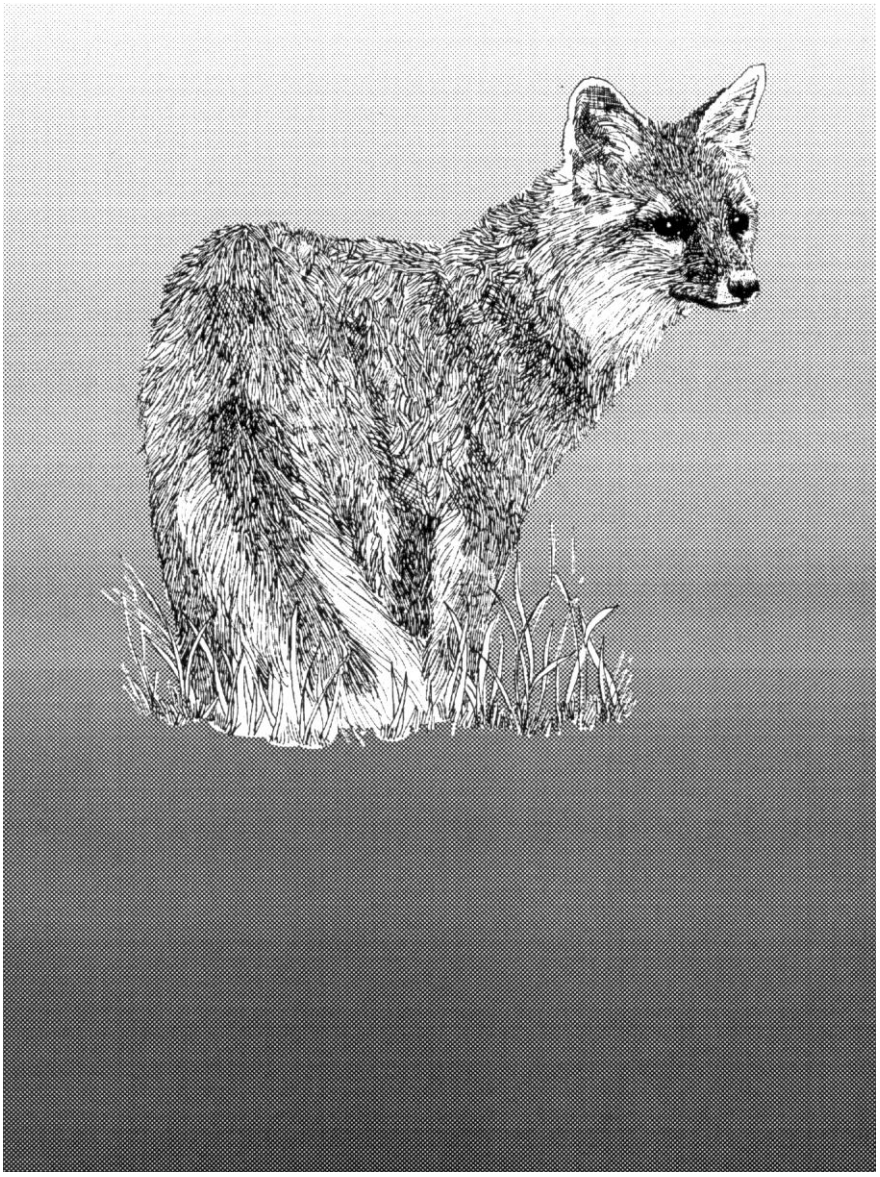
TRAPPER EDUCATION



Washington Department of FISH and WILDLIFE

2004 STUDENT EDITION

ENFORCEMENT PROGRAM

HUNTER EDUCATION DIVISION
huntered@dfw.wa.gov

CODE OF RESPONSIBLE TRAPPING

All responsible trappers adhere to the following code:

- Respect private property. Do not violate trespass laws or tamper with the property of others. Ask permission from the landowner.
- Know selective and humane trapping systems and use them appropriately.
- Check traps regularly, preferably in the morning.
- Be aware of others using the outdoors and do not interfere with their activities.
- Assist property owners with wildlife damage problems.
- Avoid areas or sets likely to result in the capture of domestic animals.
- Be a conservationist. Make an effort to trap only the surplus.
- Promptly report wildlife problems such as disease, pollution or habitat destruction.
- Identify and record all trap locations accurately. Pick up all traps promptly when you have finished trapping.
- Utilize furbearer carcasses for human, domestic animal or wildlife food whenever possible.
- Dispose of unused carcasses properly.
- Provide educational assistance to new trappers.
- Support strict enforcement of laws relating to wildlife and wildlife habitat.
- Respect the rights and feelings of others, even if you disagree with them.
- Cooperate with wildlife management agencies.

This publication reflects the work of many hands, including the Washington State Trapper's Association, the National Trapper's Association, the Minnesota Trapper's Association, Alaska Department of Fish and Game and the Ontario Trapper's Association. A number of Washington Department of Fish and Wildlife employees were also involved in reviewing and developing this latest edition of *Trapper Education In Washington State*, as well as all predecessor materials.

Any errors or omissions in this text are the sole responsibility of hunter education division staff, who will appreciate receiving timely notice of your concerns at huntered@dfw.wa.gov August 2004

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U.S. Fish and Wildlife Service / Office of External Programs
4040 N. Fairfax Drive
Suite 130
Arlington, Virginia 22203

WILDLIFE RESTORATION

Washington Department of FISH and WILDLIFE

THIS BOOKLET IS FOR INFORMATIONAL AND TRAINING PURPOSES ONLY!

Trapping rules and regulations have changed during the past decade, and they may change in the years ahead. This booklet provides trapping background information on techniques and equipment that may not be lawful to use in the State of Washington. **DO NOT ASSUME that any techniques and equipment included in this book are lawful simply because they appear in this text**.

The current trapping season pamphlet contains rules and regulations now in effect. Be sure that you read the rules and that you use only the trapping equipment and/or trapping techniques specifically listed in the current trapping seasons pamphlet. Remember: Ignorance of Washington law is not a defense to a prosecution!

HISTORY OF TRAPPING

The fur industry has been important throughout American history. From the first colonists on the Atlantic Coast to modern day American society, trapping has played an important role. The first colonists not only traded for furs but they also trapped for fur and for food. Today, trapping is important for management, economics and disease control.

The fur resource was one of the principal reasons for the westward expansion of civilization. Trappers were the first white men to explore the American continent. The great sea voyages of Cook, Vancouver and others were motivated by the fur trade. Captain Cook commented on the economic value of the fur resource in the Northwest in 1778. On land, the Lewis and Clark Expedition (1804-1806) to the Columbia River sought new fur resources. In tact, Lewis and Clark frequently found that they were not the first white explorers. Trappers had preceded them.

Trapping was, for a time, big business. Beaver hats were highly fashionable in Europe for many years. Large companies such as the Hudson Bay Company and the North West Company encouraged exploration to exploit the fur resource.

In Washington, the fur trade contributed to early settlement of the area. Major fur companies such as the Pacific Fur Company, Hudson Bay Company and North West Fur Company purchased furs, supported trappers and encouraged development of fur trading posts and forts. Early fur trading posts in Washington included:

- Fort Okanogan (1811);
- Spokane House (1811);
- Fort Spokane (1813);
- Fort Nez Perce (1818—later changed to Fort Walla);
- Fort Vancouver (1824);
- Fort Colville (1825); and
- Fort Nisqually (1833).

By the 1800's fur resources were overexploited. The British had overharvested the resource in anticipation of losing control over a large portion of North America. In addition, a change in fashion (silk hats replaced fur hats), the California gold rush (which attracted trappers from other parts of the West) and settlement of the West all contributed to a decline in the fur industry in 1800's.

Although settlement of the West reduced the fur industry, it did not reduce pressure on furbearers. Many settlers trapped for both fur and food. The addition of more settlers increased the pressure on the fur resource.

"Courer du Bois" by Arthur Heming reprinted by permission of the Public Archives of Canada.

In Washington, the beaver population was so threatened that beaver protection laws were enacted in 1909. It was not until 1963 that beaver could again be trapped for furs. Today, beaver are an important part of our renewable fur resource. Beaver populations are stable although, like all wildlife, increased human development causes conflicts at times. Recent studies have shown that, in some cases, beaver can maintain stream flows and increase streamside habitat for other species. Responsible trapping and professional management will help protect beaver populations for future generations.

Trapping In The 21st Century

Trapping in Washington today takes place in a society is much different from years past. Social and political influences—such as what the legislature and general public think about trapping—are now as important to the future of trapping as the health of furbearer populations. During the

past decade the voters of Washington expressed strong viewpoints and approved a ballot initiative limiting the types of traps approved for general season trapping. The modern trapper must work within the guidelines of these new, restrictive equipment regulations.

FURBEARER MANAGEMENT

The last two centuries have brought a rapid expansion in human population and development. Early mountain men and trappers like Jim Bridger and Jedediah Smith could not have foreseen the pressures that would be placed on the vast resources and unexplored lands of the western United States. Early explorers viewed wildlife and other natural resources as an endless wealth, as yet untouched by man. Today's world is drastically different. Although we still have large tracts of land where people have not settled, it is becoming increasingly difficult to find natural resources that have not been affected or altered by human activity.

Side effects of human population growth urban development, road building, timber cutting, agricultural development, air and water pollution, stream channelization etc, are spreading rapidly. These processes consume and alter wildlife habitat. Thus, as time goes on, we are forced to deal with problems associated with maintaining an environment in which both people and wildlife can co-exist. Conservation of our wildlife resources will be based not on a plan of complete protection of them, but rather on wise use of these resources. Because of the mounting pressure on wildlife populations and their habitats, the wise use of these animals can only occur through intensive management and sound regulations.

Furbearers are just one type of wildlife resource. They are a renewable resource, just like timber. As long as appropriate habitat conditions are maintained and population harvest is controlled, furbearers will remain available for use by future generations. Most of the harvest of furbearers in Washington State is by trapping. Although some people think trapping should be banned, it is an important management tool in our state. Elimination of trapping will not insure the survival of a furbearer population or even an individual animal. Wildlife cannot be "stockpiled" year after year, but rather is subject to the limitations (carrying capacity) of the habitat. The amounts of food, water and cover along with their distribution (XX space) will determine the number of animals in a given area.

