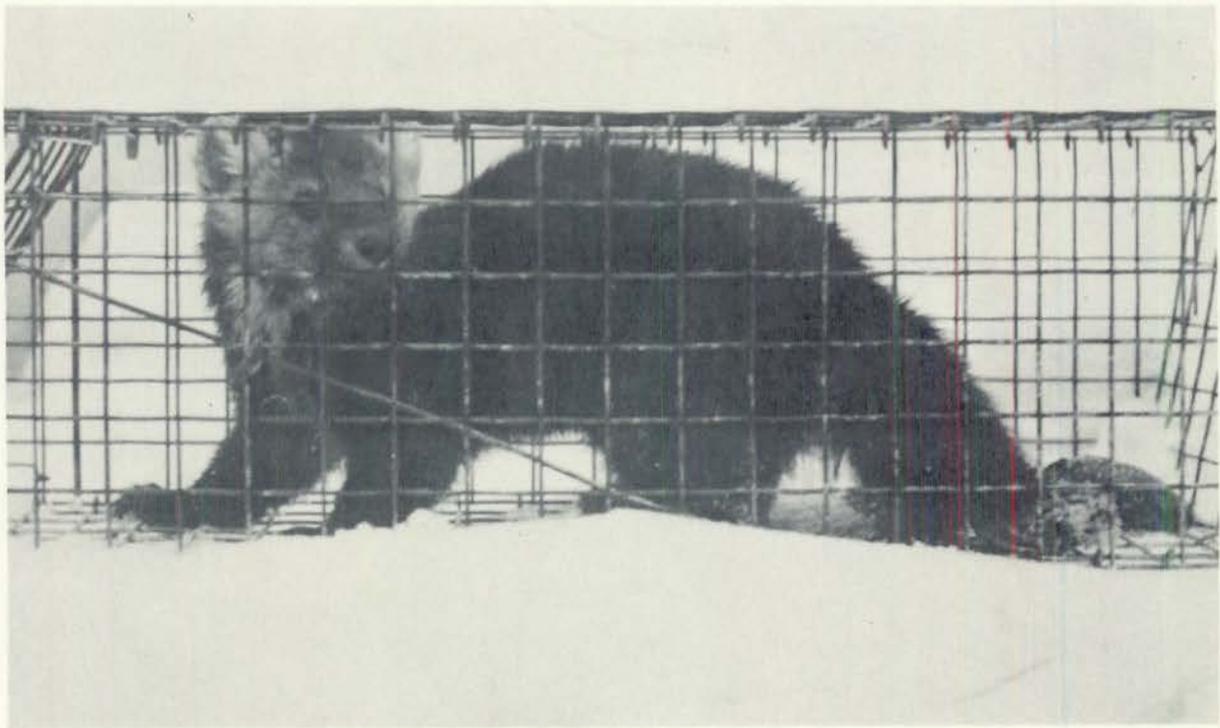


RETURNING THE PINE MARTEN TO MICHIGAN



SEPTEMBER, 1958
GAME DIVISION REPORT NO. 2199

Michigan
Department of Conservation

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by
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INTRODUCTION

Disappearance of the Pine Marten from Michigan:

The pine marten (Martes americana) was at one time resident over most of Michigan. By the late 1920's it had become very rare. The Michigan Conservation Department's 4th Biennial Report (1927-28) devoted one sentence to the marten and fisher: "They are so nearly exterminated in Michigan that there appears no chance they will ever 'come back'." The 1933-34 Biennial Report stated, "It is believed that Marten and Fisher are practically extinct throughout the state. There are occasional reports of these furbearers being seen in the Huron Mountains, Porcupine Mountains, and along the Pictured Rocks country in Alger County." Burt (1948) says, "This splendid animal is probably gone from the state of Michigan, for none has been reported for the past twenty years."

Extensive logging and intensive trapping were probably responsible for the extermination of the marten in Michigan. By the early 1900's loggers had cut over most of the marten habitat. This certainly caused a drastic reduction in the marten population. The value of their pelts undoubtedly contributed to their final extermination, reducing them through trapping to a low from which they were unable to recover. A pelt was worth approximately \$200 in the early 'twenties (Seton, 1929). The present value is under \$10. Illegal trapping would have been quite profitable in those days. At present, however, it should not interfere with any restocking program.

Background for the 1957 Expedition:

The Michigan Department of Conservation recently launched a program aimed at re-establishing the marten in the Upper Peninsula of Michigan (Cusino Wildlife Experiment Station Special Report No. 14). Eight martens (five males, three females) were released in the Porcupine Mountains in the winter of 1955-56. Two were purchased from a fur farm near Perkins, Michigan, and the remainder from Ontario. We had some doubt as to the chance of success with so few animals, and decided to try again with a larger number of animals released in a very short period of time.

