FURBEARER MANAGEMENT GUIDELINES

FISHER *Martes pennanti*

BRITISH COLUMBIA

Since 1926, separate trapline areas in British Columbia have been assigned and registered to individuals licensed for the purpose of harvesting the province's plentiful fur resources. To obtain a license, trappers must successfully complete a three-day course that focuses on humane trapping methods, fur handling, and trapline management. The trapline management component includes knowledge of, and fosters respect for, provincial trapping regulations, adherence to professional and ethical standards established by the Ministry of Water, Land and Air Protection and the BC Trappers Association, and practices that help to manage and maintain furbearer populations. There are approximately 2900 registered traplines in British Columbia, and 19 mammal species are officially classified as furbearers.

For management purposes the fisher is categorized as a Class 2 species, which means that it is considered sensitive to harvest and, because home ranges are large relative to the size of most traplines, population management cannot only be applied at the individual trapline level. Thus, while the input and cooperation of trappers are important, Class 2 species are managed primarily by application of provincial government regulations. Other Class 2 species are lynx, bobcat, river otter and wolverine.

This document is intended primarily to provide British Columbia's professional trappers with information on fisher biology, and on principles to consider in the sustainable management of the species. The material presented is generalized from the results of many studies conducted over a wide geographic area and local variations and exceptions may occur.

DESCRIPTION

Seldom seen, even where abundant, the fisher has the long, slender body and short legs that are typical of the weasel family. In comparison to martens, their closest relatives, fishers are considerably larger and more heavily built, have more rounded ears, and are paler on the head and shoulders due to the light-coloured tips of the guard hairs in that area. Except for those "grizzled" foreparts, the fisher's pelage is generally a rich, dark brown with stiff glossy guard hairs and dense underfur. Most individuals also have irregular-shaped white or cream coloured patches on the chest and abdomen, and/or around the genitals. The thick, well-furred tail is long, comprising about one third of the animal's total length, and tapers to a pointed tip. Adult males in British Columbia, averaging about 1 m in length and weighing 4 to 7 kg, are about 10 to 15 percent longer and twice as heavy as adult females.

ECONOMIC CONSIDERATIONS

The history of the fisher is one of the major success stories in North American wildlife conservation. Fisher populations in many areas of the continent had reportedly declined to very low levels by about the 1940s, due to factors such as large-scale habitat loss from timber harvesting and agricultural clearing and several decades of intense, mostly unregulated trapping and hunting pressure stimulated by high pelt prices. During the Great Depression years, fisher pelts often brought $200 or more, an amount equivalent to several months pay for hard labour jobs at that time. Application of a variety of management actions (restricted trapping seasons, establishment of quotas, local closures, and local transplant and reintroduction projects), together with habitat improvements due mostly to natural regrowth of cleared areas, resulted in recovery and even increased populations in most areas. The historic pattern in BC is not clear, but there is no concrete evidence that declines occurred at the same scale or in the same time period as those in the east, and fishers from this province were used in some of the transplant programs in other areas in the

1950s and 1960s.

In BC, annual fisher harvests averaged about 700 animals between 1920 and 1970, rising above 1000 three times during that period (1926, 1941, and 1964; see Figure 1). That was followed in the early 1970s with a run of four consecutive years of harvests greater than 1000, peaking in the 1973-74 season at 1747 animals, and then by a period from the mid-1970s to the mid-1980s in which harvests fluctuated between about 500 and 900 fishers, with an average of 630. As with most BC furbearers, the pattern from the late 1980s through the 1990s, when fur markets were generally depressed, was for very low annual harvests (average of 230, with an all-time low of 93 in the 1990-91 trapping season). The large harvests in the early 1970s likely reflected good productivity and relatively high fisher numbers due to high populations of prey (snowshoe hares) at that time. The smaller recent harvests are probably related to lower amplitude hare cycles in the past two decades, and are certainly due at least in part to decreased trapping effort both generally (fewer trappers afield because of low prices) and specifically (deliberate avoidance of fisher catches in compliance with a government request in the trapping regulations synopsis).