The carrying capacity of an area increases in late spring and summer as food and cover become more abundant. This temporarily expanded habitat is filled as new young are born. As winter approaches, the carrying capacity starts to decline, eventually reaching its low point in late winter. Generally, during the fall and winter there are more animals than the habitat can support. This surplus of animals will not survive and it can be harvested. For example, the muskrat, which has a high reproductive potential, may expand its population many times during every spring and summer. In most muskrat populations 50 to 80 percent of the summer population will die before the next spring. A portion of the animals that are going to die are available for harvest. Because furbearers are nocturnal and do not readily expose themselves to hunters, this harvest is usually taken by trappers.

The elimination of trapping as a means of harvesting furbearers does not mean animals will die a less painful death. Left to themselves, animals in the wild normally have fairly short life spans. They usually die from predation, starvation, disease, cars or other injuries - all of which involve pain and suffering that is usually more acute and prolonged than that caused by a responsible trapper. Trapping regulations promote a humane harvest through the use of quick killing, cage traps and proper foot hold sets. Trapping regulations also establish maximum trap check periods to limit the amount of time animals spend in traps.

Trapping seasons and the resultant harvest of furbearers provide benefits for trappers. In addition, there are resource and economic reasons to support well managed furbearer seasons. Unmanaged animal populations can cause severe damage to other resources and wildlife habitat. Beaver can cause flooding of agricultural lands and roads. Muskrats may damage dikes, dams and ponds. Coyotes and bobcats can cause livestock losses and increased predation on the young of other wildlife. Many furbearers are carriers of parasites and diseases. Controlled harvesting can, in some cases, reduce the impact of parasites and diseases on other wildlife and domestic animals.

This doesn't mean that trappers and wildlife managers do not have an obligation to harvest animals as humanely as possible. New regulations are brought into effect as new traps are brought on the market that kill animals more quickly or are judged more humane. Current regulations for general season trapping prohibit the use of any body-gripping traps. This prohibition includes, but is not limited to, padded and unpadded foothold traps, all snares, and Conibear-type traps.

The previous paragraphs summarize not only the Washington Department of Fish and Wildlife's position on the regulated trapping of furbearers but also some of the problems that are facing managers of a renewable resource in today’s society.

RESEARCH

To manage furbearers to the best of our ability we must understand each species (e.g. physiology, reproductive status and movements) as well as know how each species interacts with its habitat (e.g. food habits and cover requirements) and other wildlife (e.g. disease transmission, and predation).

This understanding and knowledge is gained through wildlife research, a system of investigations and data gathering which forms a basis for enhancement, management and sound regulations. Wildlife research often relies, in part, on the collection of animals for study. This is both a difficult and time consuming task for a research biologist. Trappers can greatly assist research projects by collecting some of these animals.

Studies may rely heavily on carcasses or parts of furbearers (e.g. teeth, reproductive organs and stomach samples) donated by trappers. A case in point was the Native Cat Study conducted by the Washington Department of Fish and Wildlife from 1974 to 1984. In order to gather data on the sex, age structure, and female reproductive status of the annually harvested segment of Washington's bobcat populations, scientists needed to examine carcasses. Trappers in Washington State responded by providing more than 1,000 bobcat carcasses to the Department during the study.

Research is an ongoing endeavor. As environmental pressures increase and interests and demands of the public change, new research questions and problems confront wildlife management agencies. Through cooperation with groups such as trappers, research studies can address these questions with minimal funding increases. Hopefully, in the years to come, research studies done with cooperation of Washington trappers will strengthen management policies and regulations that maintain our furbearer resource.

POPULATION DYNAMICS

When we speak of a wildlife population we mean the number of a particular type (or species) of animal that live in a defined area.

It is important for wildlife managers to gain an understanding of the causes of changes in wildlife populations. With this knowledge we can better predict the outcome of management strategies. Generally, biologists try to understand the population dynamics of a wildlife species by looking at population size or density, productivity, age and sex structure, reproduction, mortality and movement. It is usually difficult to describe a wildlife population because the area it occupies is not always the same, the total number of individuals changes frequently and the sex and age composition is constantly changing. The population is dynamic.

The population dynamics of a particular species is a very complex subject. However, there are some basic concepts which apply to all wildlife populations. These concepts are the ones we will examine in the following paragraphs.

RENEWABLE RESOURCES

There are two types of natural resources: nonrenewable and renewable. Nonrenewable resources are natural resources like minerals, oil and gas. Once they are extracted from the earth and used, they are gone forever. A formation of coal, once mined, does not redevelop for mining next year. Renewable resources are natural resources that can renew themselves for use again. Timber removed from a forest can, over a period of time, be replaced by new trees that can again be harvested. Wildlife populations are a renewable resource.

CARRYING CAPACITY

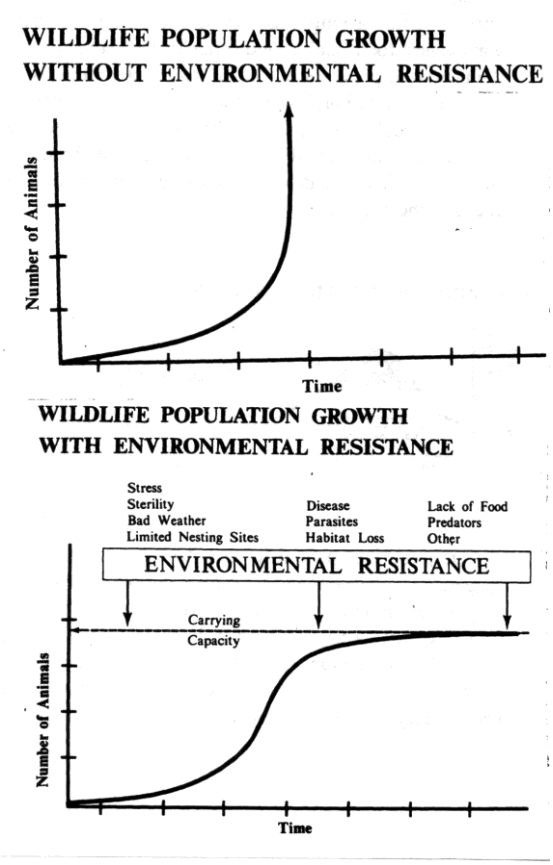
The carrying capacity of a particular wildlife habitat is the number of individual animals in a population that can be supported in that habitat for a period of time. The carrying capacity of a habitat changes with time as it is influenced by yearly and seasonal changes, land use practices, weather, plant succession, and even the numbers and types of wildlife that use the land. The concept of carrying capacity is very basic to wildlife management but is often best understood by using an example involving domestic animals.

If a rancher can support only 10 steers through the summer months on his 80 acre pasture, what happens if he tries to graze 16 steers? When this happens 16 animals are sharing food suitable for only 10 animals. There is less food for each steer and the pasture becomes overgrazed. If the rancher continues with this practice of overgrazing, the pasture quality or carrying capacity will be reduced to the point where it will not even support six or seven steers. A good rancher wants to both maintain his pasture quality and keep his steers at the carrying capacity.

The situation that wildlife managers deal with is similar to this. A given amount of habitat can only support so many healthy animals.

ENVIRONMENTAL RESISTANCE

Environmental characteristics which determine carrying capacity on a given area are known as limiting factors. Limiting factors act together in an effort to resist the growth of a population and keep it near the area's carrying capacity. Nature does not allow populations to grow unchecked. Nature retards or reduces the growth rate to maintain populations within the carrying capacity of the environment. This is accomplished very effectively through limiting factors such as starvation, predators and stress, etc. If a wildlife population quickly increases in numbers the environmental resistance usually increase also. On the other hand, if a population is well below the carrying capacity the environmental resistance is much less intense.



Limiting factors which make up environmental resistance and limit populations include: habitat loss, disease, parasites, lack of food, predators, limited nest or den sites, stress, cold, rain, sterility and many other factors. If the environment offered no resistance, a wildlife species would continue to increase to the extent it was biologically capable. Nature does not allow this to happen.

For example: if you planted one pair of ruffed grouse on one acre of good grouse habitat and they laid 14 eggs, how many grouse would be on the acre in five years'? Assume that all grouse survived and each pair of grouse laid 14 eggs, of which seven were always male and seven female. Go ahead and do the math to get an answer.

The answer would be more than 60,000 grouse in the five year period!

Wildlife populations commonly fluctuate due to changes in carrying capacity such as abnormal weather during nesting or breeding periods. Wet or cold spring weather can readily alter the reproductive success of some populations, especially upland birds. A change in carrying capacity such as removing brushy fence-rows or draining marshes can seriously impact wildlife populations. Seasonal fluctuations are also tied to the carrying capacity of the habitat. Normally the carrying capacity is highest in summer and lowest in winter and early spring. Most wildlife, including furbearers, give birth in the spring when carrying capacity is increasing. As summer approaches, food, shelter and other factors are available for the increased population. During fall and winter, food and cover are reduced and animal losses become evident. Late winter through early spring is the ultimate test because the carrying capacity is usually lowest at that time. Animals that survive the winter will determine reproduction for the coming year and the cycle will start again.

At this point it is probably clear to most readers that the suggestion to "close the season for a couple of years and let the population build up" is often unrealistic. Assume that in the fall, we have a surplus of animals above carrying capacity of the area. The number of those animals alive the following spring will not be based on the size the surplus, but rather on winter carrying capacity. In fact the more we increase the surplus of animals the more we lose during the winter. The only way to enlarge populations that are already filling their habitats is to increase carrying capacity through habitat manipulation. Since enhancement of habitat is very difficult, expensive and time consuming wildlife managers generally attempt to manage populations with methods that keep animal numbers at or below the carrying capacity of existing habitats.

As an example, let us assume that a beaver pond has enough food to sustain five beaver and enough den sites for 10 beaver. If there are eight beaver in the pond what will happen? If the landowner wants more than eight beaver in the pond how can we accomplish this? Will closing trapping season help? What if we enlarge the pond so there are more den sites? Obviously neither of these management plans will increase or even maintain the population of eight beaver.

In this case the beaver population can only be expanded by increasing the food. One limiting factor alone can keep a population at a low level in what is otherwise superior habitat. Moreover, if the eight beaver are consuming food faster than it is being produced and food supply cannot be increased, the aim of management should be to reduce the population to keep it in balance with the available food supply. In this case, harvesting three to five beaver would keep the remaining population in good health and within the carrying capacity of the habitat.