*Cover photo and Figures 1-8 by E. M. Harger. Figures 9 and 10 by Robert Van Etten.

In 1956 the Game Division reached an agreement with the Ontario Division of Lands and Forests, whereby we would furnish the manpower for an intensive live-trapping program and Ontario would provide equipment and technical assistance. Subsequently, game biologist Elsworth Harger, then of the Houghton Lake Wildlife Experiment Station, and predatory animal control officer John Arduin and conservation officer Bruce Andrews, both of Newberry, rendezvoused in Sault Ste. Marie, Ontario.

They left the Soo on January 28, 1957, via the Algoma Central Railway, arriving in Franz in the afternoon. The following day, with traps, crates, portable radio, toboggan, and four sled dogs, they proceeded by train to Mosher, and then by truck to Camp 6, 18 miles northeastward.

Camp 6 of the Newaygo Timber Company, Limited, a subsidiary of Consolidated Waterpower and Paper Company of Wisconsin, is 220 miles north of the Soo in the Chapleau Crown Game Preserve. This 2,850-square-mile preserve, closed to trapping since 1925, contained one of the few remaining nuclei of marten populations in Ontario when authorities closed the entire province to marten trapping in 1948. The preserve not only enabled the martens within its confines to increase, but provided marten trapping in the surrounding territory (deVos, 1951). Present regulations prohibit trapping and hunting in the area, but do permit fishing and travel (no trout streams).

THE MARTEN

Description:

The marten is long and slender, resembling the mink in general form and appearance (Cover). Weights of males average a little under two pounds (1.9), and the females a little over one pound (1.2) (deVos, 1952). Young animals attain adult size in 3 to 4 months. The feet are heavily furred, especially in winter, for travel in deep snow. The ears are relatively larger than those of mink and weasels. The bushy tail is less than one-third the body length. Martens come in a variety of colors ranging from white to almost black--no two being exactly alike. The head is usually lighter in color than the body, often light gray-brown. The upper parts are normally dark brown, but may range from white, tattletale gray, pale yellow-cream, yellowish-brown, and chestnut, to nearly black. The limbs and tail are normally darker than the rest of the body. The under parts and flanks are lighter than the upper parts. The throat and breast patch, of various sizes and shapes, and the median ventral strip, are generally yellowish-orange, ranging from pure white to brownish-yellow, or may be absent entirely.

This wide variation in color has undoubtedly led many to believe that martens change color seasonally. We doubt, however, that there is any

seasonal color change to speak of. There is a tendency for geographical color variation in Ontario according to deVos (1952). Schmidt (1943) quoted by deVos (1952) states, "It has been proved that with the increasing age of the animals in general the color of the hair becomes bleached and loses brightness and glimmer." Anthony (1928) reports no very marked seasonal color variation. They do not turn white in winter.

Habits:

Martens display a strong homing instinct according to Pozzo (1957) and deVos and Guenther (1952). Our own experience with one purchased from a Michigan fur farm and released the winter of '55-'56 bears this out. This marten, killed on the highway only six miles from the fur farm, had traveled 140 miles from the release site.

Martens are capable of swimming, but are not as adept as mink or fisher (deVos, 1952). To refer to them as "arboreal," "tree-dwelling," etc., is incorrect. Marshall (1942) found in Idaho that they travel on the ground practically all the time. In Ontario, deVos (1951) only twice found evidence of martens climbing trees. In Washington, "One marten was discovered in a tree . . . while in Ontario none of the trapped martens climbed a tree upon release. In Washington one did and stayed there." (deVos and Guenther, 1952) I personally tracked six martens for considerable distances while in Ontario. Only one climbed a tree. It jumped from the same tree and continued hunting. They spend much time beneath the snow around wind-throws, lower tree limbs, stumps, etc. Most of the Ontario animals upon being released in the Porcupines this year ran off, ignoring numerous trees. Robert Van Etten, who observed the releases, reported that one climbed all over the snowcat and another one climbed to the top of a big hemlock. According to deVos and Guenther (1952) an immature female retrapped in Washington ran several hundred yards on top of the snow passing several coniferous trees, but refused to climb though closely followed.

Contrary to popular belief, the marten is not averse to human activity. We had 12 traps set near a dump less than 300 feet from the camp kitchen. The martens were traveling 1/8 to 1/4-mile through atypical habitat to reach the dump. The light plant and repair garage were another 200 feet beyond the dump, which meant almost continual human traffic past the dump. We had another six sets in the vicinity of the horse barn at the other end of the camp. At these two sites we trapped seven martens. Our observations of marten sign did not indicate that our activity along the trapline disrupted them in any way. Martens frequently visited the jammer sites near Camp 6 to feed on scraps from workmens' lunches. Remington (1952) reported a den in Colorado within 50 yards of highway US-40 and about 75 yards from a well-used public camp ground. Yeager (1950) reports, "...some productive marten range is known to be grazed by domestic sheep during the summer and probably indicates that a degree of compatibility exists."