Fisher pelt sales contributed four to five percent of total provincial fur revenue during the early 1970s peak harvest period, but that proportion has averaged only about one percent since the mid-1980s. Most of the recent provincial fisher harvest has come from two administrative regions (Omineca-Peace and Cariboo).

Figure 1: Reported Fisher Harvests and Pelt Values, 1920-2000.

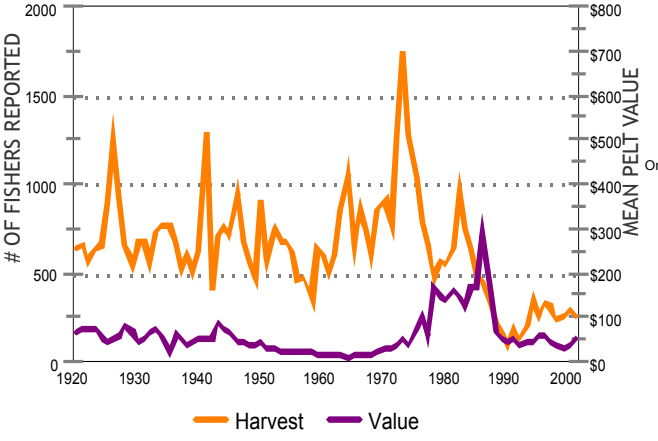
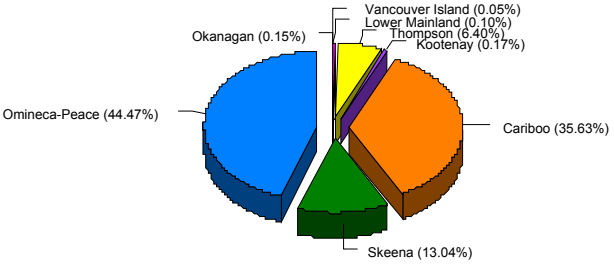


Figure 2: Fisher Harvest by Region, 1985-2000.



BIOLOGY

DISTRIBUTION AND HABITAT

Fishers occur only in North America, and mostly in Canada. They are most abundant in the east, with distribution covering most of Ontario and extending southward around the Great Lakes in northern Wisconsin and northern Minnesota, and eastward through southern Quebec, New Brunswick, and the northern New England states from Maine to New York. To the west, the species occurs widely in the forested central and northern portions of the prairie provinces, but is found in only the southern extremities of the Northwest Territories and Yukon. In the western United States, small numbers of fishers are found in northern Montana and Idaho and in forested portions of the Pacific coast states to northern California.

In British Columbia, the fisher does not occur on any of the coastal islands and is rare or absent west of the Coast Mountains on the mainland, but there are sighting or specimen records scattered over most of the rest of the province. Some of those records undoubtedly were of dispersing animals rather than local residents, and it is therefore difficult to confirm the area of regular occurrence in the past. Based on trapping records since the mid-1980s, the BC areas of primary current occurrence are the sub-boreal forests of the central Interior (Cariboo-Chilcotin and Omineca regions) and the boreal forests to the north. The current distribution now also includes an apparently reproducing local population in the East Kootenays, as a result of a "reintroduction" program in the mid- to late 1990s.

The fisher is a forest-dwelling animal and, in the west, is associated primarily with coniferous and mixed forest habitats. However, it is not a specialist in that regard, and regularly forages along forest edges and in riparian areas, small wetlands and meadows, and the thick conifer and shrub patches that regenerate in areas opened up by forest fire, windthrow, and some logging practices. In general, the structural make-up of a forest is more important to fishers than is its age or tree species composition. Important structural features include coarse woody debris (downed logs, stumps, litter), snags, and often multiple layers of overhead vegetation (shrubs, saplings, trees), all of which provide cover for both fishers and their various prey. The species is poorly adapted for travel in deep, soft snow, to the extent that both its continental and local distribution may relate primarily to snow cover characteristics. During winter in BC, fishers may avoid deeper snow areas by occupying forests with thick canopies which intercept snow and reduce the amount that reaches the ground, or, in mountainous areas, by using lower-elevation habitats and slopes exposed to sun and wind.