4 Basic Parts Of Wildlife Habitat

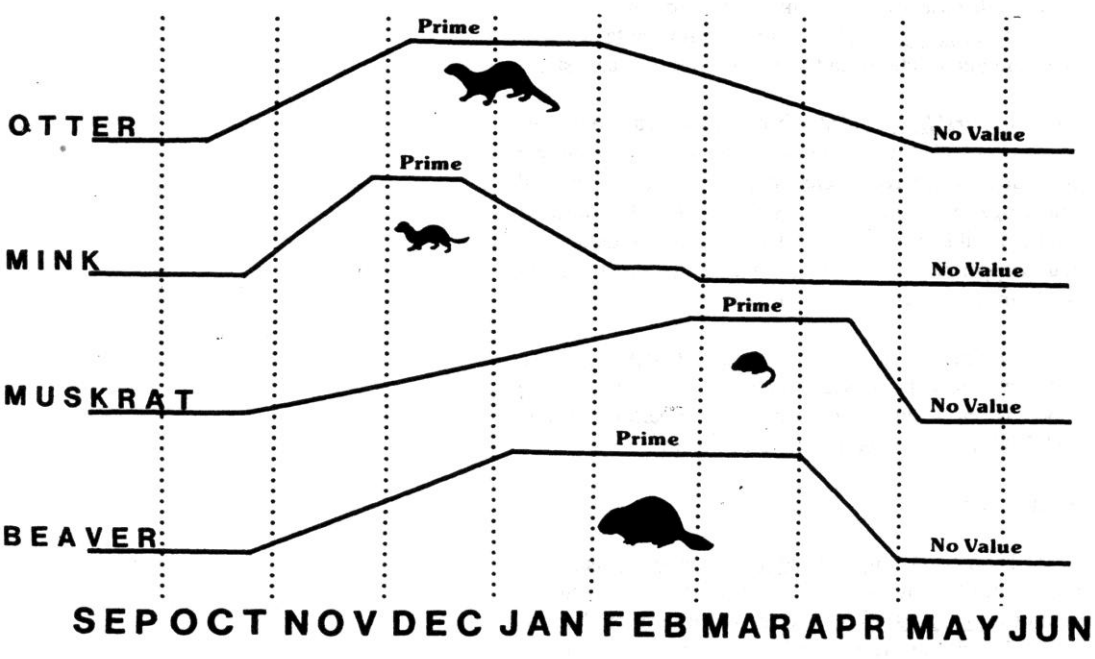
Habitat = Food + Water + Cover + Space

SEASONS AND QUOTAS

The first step in furbearer management undertaken by the Washington Department of Fish and Wildlife was the setting of open and closed seasons for harvest of furbearers. Managers realized there were limits to the trapping/pressure which populations could withstand and there were preferred seasons in which to harvest furbearers. Generally preferred seasons occur when surplus animals are available and when pelts are in prime condition for market. As a result, seasons today are open from late fall through late winter. The duration of each season varies with furbearer species and area of the state. Differences in season lengths in different areas of the state are a result of differences in furbearer populations, pelt primeness and wildlife control needs.

In situations where the Department wants to establish a very limited open season for trapping of a furbearer but decides season length cannot effectively control the desired low harvest level, a quota system can be used. This technique was first used during the 1984-85 season when a river otter season was opened in eastern Washington with a harvest quota of two otter per licensed trapper. The harvest limit for the 2004 trapping season was 6 river otter in eastern Washington. Seasons have been extended because of the limited types of traps in use currently to stabilize harvest to an acceptable level.

Seasons and quotas are set on an annual basis so decisions can be based on abnormal population fluctuations, increased wildlife damage and other factors which affect furbearer populations.



TRAPPING LICENSE AND TRAPPER'S REPORT

Trappers in Washington must buy a license, just as hunters and fishermen do, in order to trap furbearers. A licensing system is a necessary and basic tool in the management of furbearers for the following reasons.

Furbearer management, like fish and wildlife management costs money. Many of the activities such as administration, research and enforcement, are subject to the same costs of doing business as you and I are. Budgets must take into account everything from paper clips and printing costs to gasoline prices and employee salaries. In Washington much of the revenue used in fish and wildlife management is generated from the sales of licenses and tags to individual hunters, trappers and fishermen. Other funding comes predominantly from federal sources.

The sale of licenses also supplies the Department of Fish and Wildlife with vital information on numbers and distribution of active trappers in the state. When coupled with harvest figures, the license data can supply valuable information on trends involving the furbearer user group.

A trapper must carry his license when trapping. License checks in the field by an agent not only identify the trapper and his traps, but also verify that he has paid his share of the cost of managing furbearer resources.

Just as a license can show who trappers are and where they are located, *Trappers' Report* forms tell wildlife managers the numbers, locations and kinds of furbearers harvested.

The *Trappers' Report* is attached to the annual seasons and rules pamphlet. After trapping season has ended each year, individuals who have purchased a trapping license must fill out the *Trappers Report* and send it to the Department of Fish and Wildlife before April 10. A report is required even if the trapper did not harvest any animals. To assist trappers, the form is pre-addressed and no postage is necessary.

The importance of filling out the *Trapper's Report* accurately cannot be stressed enough. The information on the report is important and needed by the Department of Fish and Wildlife to manage furbearer resources.

WAC 232-12-134 Report required of licensed trappers. It is unlawful for any licensed trapper to fail to complete and submit to the department, a trapper's report of catch postmarked on or before April 10. The report must be submitted regardless of success. Trappers who fail to submit an accurate trapper's report of catch must wait a year before purchasing another trapping license. False reports will be considered the same as failure to report. It is the responsibility of each licensed trapper to obtain and submit a trapper's report of catch.

PELT TAGGING

The Washington Fish and Wildlife Code requires that pelts of certain furbearers be tagged with Department of Fish and Wildlife identification tags shortly after the animals are harvested.

The law states:

WAC 232-12-024 Requirements for sealing of pelts and collection of biological information for river otter, cougar, lynx, and bobcat. (1) It is unlawful to possess river otter, cougar, lynx, or bobcat taken in Washington without a department identification seal which has been attached to the raw pelt, on or off the carcass, prior to the pelt sealing deadline.

(2) Any river otter, cougar, or bobcat raw pelt must be presented by the person harvesting the animal, in such a manner that teeth and biological samples can be extracted, to an authorized department employee for sealing.

(3) The raw pelt of a bobcat or river otter must be sealed by an authorized department employee within 20 days after the close of the appropriate hunting or trapping season in which it was killed.

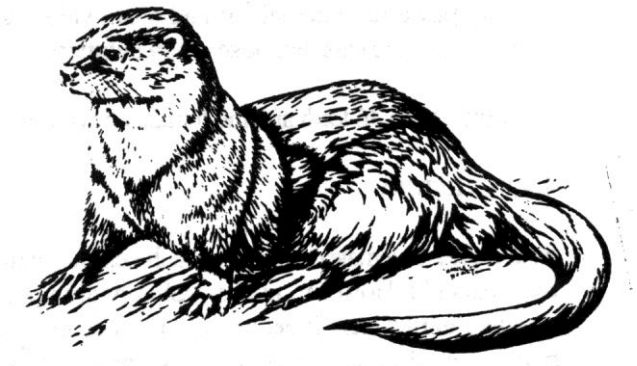
(4) Any person who takes a cougar must notify the department within 72 hours of kill (excluding legal state holidays) and provide the hunter's name, date and location of kill, and sex of animal. The raw pelt of a cougar must be sealed by an authorized department employee within five days of the notification of kill.

Any person who takes a cougar must present the cougar skull, in such a manner that teeth and biological samples can be extracted, to an authorized department employee at the time of sealing.

(5) It is unlawful to transport or cause the transport out of Washington a raw pelt of river otter, cougar, lynx, or bobcat taken in Washington without a department seal attached to the pelt.

(6) The raw pelt of a river otter, cougar, lynx, or bobcat taken outside Washington and imported into the state must be identified by a tag and/or seal from the state or country of origin and be accompanied by an invoice or declaration specifying the number of pelts in the shipment.

(7) It is unlawful to possess an unlocked, broken, or otherwise open department seal for river otter, cougar, lynx, or bobcat unless the seal wire or band has been cut through and removed from a pelt that has been received and invoiced by a licensed taxidermist or fur dealer for processing or removed from a pelt that has been processed



SUMMARY TRAPPING REGULATIONS

The trapping of furbearing animals in Washington is governed by regulations set by the Washington Fish and Wildlife Commission. Regulations, including season dates, are published annually in the trapping pamphlet. It is the responsibility of each trapper to obtain a trapping pamphlet and familiarize himself with all current rules and regulations prior to trapping.

The following summary is intended to act as a guide for the new trapper. These regulations are subject to change so trappers should always refer to the current trapping pamphlet for clarification and/ or changes.

Licensing

- A trapping license is required to trap furbearing animals.
- A fur buyer license is required to purchase, receive, or resell raw furs for profit.

Trap Bait

- It is unlawful to use game birds, game fish or game animals for bait in trapping, except:
  1. Non-edible parts of game birds, game fish and game animals may be used as bait.
  2. Game bird feathers may be attractor.
- It is unlawful to set traps for any wild animal within 30 feet of any exposed meat bait or nonedible game parts which are visible to flying raptors.

Trap Interference

- It is unlawful to take a wild animal from another person's trap without permission, or spring, pull up, damage, possess, or destroy the trap. However, it is not unlawful for a person to remove a trap placed on property owned, leased or rented by the person.

Seasons

- Furbearers may only be trapped during open seasons. See the current trapping pamphlet for dates of open seasons.
- It is unlawful to place traps prior to 7:00 a.m. on the opening day of trapping season.

Traps

- It is unlawful during general trapping season to take furbearers with any prohibited trap.
- Lawfully trapped furbearers may be dispatched with a firearm.
- Trappers must attach to each trap or device capable of taking an animal, a legible metal tag with either the Fish and Wildlife Department identification number or the name and address of the trapper, in English letters not less than 1/8 inch in height.

License Revocation

- The director may revoke the trapping license of a person placing unauthorized traps on private property.

Restricted Areas.

- All lands within National Parks, Monuments, and State Parks are closed to trapping.
- Trappers should not trap on private land without the owner's permission.

Live-Trapping

- A trapping license authorizes the trapping of furbearers for their hides and pelts only. They cannot be taken from the wild and held sale or personal use without a special permit.

Pelt Tagging

- Certain pelts must be tagged by the Department of Fish and Wildlife within a specified time limit. Check the trapping pamphlet for details and see the section on *Laws And Regulations* at the back of this manual.

Trapper's Report.

- It is unlawful for any licensed trapper to fail to complete and submit a *Trappers Report Of Catch* to the Department of Fish and Wildlife on or by April 10 of each year.

Trap Visitation

- Trappers must check non-body gripping kill traps within 72 hours.
- Trappers must remove animals from non-lethal restraining traps within 24 hours of capture.