Habitat:

There was a very high population of martens in the area we trapped. Cover here was anything but dense. This is probably a relative term. The spruce swamp sites (Figure 1) resembled typical spruce bogs of Michigan. They were good stands, but not as "dense and dark" (Figures 2, 3) as some cedar swamps or mature hardwood stands. In much of the area the canopy was only 40 to 50 per cent complete (Figures 2, 3). The spruce was 3 to 12 inches d.b.h. and 20 to 30 feet high. Occasional popple, white birch, and cedar occurred throughout. The understory was chiefly tag alder and willow. Ground cover was mainly leatherleaf, labrador tea, and bog rosemary, sphagnum, etc. Windfalls were abundant. Some sites contained considerable tamarack (Figure 5); others ran heavily to cedar.

The upland sites were good stands of black and white spruce, 3 to 12 inches d.b.h. and 30 to 40 feet high, with some white birch, jack pine, and popple (Figures 6, 7). In places, the upland sites ran heavily to jack pine, with some mountain maple in the understory. Windfalls were common.

Many lakes dot this area, and there is generally good interspersion with plenty of small openings. It is very poor deer and snowshoe hare habitat. There are practically no deer there, and we saw only five snowshoe tracks. There are some moose, wolves, lynx, and a few fishers in the area.

The spruce swamps between Newberry and Cusino in the Upper Peninsula closely resemble the habitat at Mosher. The upland spruce sites at Mosher resemble many of our 20-to 25-year-old jack pine plantations in general conformation.

Most of us usually associated martens with vast wilderness areas. It is true that they thrive in these areas, but they do not require wilderness. Pozzo (1957) related that 50 acres of suitable, though isolated, habitat near Franz contained between 10 and 15 martens.

Range requirements of the marten vary from less than a square mile to 12 to 15 square miles (Quick, 1956; Newby and Hawley, 1954). Concentrations may exist where an unusually good food supply occurs, such as a heavy crop of berries in a local area. Animal carcasses such as moose, horses, etc., cause local concentrations (Yeager and Remington, 1956; Douglas, 1957).

We believe that the marten is quite adaptable. To a certain extent its food depends on habitat, but the diet is so varied that martens can find food in nearly all types of suitable habitat that occurs in Michigan. The Porcupine Mountain area, though more typical of fisher habitat, is probably satisfactory. Pozzo (1957) felt that the area would be satisfactory.

The present logging practices in the game preserve call for a 20-year rotation. Cutting in small blocks of 20 to 40 acres leaves plenty of suitable habitat surrounding the cuttings. Distances between blocks vary from 1/8-mile to several miles. We observed marten tracks in the cut-over area. Small cuttings

may actually improve food by providing more suitable cover for hares and rodents. The same applies to small fires. Where burns are bordered by spruce-fir, they undoubtedly provide excellent foraging grounds for martens (Yeager, 1950).

Food:

Food of the marten consists principally of small rodents, red squirrels, some snowshoe hares, and birds, with a considerable amount of vegetable material. One study found as high as 18 per cent plant food (Lensink, Skoog, and Buckley, 1955). Plant material eaten is mostly berries. Carrion is commonly eaten. Trappers commonly use animal carcasses as trap sites. By pre-baiting (for fisher) with horse carcasses at Chapleau, Ontario, the Ontario Department of Lands and Forests live-trapped 18 martens in three days during February, 1957, according to Carman Douglas, Senior Conservation Officer, White River District. Martens were habitually visiting the dump at Camp 6 to feed on garbage. In captivity they will eat practically anything. Live-trapped martens in Alaska readily accepted bread, candy, cheese, jam, and peanut butter (Lensink, Skoog, and Buckley, 1955). Remington (1952) reported that two captive martens ate pancakes, gravy, shrews, raisins, ham, cereal, fish, lettuce, spaghetti, bread, and celery.

CAPTURES AND THE RELEASE

Live-trapping:

Collapsible, welded-wire live-traps readily captured the animals. We used three dozen 24x6 $\frac{1}{2}$ x6 $\frac{1}{2}$ -inch traps and six 32x9 $\frac{1}{2}$ x9 $\frac{1}{2}$ -inch traps. (Cover) On the average 41 or 42 traps were in operation daily for 21 days (876 trap-nights). We frequently drew blanks. The largest catch in any 24 hours was four. Bait was beef, beaver, moose, and moose liver. Fresh herring was not very effective. Fish, fish oil, scents, and jam (raspberry preferred) are successful baits for martens in summer and fall. Temperatures ranged from a little above freezing to around 35° below zero. The snow was about 30 inches deep.