Although they commonly hunt for prey in younger or more open habitats, fishers usually rest and den in areas having high structural diversity. Day resting sites in summer are often high in live trees, either on branch or witch's broom "platforms" or in cavities. Use of snags, hollow logs, stumps, squirrel and raptor nests, brush piles, rockfalls, woodchuck burrows, and abandoned beaver lodges also have been documented. During winter in north-central BC, especially when temperatures are below freezing, documented fisher resting sites were generally under the snow, often in spaces in or under large coarse woody debris. In two BC studies, all of the 19 dens used by females for birthing or rearing young were in large black cottonwood or balsam poplar trees (both primarily riparian species).

FOOD

The fisher is a versatile hunter and opportunistic scavenger, consuming a large variety of both animal and plant foods. The snowshoe hare is the primary prey in most areas, but fishers also eat several species of small mammals (shrews, moles, mice, rats, voles, and chipmunks) as well as many larger ones, including tree and ground squirrels, marmots, muskrats, porcupines, and several fellow carnivores including minks, martens, skunks, and raccoons. Large mammal carrion (usually deer, elk, or moose) is eaten whenever it is available. Although mammals usually comprise the bulk of local diets, fishers also eat birds and eggs (grouse, jays, crows, small passerines), snakes, lizards, frogs, insects, and a long list of fruits. The predatory relationship between fishers and porcupines is legendary, but generally exaggerated. A porcupine kill clearly provides a fisher with a large and potentially important amount of food, but porcupines have rarely comprised more than 10 percent of the items identified in food habit studies.

SOCIAL BEHAVIOUR

As with most of the other mustelids (members of the weasel family), adult fishers remain solitary for most of the year. The primary exceptions (both occurring in summer) are the short association between pairs during the mating season and the longer association between females and their dependent young. A fisher population consists of a stable core of residents (usually adults) with well-established home ranges and a more free-floating segment referred to as transients. The transients are mostly juveniles, but may also include older animals that have abandoned their home ranges because of injury, old age, or inadequate food supplies. Transients are less secure than residents, often travelling in unfamiliar terrain. They are more regularly exposed to extreme hunger and are generally the most likely to encounter trap sets or to come into conflict with humans.

The home ranges of residents are maintained as distinct territories which overlap very little with those of their neighbours of the same sex. During the breeding season, males in search of mates may travel widely outside their own territorial boundaries and therefore within those of others. Transients in search of vacant habitat also travel extensively and, unavoidably, through established resident territories. They do not stay, however, and it is generally believed that territories are maintained by a combination of aggressive behaviour and scent marking. The home ranges of resident fishers vary in size depending upon a variety of factors. Males usually maintain ranges that are two to three times larger than those of females, with an average of about 31 km^2 and 12 km^2, respectively, based on several studies in the United States. Two studies in BC have found larger home ranges, averaging 137 km^2 for males and 35 km^2 for females, and it has been speculated that those larger ranges were due to a lower density of resources for fishers in those areas.

ACTIVITY AND MOVEMENTS

Fishers are active primarily between dusk and dawn, although some daytime activity may be undertaken by very hungry animals. As determined by radio-tracking, fishers move about 2 to 3 km between daybed sites on successive days, but the distance actually covered is usually much farther due to the zigzagging and back-and-forth pattern of movements the animals usually make while foraging.