Federal / International Regulations

- It should be noted that there are federal regulations regarding the export of wildlife. While the state doesn't have special regulations regarding wildlife export, any wildlife shipped or taken out of the country must be reported. Questions about this should be directed to the U.S. Fish and Wildlife Service Inspection Office, 2580 So. 156th St., Seattle,Wa 98158, 206-764-3463

RESPONSIBLE TRAPPING

Furbearers are a public resource. The management, harvest and marketing of furbearers are closely watched by state and federal agencies, special interest groups and interested citizens. Washington trappers are a small fraction of the state's total population. This small group of users is sometimes opposed by well organized, vocal groups who think that trapping is inhumane, unnecessary and can be a threat to the animals.

Trappers must accept responsibility for their activities. They must trap legally and ethically and with an understanding of the resource they are harvesting. Trapping laws and regulations are part of a total wildlife management system that provides a flexible working structure to conserve the furbearer resource and to harvest the surplus.

Trapper's Image

You are the future of trapping. What do people in your community think about your trapping activities? Do they respect your knowledge and skill as a trapper? Do they understand your knowledge of wildlife management and your concern for resource?

A trapper's activities should show a responsible approach to trapping and scientific management of wildlife. Your actions and what you say will form opinions about trappers and trapping. Remember, trapping is an emotional issue that the majority of the public does not understand. If you think and act responsibly and humanely, you will project a good image of trapping.

A Code For Responsible Trapping

Conservationists, wildlife managers, and others who believe in protecting and enhancing wildlife, recognize trapping as the most efficient means of harvesting furbearers and controlling predators when it is conducted by responsible trappers.

Responsible trappers:

- Obtain the landowner's permission before trapping on his land. They demonstrate respect for the landowner and his land (e.g. close gates, and prevent spread of noxious weeds).
- Use sets that will not take non-target animals. Use livetraps. Do not use snares or body gripping traps in areas where there are domestic animals. Washington law requires that you release unharmed any trapped wildlife for which the season is not open. Wildlife that cannot be released unharmed must be left in the trap and the Department of Fish and Wildlife must be notified immediately.
- Set traps to kill quickly by using drowning sets where possible. Remember to use strong, taught wire and a heavy weight placed in deep water.
- Dispatch trapped furbearers in a humane manner. In most cases use a .22 short to the head. Check traps regularly and preferably in the early morning. Check traps at least every 72 hours, more frequently if possible. Don't set more traps than you can check.
- Identify all traps with metal name and address tags.
- Record trap locations carefully and accurately.
- Dispose properly of animal carcasses that you do not eat so as not to offend others. Bury or recycle them in isolated areas.
- Concentrate trapping in areas where animals are overabundant for the supporting habitat. Don't overtrap an area. Leave an adequate supply of animals to maintain the population.
- Promptly report the presence of diseased animals to wildlife authorities.
- Assist farmers and other landowners who are having animal damage problems with furbearers.
- Support and help train new trappers.
- Support strict enforcement of regulations including trapping seasons and reporting of all harvest to the Department of Fish and Wildlife. Report violations to either your local agent or by calling the Poaching Hotline, 1-800-47-POACH (800-477-6224).

Other Wildlife Users

Trappers must accept the fact that they share the wildlife resource with a wide variety of special interest groups. The hiker, fisherman, hunter, photographer and others all have rights to share the resource and enjoy the outdoors. The challenge for all of us is to understand and accept each other's views and uses of our wildlife resource.

ENFORCEMENT OF TRAPPING REGULATIONS

Enforcement of trapping regulations is a difficult task, and much of the responsibility is left to the individual trapper. All trappers have a responsibility to follow trapping regulations and adhere to a code of ethics. Trappers must understand that their sport is a sensitive subject to many non-trappers and that actions of a few irresponsible trappers can seriously affect the image of all trappers.

Enforcement of laws involving the trapping of fur-bearers in Washington has two main objectives:

- Protection of the wildlife resource.
- Maintenance of sportsmanlike behavior of trappers.

Every trapper must follow laws and regulations. Within the laws and regulations each trapper must develop his own trapper's ethic. The most common abuses of trapping privileges are listed below:

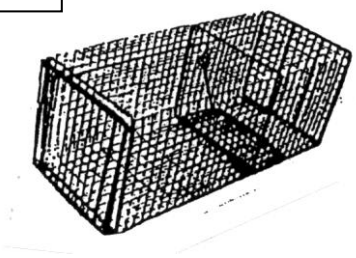
FAILURE TO TAG TRAPS

Neglect is primary reason for this violation. All traps must be tagged with a metal tag exhibiting the trappers name and address or an assigned number issued by the Department of Fish and Wildlife. A trapper can expect to lose a few tags off his traps in the field or between trapping seasons. Carrying a few trap tags and routinely inspecting traps for missing tags will insure compliance with the law and avoid a costly citation.

FAILURE TO CHECK TRAPS

There is both a moral and legal obligation to check traps regularly. Anyone who disagrees with this should not be trapping. Whether the animal is the neighbor's free-roaming dog or a furbearer the trap was intended for, there is no excuse for failing to check all traps
regularly. Non-body gripping kill traps must be checked within 72 hours. Non-lethal restraining traps (e.g., cage traps) must be checked within 24 hours of capture.

Legal Trap



NONSELECTIVITY

Capture of non-target animals is one of the biggest problems beginning trappers may face. Some types of trap sets are very selective for a particular furbearer, whereas others tend to be quite nonselective. For example, capture of raptors (hawks, eagles, and owls) is nearly always attributable to trapping too near a carcass or exposed meat bait. Learn to make sets and pick sites which are selective for the furbearer you want. If you catch a non-target animal and cannot release it unharmed, leave it in the trap and notify the Department of Fish and Wildlife immediately.

WRONG TRAP

Trap size and style should be selected according to the species sought and the type of set to be made. **It is unlawful to trap wild animals with body gripping traps during regular trapping season**.

TRESPASS

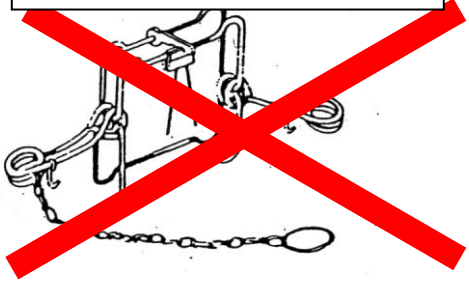
A trapping license allows the trapper to harvest furbearers legally. It does **not** give a person the right to trespass on private lands. Always contact landowners and receive permission prior to trapping on their lands. While on private land always close gates, avoid spreading noxious weeds and select trap sites where domestic animals will not be caught. Your ability to communicate with landowners and act in a sportsmanlike manner will go a long way to further the good reputation of all trappers.

WILDLIFE VIOLATIONS

To report trapping or other fish and wildlife violations, call the nearest Washington State Patrol or Department of Fish and Wildlife office.

The toll free Poaching Hotline is 1-800-477-6224 and is reserved solely for the reporting of violations.

Illegal trap without special permit



FURBEARER DISEASES AND PARASITES

Any trapper who is successful at his sport will come into direct contact with a variety of furbearers and other animals. It is important that trappers recognize the potential for contracting diseases from infected animals. Diseases in furbearers are caused by viruses, bacteria and parasites. Diseases in wild populations are not uncommon and in some instances may reach epidemic proportions.

Five important diseases that may present a hazard to trappers are: rabies, tularemia, plague, sarcoptic mange and raccoon roundworm.

TIPS FOR HANDLING DISEASED ANIMALS

- Do not handle any wildlife found dead from no apparent cause.
- Use rubber gloves while handling and skinning wild animals, especially if you have cuts or scratches on your hands.
- Always wash your hands with soap and water after handling wild animals.
- Consider dusting or spraying furbearers with insecticide by first placing the whole animal in a plastic bag to contain fleas.
- Report any observations of sick or dead wildlife to health or wildlife officials.
- When you consult a doctor for an illness, be sure to explain your direct contact with wild animals.

RABIES

Rabies is caused by a virus which infects the nervous system of mammals. Because of widespread vaccination of domestic animals, it is only rarely found now in household pets, such as dogs. However, it is commonly found in the wild. Bats, skunks and raccoons are the most frequently infected animals. It is also found in coyotes, foxes and bobcat and on occasion even in squirrels, marmots and muskrats. Bats form the only large reservoir of rabies virus and may be found statewide.

Transmission of rabies virus to man is almost always from the saliva of the infected animals either as a result of a bite or from saliva contacting a cut or scrape of the skin. It can also be introduced through any mucous membrane of the body, such as rubbing one's eyes and introducing it through the tear ducts. Also beware of confined spaces, such as caves, which have a poor air exchange and possibly large numbers of rabid animals such as bats. The virus can be suspended in the air and rabies can be contracted merely by breathing the air.

Knowing that you came in contact with a rabid animal may be difficult. The virus may be in the animal's saliva for a number of days before the animal shows external symptoms. The most noticeable symptom is not foaming at the mouth but aggressive or overly curious or friendly behavior towards man. For example, the usual food for a bat is an insect that weighs but a fraction of an ounce. It is not normal for a small creature like a bat to attack a man. Also beware of a skunk which, when he sees you, advances towards you head first rather than the reverse.

Rabies may also be confused with other diseases or conditions such as distemper or extreme indigestion. If you suspect that an animal died of rabies, contact your county health department immediately. If you have to touch a suspected rabid carcass, use gloves and dispose of them. If you are bitten, either confine the animal or kill it without damaging the head. Save the head for health officials to examine.

TULAREMIA

Tularemia is a disease caused by bacteria. Many species of animals can be infected by this disease, including man. In Washington tularemia is most often found in beaver, muskrat and rabbits. Symptoms of the disease are enlarged liver and spleen with their surfaces showing many white spots. A human who contracts tularemia commonly has a high temperature, headache, body ache, nausea and sweating. A mild case may be confused with the flu and inadvertently ignored.

Tularemia is transmitted in a variety of ways. The bacteria may be passed by drinking contaminated water or by eating insufficiently cooked meat from infected animals. Blood sucking fleas or ticks may also spread the disease. With trappers the disease is transmitted by direct contact with the carcass of an infected animal when the bacteria enters cuts or scratches on the hands. Trappers handling suspect animals should wear rubber gloves and wash their hands well when finished. A person who believes he or she may have contracted the disease should consult with a physician

as soon as possible, explaining to the doctor the possible sources of infection.

Between 1929 and 1977, 60 human cases of tularemia were reported in Washington.

PLAGUE

Plague is a bacterial disease that is carried by rodents such as ground squirrels and wood rats.