The deep snow required us to use snowshoes and a dog team in running the trap line (Figure 8). It also required us to place the traps up on a few boughs with the back of the trap against a tree or stump (Figure 4). Boughs placed over the traps prevented their freezing or filling with falling snow. The bait was tied in the rear of the trap behind the treadle. Martens enter traps readily, partly because of their very inquisitive nature. The pile of boughs attracts them, and upon seeing the exposed hole (entrance) and smelling the bait, they enter readily. In attempting to pull the bait loose, they step on the treadle and spring the trap. Canada jays and red squirrels gave us some trouble springing traps. Most of the red squirrels caught froze to death in the traps.

We live-trapped 21 martens. One escaped on the way back to camp, one escaped through the back of the trap, and one died en route to Michigan, leaving 18 for release in the Porcupines. We also obtained three martens from the Ontario's fisher-trapping project. Altogether we shipped 13 males and 8 females to Michigan. In addition, we caught 2 Canada jays, 9 red squirrels, and 26 weasels. Two martens sprung traps but escaped because the traps failed.

For economy and efficiency, we held the martens two to three days before shipment. When a few were available, or we felt we should not hold one or two any longer, we transported them to Mosher by truck. From Mosher they traveled via Algoma Central Railroad to the Soo where Joe Vogt picked them up and shuttled them to the Cusino Wildlife Experiment Station. After being tagged and weighed, they reached the release point by truck and snowcat. Actual release dates were February 6, 14, 19, and 28, 1957.

The release site was a virgin stand of conifers in a fairly remote area of the Porcupine Mountains State Park, in Ontonagon County (Figures 9, 10). Dominating the area was a dense overstory of larger hemlock and other conifers, 12 inches and larger d.b.h., and with a few openings coming in to sapling- and pole-size hardwoods. Red squirrels, a preferred food, are abundant in the area. A number of downed trees favors a good supply of squirrels and other small mammals. Mountain ash (the berries are a favorite fall and winter food) grows in considerable quantities a short distance away. Service-berry, wild cherry, and other fruits are found in the adjacent areas. The release site is about half a mile from a limited-access road, traveled mainly in the summer and not maintained during winter. During winter the nearest access point for highway travel is at least two miles away, and there is very little traffic at this location.

The Future:

Because of the marten's strong homing instinct, we can expect the adults to wander great distances, thus thinning out the introduced population. With such a small number to begin with, our best chance for establishing the marten lies with the females.

Breeding occurs soon after parturition. Therefore, all the adult females live-trapped should already have been bred at time of capture. The young are born in April or May. In Nova Scotia three young were born in captivity on April 13, 1956 (Benson, 1957). The gestation period is long, approximately nine months, because of delayed implantation.

Everything else being suitable, we can expect small islands of martens to appear at the unknown points where the females settle to give birth to their young. This is apt to be far from the release sites. For this reason we retained one female, presumed to be an adult, in captivity at the Cusino Wildlife Experiment Station. Her diet was similar to one worked out by the Nova Scotia Department of Lands and Forests in their studies. We released this

marten in the Porcupine Mountain area April 12, 1957, the idea being that her maternal instincts would outweigh her homing instincts and thus guarantee some young animals near the release site. We might expect young martens to have a tendency to remain in the area of birth, particularly in areas of sparse population.

In March, 1958, Robert C. Van Etten of the Cusino Wildlife Experiment Station checked the release area for signs of survival of the martens. In 40 miles of travel between March 2 and 12, he found five fresh marten tracks. Since live-traps operated for 140 trap-nights caught no martens, we do not know whether these were martens originally released (marked with ear-tags) or their offspring. Van Etten believes that at least four and probably more martens were living within a seven-mile radius of the release site a year after the release.

The fact that the marten is not as strict in its habits and requirements as popularly believed is encouraging. We may some day have a considerable population of pine martens in the Upper Peninsula. It is even possible that the marten may become an important furbearer in Michigan.

EH:DS:lam

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Fig. 1. Typical pine marten habitat - spruce swamp; foreground cut in 1955.



Fig. 2. A good percentage of spruce swamps are quite open. Note light filtering through.



Fig. 3. Spruce swamp and windfalls; pine marten tracks in foreground.



Fig. 4. Elio Pozzo, Ontario Conservation Officer and a live-trapped pine marten; typical set at base of a birch tree.



Fig. 5. Tamarack site. Logging road did not interfere with activities of pine marten.



Fig. 6. Mixed spruce, poplar, and birch upland. One trap line ran along this logging trail used in 1955-56.



Fig. 7. Mixed upland site and rock outcrop. Ravine leading to lake was used by pine marten.



Fig. 8. Essential equipment - dog team, toboggan, and snowshoes.



Fig. 9. Pine marten being released in the Porcupine Mountains; note habitat in background.



Fig. 10. Pine marten newly released in mature forest of Porcupine Mountains.