Typically, the largest recorded movements made by fishers are those undertaken by young transient animals dispersing from their mothers' home ranges and those made by animals transplanted into unfamiliar surroundings. In the case of juvenile dispersal, successful movements of up to 60 km have been documented. In BC, a juvenile female that was unsuccessful in its dispersal attempt moved at least 132 km, including a straight-line distance of 74 km in eight days, before dying of apparent starvation. Dispersal distance relates in part to the availability of vacant habitat. In a heavily trapped area in Maine, dispersal distances were relatively short (average of 10.8 km for males and 11.3 km for females) and it was noted that "dispersal of nearly all juveniles allowed them to quickly replace adults removed by fur trapping." Among transplanted animals, movements of 100 km or more are common, and a male translocated from the Chilcotin River drainage to an area southeast of Quesnel moved at least 1055 km, crossing large rivers and rough terrain in the process.

REPRODUCTION

Fishers are born in late March through early April, and reproductive females come into heat and may mate again within a few weeks, or sometimes within days, of giving birth. The nearly year-long pregnancy is due to delayed implantation, in which the embryos remain in a state of arrested development for 10 to 11 months. The actual period of pregnancy after the embryos implant and resume development is 35 to 40 days. The reproductive potential of fishers is relatively low, with females not producing their first litters until they are at least two years old, and with litter sizes usually averaging less than three and rarely exceeding four kits. Successful reproduction depends in large part upon the condition of females, which in turn depends primarily upon nutrition. Low food supply in winter, such as may occur during the low phase of the snowshoe hare cycle or due to excessive competition with transient fishers or other carnivores, may result in little or no production of young in some years.

CARE AND DEVELOPMENT OF YOUNG

Newborn fishers are blind, naked, and helpless, but they grow and develop rapidly. Their eyes are open and they are taking solid food by about seven weeks, they are fully mobile by 10 weeks, and are hunting with reasonable success by 18 to 20 weeks. By late fall, at the age of seven to eight months, they are largely independent, nearly full grown, and are beginning to disperse from the home range of their birth. All parental care is provided by the mother.

MORTALITY, PARASITES, AND DISEASE

Fishers appear to be relatively free of parasites, especially externally, with only one species each of fleas, ticks, and mites identified to date. Internally, they are known to carry several species of tapeworms and roundworms and at least one fluke, but none of those are known to be either chronic or a threat to fisher populations. Likewise, the few applicable studies (all in the east) have documented a low incidence of disease among fishers, and none of major concern. Because of

their low population densities and solitary lifestyle, fishers are not particularly disposed to disease transmission.

Causes of natural mortality were rarely documented prior to the use of radio-tracking, but are now known to include occasional starvation and predation, most commonly of dependent young or transient members of the population. Among the currently known predators of fishers are cougars, lynxes, bobcats, wolverines, coyotes, other fishers, and golden eagles. The most common human-caused fisher mortality factors are fur trapping and road kills, primarily the former in British Columbia. Fishers do not appear to be particularly long-lived, but that view comes primarily from heavily trapped areas in Ontario, where fewer than five percent of 6000 specimens were more than five years old. Four of 3262 females (0.1 percent) were 10 years old, but none of 2747 males had attained that age. The oldest known wild fisher was a 12-year-old female, apparently still reproductively active, from British Columbia.

POPULATIONS

Fishers naturally occur in relatively low numbers over large areas, and are difficult to census. Estimates for the total British Columbia population have ranged from 10,000 to 15,000 animals in the mid-1970s, apparently based on extrapolation from densities calculated in eastern populations, to a recent estimate of 1100 to 2750, based on extrapolation from a small, local sample of radio-collared animals in north-central BC. Although little is known about the normal ups and downs of fisher populations in the west, the snowshoe hare is known to be a primary prey species and there is evidence that fisher populations are affected by the well-known 10-year cycle in hare abundance. That being the case, it is likely that fisher populations are much more dynamic over time than the above estimates would suggest.