Transmission of the disease is usually by fleas. Carnivores that feed on rodents, such as coyotes, bobcats and marten, commonly become infected by fleas from the prey species. Although infected coyotes do not usually become sick, bobcats have much less tolerance and may die from plague. Humans are also susceptible to the disease. Trappers run the risk of contracting plague from a carrier flea from a trapped furbearer or by handling a diseased animal with hands that are cut or scratched.

In 1984, a trapper from Yakima County harvested a bobcat that appeared ill. Apparently, as a direct result of handling the bobcat, the trapper contracted the first human case of plague ever documented as being caused by a wild animal in Washington. With prompt medical attention the trapper survived the illness with no permanent injuries.

Symptoms of plague include fever, restlessness, confusion and pain surrounding swollen lymph nodes. It is important to consult a doctor promptly and explain your contact with any wild animals. Failure to treat the illness with antibiotics can be fatal.

SARCOPTIC MANGE

Mange is most prevalent in Washington in wild canids such as coyotes and red fox. Mange is caused by a parasitic mite which causes extreme irritation when it burrows into the epidermal layer of the skin. Early symptoms of mange in furbearers are a flaking and cracking of the skin accompanied by hair loss. As the condition persists, the skin becomes wrinkled, heavily crusted and the hair loss accelerates. Usually after two to three months the infected animal will die. Coyote pups infected in the den by mites from the adult female will usually die before the fall season.

Transmission of the disease is by direct contact with infected animals. The mite causing mange is fairly species specific, therefore it would be difficult for a trapper to contract mange from an infected wild animal. However, mites can burrow into your skin and then die, causing severe itching for several weeks.

RACCOON ROUND WORM

Raccoon round worm is a common intestinal parasite in this species and is an important cause of fatal nervous systems disease, eye disease and other problems in various wild and domestic animals. Recently a human fatality caused by this parasite was diagnosed in a young boy in Pennsylvania. The eggs of this parasite are passed in the raccoon's feces.

Other animals and human beings are infected through accidental ingestion of eggs. In other animals and human beings the eggs hatch and the larvae undergo a very aggressive migration to the brain, eyes, and other tissue causing severe damage and in some cases, death.

The disease can be prevented by always washing your after handling live raccoons, traps and particularly after having been in an area where raccoon feces has accumulated. Raccoon traps should also be cleaned and boiled after use to kill any eggs which may be attached.

The risk to trappers from diseased animals can be greatly reduced by following the tips and suggestions provided earlier in this section.

PRE-SEASON PREPARATION

The time to start thinking about trapping is in early autumn. There are many things that must be done before the season opens in November. One of the most important is to obtain permission to trap on private property. Whether it is posted or not, all land belongs to somebody and, if permission is not granted, you are trespassing. Many federal, state and timber company lands are open to trapping, but the trapper is obligated to find out exactly where those areas are. It is up to trappers to make sure they are not trapping in a state or national park or other closed area.

Once permission is obtained, trappers may then start scouting for places to set traps. While prospecting for fur, the trapper is carefully looking for sign, whether it be tracks, droppings, feedbeds, burrows or even hair in fences where furbearers squeeze underneath. Some trappers pre-bait a favorite set location to see if furbearers are active in that area or to get them to come to a particular set. When planning the trap line a trapper must always remember not to put out a longer line than he can check within the 24 or 72 hour limit required by law.

Early autumn is a good time to send away for trap tags which must be attached to every trap. All trapping magazines have ads for tags with your name and address stamped on them. Be sure to order tags early enough so they arrive by opening day. You can also obtain a registered number from the Department of Fish and Wildlife by writing to: Department of Fish and Wildlife, Licensing Division, 600 Capitol Way N, Olympia, Washington 98501-1091. This number can be permanently stamped on your traps to help identify them in case they are stolen. Please note: Trappers must use either their name and address or department I.D. number on trap tags.

Your Name
Your Address (Or I.D. Number)
State, Zip

New traps take some preparation before they are ready for the trap line. Many trappers go over them with a file to remove sharp edges. They also use vise-grip pliers to make sure all swivels and chain links are closed securely. Trap tags can be attached now, too.

New traps may be hung outside and allowed to develop a thin coat of rust. After rust has developed, the trapper will want to dye his traps. This protects them from rust and makes them easier to conceal.

Traps can now be dyed much quicker using products like Speed Dip, Trap Dip, etc. These dyes are dissolved in gasoline and the trap must only be dipped in the mixture to receive the coating. They are then hung up and the gasoline evaporates.

Other chores that can be done before the season include: cutting wooden stakes and letting them dry and harden as well as preparing baits and lures and letting them age. Many new trappers prefer to buy their lure from a reputable trapper supply house. This is probably a good idea because the quality of a lure can make or break you on the trapline. Many trappers send away for books on trapping or subscribe to a trapping magazine. The more you can learn from these sources before trapping season, the more effective you will be on the trapline. A smart trapper checks every map he can get for the area that he plans to trap. Maps can show him hidden ponds as well as access roads.

Fall is also the time to attend the Department of Fish and Wildlife Trapper Education Course. This is the perfect place to ask questions because the instructors are all experienced trappers or Fish and Wildlife Enforcement Officers. After you successfully complete the course you can buy a trapping license and obtain a copy of the trapping regulations. Even though you went through the regulations at the class, go through them again and again. Have one of your friends quiz you on them. It is *your* obligation to know those laws.

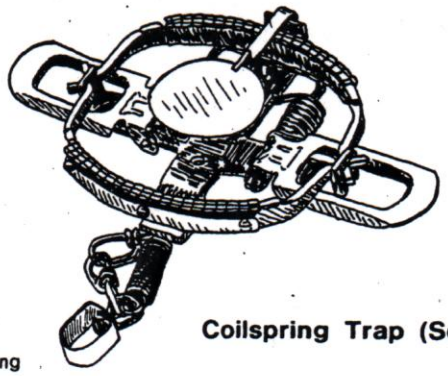
One last preparation is to make sure all of your equipment is in good working order. Nothing is more frustrating than a truck that will not start or an outboard motor that will not run on opening day of trapping season. Be sure your axe is sharp, your hip boots do not leak, your old pliers still cut wire and your packbasket harness is repaired.

PRE-SEASON PREPARATION CHECKLIST

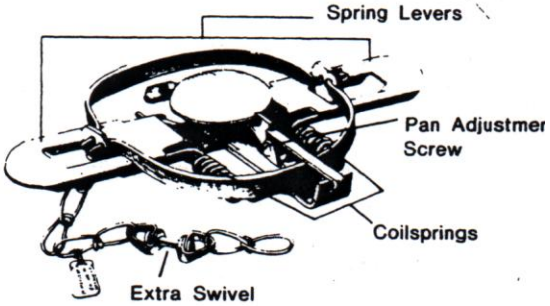
- Attend a Trapper Education Course
- Buy a trapping license
- Obtain landowner permission and scout for furbearer sign
- Order trap tags and repair and adjust traps
- Prepare baits and lures
- Consult trapping magazines books
- Study the trapping regulations
- Check that all vehicles and equipment are in good working order
- Consideration should be given to getting a tetanus shot

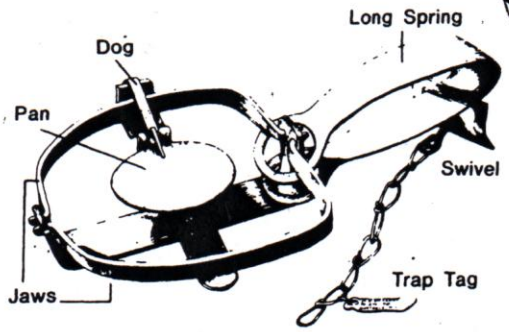
RCW 77.15.194
Unlawful traps -- Penalty.
(1) It is unlawful to use or authorize the use of any steel-jawed leghold trap, neck snare, or other body-gripping trap to capture any mammal for recreation or commerce in fur.

For additional rules and laws about lawful trapping equipment, please refer to page 107 and the current pamphlet.

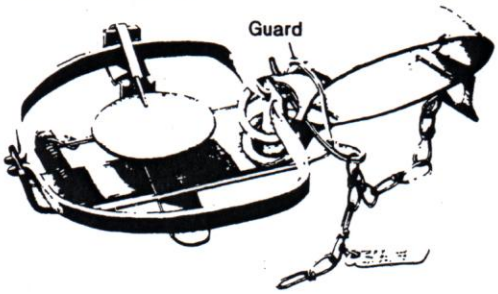


Coilspring Trap (Set Position)

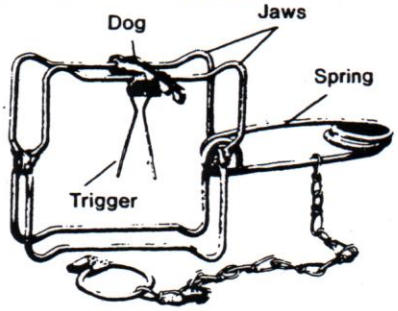




Stoploss Foothold Trap



Body Gripping Trap (Set Position)



Cage Trap

TRAPPING EQUIPMENT

In addition to traps, there are other pieces of equipment that are just as important on the trapline. For water trappers, hip boots or chest waders are essential. It is always a good idea to carry an extra pair in your vehicle along with an extra pair of wool socks. Few trappers can go for more than a week without going over the tops of their hip boots or springing a leak. As with most other articles of equipment, buying the best quality usually pays off in the long run. Cheap hip boots can seldom stand up to the rigors of a trapline.

Many trappers carry their traps and animals in a packbasket made of woven wood strips or fiberglass. Fiberglass baskets are heavier and usually more expensive but they seem to last longer. Both types can be kept clean and relatively odor free by rinsing them out in a stream. Some predator trappers carry their traps and equipment in a plastic five gallon bucket. This works fine if you do not have far to go or many animals to carry. Some trappers still rely on the burlap sack, especially for carrying beaver and in areas where they feel a packbasket would draw attention to their trapline or where trap theft is a problem.

Most trappers prefer a long-handled, single-bladed axe with a head weight of about three pounds. Use the axe for cutting poles and for cutting and driving stakes. In very hard or rocky ground, some trappers use a small, shorthandled sledge hammer. For preparing their set they use a narrow digging tool, shovel, trowel or hoe. Longer handles on these tools make them more useful, but a handle that is too long sticks out of the packbasket and catches low hanging branches. Each trapper has his own preference when it comes to tools and only experience can tell you which one is best for you.

Some of the smaller pieces of equipment that a trapper usually carries include a pocket or belt knife, side-cutting pliers and extra trap tags and wire to replace the tags torn off traps by captured animals. Most land trappers will also carry a dirt sifter for spreading dirt over traps. These are easy to make by stapling a piece of 3/8 inch mesh hardware cloth on the bottom of a rectangular wood frame. A prepared trapper carries wood or metal trap stakes made before season so he does not waste time cutting them on the trapline. He also carries two sizes of wire for his water trapping, 16 gauge for the smaller animals and 12 gauge for beaver and otter. A soft wire is in order here. Choose one that will not break where it kinks. Many trappers dye their wire with their traps.

Most trappers wear gloves while trapping. Some do it to keep their scent off their traps, others do it to stay warm and dry. Wearing gloves is a good idea to prevent arthritis in the hands later in life. Rubber gloves come in all lengths. Some have gauntlets that reach the shoulder. These gloves can come in handy when trapping beaver or muskrat. Gloves, just like all other equipment should stay as free as possible from foreign odor. Never carry lure or bait in your packbasket with tools and traps.

Special pouches that can be attached to the outside of your packbasket or pail can be made or bought.

If you trap under a special permit authorizing you to use body-gripping traps, trap setters are an essential tool of the trade for larger trap sizes. Not only are they useful for releasing yourself from a carelessly handled trap but they are helpful in taking both live and dead animals out of traps. For Conibear-type traps, the setter that works on the scissors principle seems to be the best. You should also carry a piece of rope as described in the chapter on safety. Another safety tool that is worth its weight in gold is the Conibear Safety Device or Gripper. It locks the jaws open while you are setting the trap and it prevents the trap from closing if you should accidentally spring it.

Trapping lures are usually a concoction of assorted animal glands and organs, usually from the species you are trying to trap. Lures come in liquid or paste form and are designed to draw the animal to the set. There are as many lures as there are trappers and each one is supposed to be better than the next. Some are very simple, such as basic beaver lure which is made out of ground up beaver castor mixed with oil from the beaver's oil glands. On the other hand, some coyote and fox lures have very complicated formulas and may have ten or more ingredients. After a few years of buying lures, most trappers try their hand at making their own. A new trapper who wants to make his own lure would be wise to seek advice from an experienced trapper.

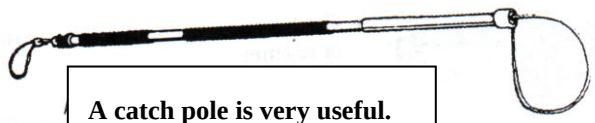
Trapping baits are usually made from one of the target animal's favorite foods. They are often made out of chunks of meat from prey species such as beaver or muskrat. Some animals prefer bait slightly rotted or tainted, others prefer only fresh bait. A food lure is basically a cross between a lure and a bait. Most trappers would say that the lure calls the animal to the set, while the bait keeps them working the set until they either take the bait or get caught in the trap.

Most land trappers operating under a permit authorizing them to use body-gripping traps carry covers for the trap pan. Pan covers prevent dirt from getting under the trap pan and stopping the trap from springing. Pan covers can be made from wax paper, canvas, fiberglass screen or even a plastic sandwich bag. Some trappers use foam rubber pads under the pans. Great care must be taken to insure that no foreign odors get on these pan covers. Many trappers carry them in a screw top jar or a small coffee can to keep them scent free.

A very important piece of equipment, especially for Western Washington trappers, is good quality rain gear. A rubberized 3/4 length parka works well with hip boots. Any shorter rain coat will allow water to run into your boots. Some of the new, higher priced, rain garments are made with breathable fabrics. These raincoats are fine for hiking but not for trapping. When they get dirty, they leak. Trappers get dirty. When your rubber rain coat, hipboots or gloves get wet, be sure to hang them up and dry them out properly. If you do not dry them properly, they will soon rot and crack.

TRAPPING EQUIPMENT

- Hip boots
- Packbasket
- Axe
- Knife
- Pliers
- Shovel or trowel
- Extra trap tags
- Digging tool
- Dirt sifter
- Trap stakes
- Wire
- Gloves
- Conibear safety gripper
- Lures and baits
- Pan covers
- Rain gear
- Grapple
- Noose (or catch) pole



A catch pole is very useful.

TRAPS

Experienced trappers usually agree that it pays to buy the best traps available. Season after season, top quality traps keep working with only limited maintenance. Cheap traps, on the other hand, often start falling apart after only a few weeks of use. Many times their springs are weakened to the point of uselessness after only one season on the trapline.

The following information covers all types of traps and sets—most of which are not lawful for general season trapping in Washington State. Be familiar with current rules and regulations before you purchase or use any traps! This information will be of potential use to all nuisance wildlife trappers operating with permits.

The six basic trap designs are longsprings, coilsprings, jumps, body-grip, snares and cage traps. Each is designed for a specific use and few trappers use only one design for all their trapping.

Longspring traps were the first traps designed to catch and hold an animal by the leg or foot. Improvements have been made through the years but the basic design has remained the same. This trap is usually the most economical and a good choice for beginners because it can be set with trap setters. Longsprings are usually equipped with one spring on smaller traps and two springs on larger traps for added speed and strength. Due to their large size, longsprings may be difficult to conceal but their added weight often helps to drown animals at water sets. Many predator trappers consider the number 3 longspring with a 3/16 inch gap between the jaws to be the best coyote trap available. Some beaver and otter trappers still use the number 4 longspring attached to a drowning wire for most of their sets.

One improvement added to smaller longspring traps is a spring-loaded arm that prevents a trapped animal from twisting off its foot. These traps are known as Stoploss and Surehold, depending on the brand. They are considered the best muskrat traps on the market, especially where the water is too shallow to drown the catch. To make the jaws lie flat on any longspring trap, the springs must be cocked back towards the dog.

The coilspring trap, another footholding design, is increasing in popularity all over the country. One advantage is that it is compact and easy to conceal. Another feature is the ease with which worn springs can be replaced quickly, cheaply and without damaging or bending the trap frame. Many trappers consider the number 1 1/2 coilspring to be an excellent trap for raccoon and mink. It comes in two sizes. It has padded jaws and a spring in the chain to absorb

shock when a captured animal lunges. The idea is to cause a minimum amount of damage to the leg of the captured animal. This trap is useful in areas where dogs and cats roam free.

The single undersprings have been around for many years. It seems they are slowly being replaced on most traplines by the more efficient coilspring trap. Like the coilspring, they are compact and easy to conceal, but when their spring wears out, it cannot be replaced. The single undersprings also lack the adjustable pan and can be difficult to open when releasing non-target animals. Because these traps are lighter in weight they are less effective at drowning their catch.

Most trap companies now manufacture a body-grip trap. They are also known as instant-kill traps. Most modern body-grip traps are designed like the original Conibear trap that was introduced in 1957 by Frank Conibear. Like all other traps, it pays to buy the best bodygrips available. The cheaper brands often tend to bend and have unpredictable trigger mechanisms. A good quality body-grip trap can be a very effective tool for harvesting certain furbearers. The trap is set upright and the animal must try to pass through the jaws. Upon hitting the trigger with its head or shoulders, the trap closes, often delivering a killing blow to the head or neck. If caught around the chest the animal dies quickly due to heart or lung stoppage. Obviously, the larger sizes of these traps should never be set on dry land where pets may occur.

Body-grip traps are especially effective for furbearers such as beaver, otter, mink, and muskrat. These traps should be used wherever the water is too shallow to drown the captured animal. Great care should always be exercised whenever setting these traps. Always keep a trap setter or rope, as described in the Health and Safety chapter, within reach. The new ISO standards for trapping emphasize use of certain body gripping traps that meet the requirements of this process.

Snares are one of the oldest types of trap still in use today. In Washington they are used primarily for coyotes. They are economical and do not freeze up in bad weather. However, they do have drawbacks. Snares usually kill the animal so they should never be set where dogs, livestock or deer commonly travel. After catching an animal, the snare cable is usually so twisted and kinked that it cannot be used again. Also, many trappers find that snares damage the pelt of the captured animal.

Several new snare designs are now on the market that kill much faster than the older styles. Some also will break with deer or livestock and don't have slide locks that will remain on a cows leg. These newer designs are a real improvement: however, great care should still be used in where they are placed.

Cage traps come in many designs. Most are rather costly but will give years of service with a minimum amount of upkeep. If a trapper is handy with tools he can build his own during the summer months. Cage traps are bulky and hard to conceal from trap thieves, but these are the only lawful traps for general season trapping.. A nontarget animal can easily be released by just opening the door. Some furbearers absolutely refuse to enter a cage trap, but raccoons, skunks and opossums can often be caught with a fish or fruit bait. It is critical that the trap sits perfectly flat and does not rock when the animal steps on it.

The submarine traps used for muskrat are a type of cage trap that will usually only catch muskrat if properly set and should be considered when trapping small creeks or marshes.

TRAP MODIFICATION

Due to the unavailability and high cost of a quality canine foothold trap, many land trappers today have chosen to make modifications to commercially available traps. Research has shown that by making these changes, the target animal can be held much more comfortably and efficiently. When planning to trap for any land based animal, these modifications should be seriously considered. The first step in trap modification is to realize that the land trap set is composed of several related elements that come together to form a total "system" with each part integral to the success of the trapper and the comfort of the targeted animal.

Trap Jaws: Jaw thickness is increased by welding on a strip of metal or heavy wire to displace energy over a wider surface area. These jaw inserts are available commercially or they can be made by the trapper. The jaw "tips" or the ends of the jaw should be bubble welded to prevent them from being pulled out of the trap, particularly in coyote trapping.

Trap Springs/Strength: Most trappers choosing to modify their traps will elect to increase spring strength to compensate for the heavier jaw. This can be done on a coilspring trap by replacing the existing springs with a stronger pair, or by adding another set of springs or "four coiling" the trap. This serves two important functions. It

provides additional strength to propel the heavier, wider jaws out of the ground, and also holds the paw securely, eliminating any injury caused by the foot sliding back and forth in the trap. Be aware that commercially available four coiling kits are manufactured in different spring strengths and that it is important not to overpower the land trap. A four-coiled trap should never be used without proper jaw insert modifications and legal offset requirements.

Base Plates: A section of flat stock can be added to the base of the trap to increase the overall strength of the trap and to handle the additional stress of the stronger springs (coil spring traps). Usually on these base plate additions, a swiveled "D" ring is provided for chain attachment. This center swiveling is very important to the trapping system as it keeps the axis of pull straight to the trapped animal's limb. This is particularly an issue in long spring traps as the usual attachment point for the chain is the spring itself. This can lead to the possibility of an extreme twisting force being placed on the trapped animal. It has been demonstrated that a trapped animal will apply up to 400 pounds of force on the initial lunge. It is important to displace this energy in a straight line to reduce shock and eliminate injury.