POPULATION MANAGEMENT

The fisher is designated as a furbearer in British Columbia and, as such, can be legally harvested only by licensed trappers. It is also identified as a Class 2 furbearer under BC's Fur Management Program, meaning that its harvests are normally regulated (methods, seasons, bag limits, quotas) at the regional level, in consultation with local trappers. Beginning in 1994, the species was also included on the provincial Blue List, indicating that it was considered "vulnerable" and of high management priority. However, based primarily on extrapolation of data obtained in a recent field study in north-central BC, provincial authorities have now reclassified the fisher to the Red List (i.e., "imperiled"). By associated policy, a Red-listed species can not be harvested therefore, effective beginning in the 2003-04 trapping season, there is no open season for fishers. The following announcement and request for cooperation and information for habitat management input from the Ministry of Water, Land and Air Protection (MWLAP) pertains:

"Given the Red-listed status of fisher in BC, trapping seasons have been closed for fisher. To ensure viable fisher populations, and to gain further information regarding fisher status, trappers are encouraged to submit any incidentally killed fisher to the nearest MWLAP office (refer to the Compulsory Inspection requirements for furbearers in the current Hunting and Trapping Regulations Synopsis), along with information about when, where, and how it was captured.

Fisher seasons will remain closed until new information is collected that indicates the population is secure and trappers can help provide that data through submission of carcasses. Further strategies to minimize fisher capture and enhance populations include:

HARVEST REDUCTION EFFORTS

Modify marten boxes by making them longer and the entry hole smaller (2.5 to 3" or 6.4 to 7.6 cm in diameter).

Avoid trapping around fisher den sites near large cottonwoods and fir snags.

Avoid trapping marten or mink where fisher sign is evident.

POPULATION ENHANCEMENT:

Establish food sites for fishers (helps martens and weasels also). Hang carcasses in trees to reduce competition from other predators.

Complete marten trapping as early in the season as possible to help reduce the incidental capture of adult female fishers.

Establish non-trapping or refuge sites on your trapline.

HABITAT MANAGEMENT

Trappers are also encouraged to promote forestry and agricultural practices that conserve fisher habitat. Landscape and stand-level habitat characteristics that should be considered include:

Riparian and riparian-associated habitats, particularly those with large spruce trees (minimum 25 cm at breast height (dbh); recommended 40 cm dbh) with broom rust, and large cottonwood or fir trees (75 cm dbh); these are used as resting and maternal denning sites, and should be maintained. Wildlife tree patches should be 2 ha or greater.

Maintain natural levels and characteristics of coarse woody debris. This debris (decay class 2 to 6) is important for resting sites and as habitat for prey species. A continual supply of decay class 2 logs are required to provide denning sites. Maternal den sites are predominantly in large cottonwoods in cavities created by broken branches.

Areas managed for fisher should contain 30 to 45 percent mature and old forest and a productive under-storey that supports a variety of small and medium-sized prey species. Suitable habitat is characterized by shrub cover, coniferous canopy cover, patches of large, declining trees (particularly black cottonwood), and greater than average (for that zone) amounts of coarse woody debris.

Landscape connectivity should be maintained through the use of corridors of mature and old forests. Ideally, connectivity should be centred on stream systems and can be achieved by maintaining riparian buffers on each side of a stream."

NOTE: Planning and implementation of the above habitat guidelines are the responsibility of government and industry managers, but the input and support of trappers is important to help ensure that they occur.

SUMMARY

The fisher is widely distributed in the central and northern Interior of British Columbia, but, despite low trapper interest and harvests for more than a decade, provincial managers believe that the population is currently at a low level. Accordingly, the fisher has been assigned to the provincial Red List as an "imperiled" species and there will be no open season for harvesting fishers until new information indicates that the species is secure. Trappers are asked to take steps to reduce incidental catches of fishers and to comply with Compulsory Inspection requirements for those that may be caught despite those efforts.

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SOURCES FOR ADDITIONAL READING

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NOTE: This document has been formatted for insertion into the British Columbia Trappers Association Trapper Education Training Manual and for inclusion in print documents intended for government managers and industry representatives who are involved in furbearer management in British Columbia.