Chain: Most canine trappers usually choose to replace their chain with machine chain to reduce losses from broken links. Whether a short or long chain is used, it is imperative to have a minimum of three swivels on the chain. These should be placed at the trap connection, at mid-chain and at the anchor point. The more swivel points included in the chain, the less likely a binding of the chain will occur, possibly causing unnecessary foot stress. Additionally, all swivel connections need to be welded to prevent them from opening up and should be inspected regularly.

Anchor Point: At the point of the ground anchor, the trap and chain must be able to swivel 180 degrees in all directions to further reduce chain binding. Most land trappers today have gotten away from metal stakes and have gone to a cable/cam system. These commercially available cable stakes have revolutionized land anchoring by providing a complete swiveling arc, and are virtually impossible to pump or pull from the ground.

Trap modifications can be done by the trapper with a few welding skills and access to a welder. There are several supply companies that offer modified traps for sale, along with the parts needed for trap modification. It is imperative that the land trapper of today use all the resources available to insure a humane, efficient capture of the targeted animal. By employing a few simply modifications to the traps available today, and by using common sense when setting out a land-based trap line, these goals can easily be achieved.

SUGGESTED TRAP SIZES
(For Trapping With A Special Use Permit Only)

Species	Style Of Trap		
	Body Grip	Long Spring	Coil Spring
Badger	220	2,3,4	2,3,4
Beaver	220, 330	3,4	3,4
Bobcat		2,3, CS, b	2,3
Coyote		2,3,4, CS	2,3,4
Marten	120		
Mink	120	1,1½,2,FS	1,1½, 2
Muskrat	110, 120	1, 1½	1, 1½
Nutria	220	1½,2, 1½S	1½, 2
Opossum	220	1½	1, 1½
Raccoon	220	1½, 1¾, 2	1, 1½, 2
Red Fox		½,1¾, 2,FSa	1½,2
River Otter	220, 330	4	4
Skunks	120	1, 1½	1, 1½
Weasel	110	1, 1½	1, 1½

Live traps are the only authorized traps for general trapping season.

a – Fox Softcatch
b – Coyote Softcatch

Hancock-type traps require special handling.

FUR HANDLING EQUIPMENT

To receive top dollar for his furs, a trapper needs equipment to prepare furs properly. The most important is a well insulated, well heated and well lit shed. It must be big enough to allow plenty of room to skin and stretch animals as well as enough room to hang furs so warm air can circulate completely around them. Most trappers try to maintain a temperature between fifty and sixty-five degrees Fahrenheit in their shed. A fan keeps warm air flowing throughout the shed. Most trappers use a small electric heater or wood stove to provide heat.

A good sturdy table or bench is required for skinning and stretching. Once the skin has been removed from the carcass, most trappers place the skin on a fleshing beam. Some trappers prefer a board while others use a pole. Beams are rounded off at the top. The middle of the beam usually rests on a sawhorse and the base is nailed to the floor. A novice trapper would be wise to visit someone with more experience to see how to set up a fleshing beam properly.

Many trappers use three or four different knives for skinning. A small pocket knife with a long, narrow, clip blade is popular. A larger, heavier-bladed knife is used for severing leg joints. The third design is usually a wide-bladed knife with a rounded tip. This knife is used for skinning furbearers like beaver and otters. All skinning knives must be kept very sharp. A dull knife forces the skinner to apply too much pressure to cut and often causes a slip resulting in a cut hand or a hole in the pelt. Whether on the trapline or in the fur shed. a trapper must always stay alert and use great care when using or sharpening a knife. To sharpen a knife use either a whetstone, a steel or a set of crock sticks. Most trappers sharpen their knives constantly during an evening of skinning. Always wipe and wash the blade clean before applying it to a sharpening device.

Several different tools are used to flesh pelts after removal from the carcass. All fat and tissue must be removed or the pelt will be of little value. Wherever fat is left, the fur on the other side may eventually fall out or slip. Once the pelt is placed over the fleshing beam, skin side out, many trappers use a draw knife or two-handled fleshing knife to carefully scrape the fat off. Around the head or leg holes they will often use a hand scraper or a dull, wide-bladed knife. An old, sturdy, table spoon can also be used. Some species of furbearers like muskrat and mink usually require very little fleshing while others like raccoon, beaver and otter require a lot. The more carefully a person skins an animal, the less fleshing he will have to do. With some animals—like beaver and raccoon— you may want to rough skin and then flesh on a beam to prevent knife scores on the skin.

Each type of furbearer requires a stretching board that is designed specifically for that animal. Wire stretchers are available and are very convenient for some animals such as muskrats. Recently, some fur tanneries have complained that furs such as coyote and bobcat dried on wire stretchers have fallen apart when tanned. Apparently, the trapper turned his pelts fur side out too soon and the hide rotted where it touched the wire. This could not be detected until the fur was tanned. Eventually this problem may result in lower prices for some furs dried on wire stretchers. Bobcat, mink and coyote fur looks better stretched on wood, while raccoon and muskrat usually look better when stretched on wire.

Measurements for making your own wooden stretchers have been included in this chapter. When using a solid or nonadjustable wooden stretcher, always be sure to run a belly board between the skin and stretcher. Skins shrink as they dry and if an easily removed belly board is not used, the skin may have to be cut off the stretcher, making it virtually worthless. Wooden stretching boards must also be rounded or beveled on the edges.

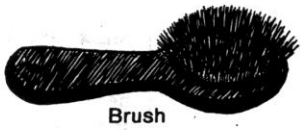
While most furbearers are skinned and stretched "cased," beaver are skinned and stretched open or round. They are usually nailed to a sheet of 1/2 inch plywood. Most trappers will cut two or occasionally three beaver boards out of one eight foot sheet of plywood. Beaver can also be sewn onto metal hoops. Each trapper must decide which method is best for his own case.

Other items found in a fur shed include a needle and thread for sewing up holes and cuts in skins, a tail stripper for removing the tail bone from furs on which the tail is retained. and a comb or brush for the finished pelts. Some trappers wear a rubber apron or coveralls to keep their clothes clean while skinning. Rubber gloves are recommended for handling any animal that may be diseased. Another useful item is a yardstick to determine the proper stretching size for a skin. Nails and push pins are also necessary for tacking the skin to the stretching board.

FUR HANDLING EQUIPMENT

- Insulated fur shed
- Electric heater or wood stove
- Skinning table
- Fleshing beam
- Skinning knives
- Whetstone, sharpening steel or crock sticks
- Draw knife
- Hand scraper
- Stretching boards and belly boards or wire stretchers
- Plywood beaver boards or metal hoops
- Needle and thread
- Tail stripper
- Comb or brush
- Rubber apron
- Rubber gloves
- Yard stick
- Nails and push pins

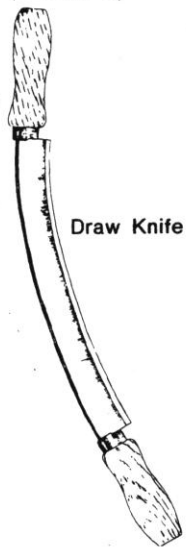

Comb

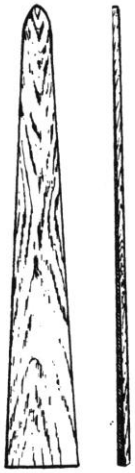

Brush

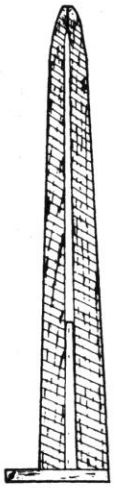

Skinning Knives

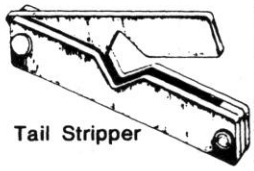

Fleshing Beam


Wire Stretcher


Draw Knife


Wooden Stretching Board with Belly Board


Wooden Stretching Board


Tail Stripper


Hand Scraper

HEALTH AND SAFETY

"Stay alert and stay alive." This is a rule that all trappers must live by. The trapline is no place for carelessness. Because trappers are usually alone and a long way from medical aid, one accident can spell the end of a trapping season or even worse. A smart trapper carries a basic first aid kit in the vehicle. All trappers should attend a first aid class long before trapping season opens. These classes are usually offered year round in local communities.

Cuts are the most common injury on the trapline. Minor cuts can be covered with an adhesive bandage that all trappers should carry on the trapline. Major cuts and wounds will require that the trapper have some knowledge of pressure bandaging, pressure points or other first aid techniques designed to stop blood loss.

Blisters are not a life-threatening problem but they can cut down on a trapper's efficiency. If left unattended, they can become very sore and infected. Trappers often wear hip boots that do not fit correctly and this results in rubbed spots which may become blistered. When a trapper first feels an area being rubbed, he should apply an adhesive bandage immediately. This often prevents a blister from forming. If a blister occurs, it should not be opened. However, if a blister does open, apply an antibiotic and cover it with an adhesive bandage until it heals.

Frostbite can occur to areas of the body that are exposed to cold, winter air. The skin on the nose, ears and cheeks will start to tingle and develop a yellowish-white appearance. The affected area will start to feel numb and will be cold and frosty to the touch. Do not rub the affected area. This will cause ice crystals in the flesh to rupture cells and can cause severe damage. The best treatment is to thaw the skin in a warm, not hot, water bath. On the trapline the affected area can be thawed by placing warm hands over it until the numbing disappears and the area starts to hurt again. To avoid frostbite, be sure to carry dry gloves and a scarf. Use the scarf to cover your face and ears in very cold or windy weather.

Hypothermia is a gradual loss of body heat due to exposure. If left unchecked, it can result in death. Many people believe that hypothermia occurs only in extremely cold temperatures, but this is not the case. A trapper can develop hypothermia even on a relatively warm winter day if he gets wet and is exposed to the wind. Some of the symptoms of hypothermia include uncontrollable, violent shivering and difficulty in speaking and coordination. The ability to think clearly is also affected. Eventually blood flow and breathing are slowed to a point where the victim loses consciousness and dies.

Shivering should never be overlooked or taken lightly. It is the body's last ditch effort to warm up by burning up the last of its energy reserve. For most victims of hypothermia shivering will be the last symptom they can recognize before they ~lip into; deepening and progressively more debilitating shock. In short, it is the last of the body's warning signs you will be able to recognize and reverse in yourself. Neglect it and your life is in danger.

To avoid hypothermia, a trapper must recognize the early symptoms and seek shelter out of wind and rain. A trapper should always carry a dry set of clothes in his vehicle and should change into them immediately if he gets soaked. He can also raise his body temperature by nibbling on the trail. Snack breaks should be taken frequently. Excellent high energy foods are dried fruits, candy and nuts. Hot liquids taken often are also good insurance. Many snacks taken often are far more effective in avoiding hypothermia than big meals spaced far apart. Under no conditions should alcohol be used in an attempt to warm up. Alcohol dilates capillaries and increases the flow of blood to the skin where heat loss occurs. Although the victim may feel warm, alcohol actually increases the rate of heat loss.

Wool clothes are always a good choice for outdoorsmen because wool keeps the body warm, even when wet. Modern, high-tech fabrics now perform as well as or better than wool. Many cases of hypothermia can be avoided if trappers use common sense when wading, boating and walking on ice. When wading in deep water, always use a long stick to check water depth and bottom softness. A long stick is also useful as a support when wading on slippery rocks or in fast current. Remember that no potential trap set location is so great that it is worth drowning for.

In parts of Eastern Washington, trapping through the ice is a common practice. Unfortunately, every year people drown when they break through ice that is too thin to support their weight. Most experts consider three inches of ice the minimum for one person to walk on. Even on three inches of ice, a person must still look out for thin or soft spots caused by current or underwater springs. When crossing ice, always carry your axe in your hand to help pull yourself out if you break through. One last warning for ice trappers is to never use your hand to feel for traps set through a hole in the ice. If your hand should get caught in the trap under the ice, you may never leave that spot.

Trappers should always carry trap setting tools. No matter how careful you are, eventually one of your traps will close on your hand.

Trap setting tools are also made for the larger body-gripping traps. The number 220 and 330 Conibear-type traps are very effective but also very dangerous. When using these traps, all trappers should have in their pocket or packbasket an eight foot length of 1/4 inch, round, poly or nylon rope with an eight inch diameter loop tied in the end. By slipping the loop over his foot and then 1ooping the rope through the spring eyes, the trapper can pull the remaining rope over his shoulder. When he stands up, the spring will be flexed to the point where the safety catch can be put in place. The procedure is then repeated on the other spring, thereby freeing the caught hand. This maneuver should be practiced before trapping season so the trapper is familiar with it in case of an emergency.

There are times when a trapper will have to release a non-target animal from a trap. A non-target animal is any animal that the trapper was not attempting to catch. Nontarget animals could include domestic animals, protected wildlife or furbearers for which the season is not open.

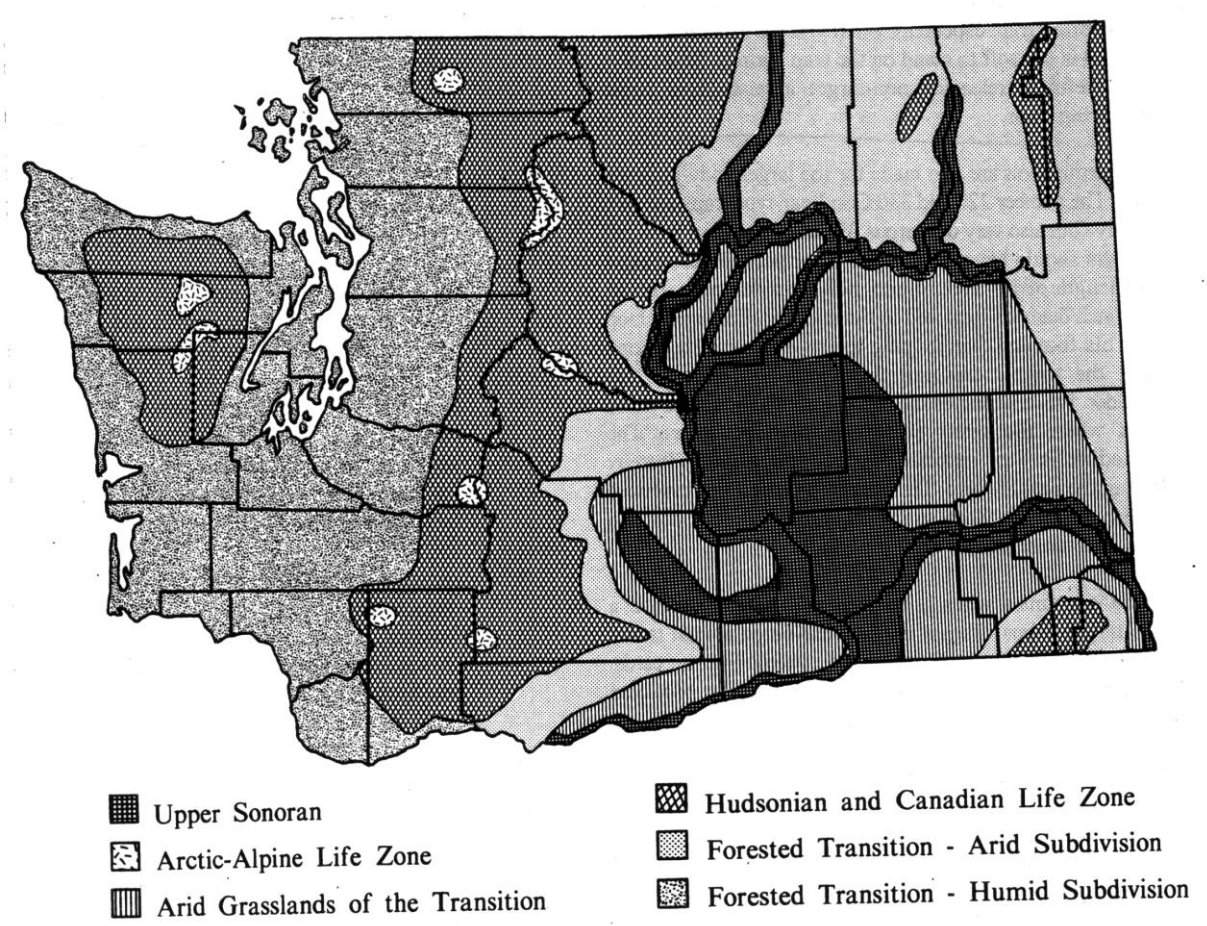
Remember that any trapped animal is potentially dangerous and should be handled with caution. If the animal is small you can throw a coat over it and hold it down while the trap is released. Animals the size of a dog can sometimes be pinned down with a strong forked stick over the back of the neck while the trap is being opened. The proper tool for this operation, however, is a noose pole or catch pole. It is a long, hollow metal pole with a cable or rope running through it and forming a noose on one end. The commercially available models have a locking device that keeps the noose tight while you are removing the trap. The noose can then be released safely from a pole length away from the animal. A noose pole can be made at home. One of these tools should always be carried in the vehicle. If you feel you cannot release the animal without getting bitten, get help.

Animals that are to be retained should be shot through the wading in deep or fast water. head with a .22 cartridge. This is the safest and most humane method of dispatching an animal on the trapline It also does not lower the value of the pelt.

TRAPLINE SAFETY REMINDERS

- Stay alert. The trapline is no place for carelessness.
- Before trapping season starts attend a local first aid class, including CPR training.
- Always have a small first aid kit accessible.
- If you have a cell phone, keep it accessible.
- The trapline is no place for a double-bitted axe. Always carry your axe sheathed and in your hand so you can control it if you fall.
- Know the symptoms of frostbite and hypothermia and know how to avoid and treat them. Always wear layers of clothes, preferably wool, that can be added or removed as the conditions dictate. Keep a spare set of dry clothes and shoes in your vehicle.
- Always be careful when traveling on ice and remember that ice in Western Washington is seldom, if ever, thick enough to walk on safely. Always carry trap setting tools and a rope for setting the springs on Conibear-type traps. Keep them in your packbasket where you can always reach them in an emergency.
- Keep a noose pole in your vehicle at all times. If you carry a firearm you should attend a Hunter Education Course.
- Be sure your vehicle, boat motor, or snowmobile is in top running condition to avoid a long walk or an unplanned night in the woods.
- If you use a snowmobile, always carry snowshoes in case you break down. Use a wading staff when
- Always let someone know where you will be trapping in case an accident occurs. When trapping with the larger body-gripping traps, always carry and use a safety device. If the trap accidentally springs, this tool keeps it from closing all the way.
- When trapping from a boat, follow boating safety rules.

LIFE ZONES OF WASHINGTON



UPPER SONORAN LIFE ZONE

The desert areas of Washington make up the Upper Sonoran Life Zone. Average annual precipitation is less than 10 inches. Average annual temperature is about 50 degrees Fahrenheit. However temperature extremes range from about 115 degrees Fahrenheit in summer to below freezing in winter. Trees are uncommon in this life zone except for occasional cottonwoods and willows along streams. Grasses including bluebunch wheatgrass, foxtail and cheat grass are very common. Shrubs of the Upper Sonoran Life Zone include: rabbit brush, rigid sagebrush and greasewood.

ARCTIC-ALPINE LIFE ZONE

The Arctic-Alpine Life Zone occurs at the highest elevations of the Cascade Mountains and Olympic Mountains where very little to no vegetation exists. In this life zone are found mostly bare rock, glaciers and permanent snowfields. Some shrubs including juniper, willow and heather may be found in the Arctic-Alpine Life Zone. However these are found close to and are more abundant in the next life zone, Hudsonian Life Zone.

TRANSITION LIFE ZONE - ARID-GRASSLANDS SUBDIVISION

The open stands of Ponderosa pine characteristic of the Arid-Timbered Subdivision give way to grasslands since the average annual precipitation of 10 to 20 inches is not enough to support many trees. The most common species of grass is bluebunch wheatgrass. Many of the same deciduous trees and shrubs found in the Arid-Timbered Subdivision are found along streams and near wetlands in the Arid-Grasslands Subdivision.

HUDSONIAN LIFE ZONE

The next life zone below the Arctic-Alpine Life Zone is the Hudsonian Life Zone. The Hudsonian Life Zone runs the full length of the Cascade Mountains. It is also found in the Olympic Mountains, Blue Mountains and northeastern

Washington. Average annual temperatures are low (40 degrees Fahrenheit). Winter and spring precipitation is heavy. Summer temperatures have a high degree of fluctuation with high day temperatures and low night temperatures.

Characteristic trees of the Hudsonian Life Zone include: alpine fir, mountain hemlock, yellow cedar and white bark pine. Shrubs characteristic of this life zone are willow, juniper, alder. currant, mountain ash, spirea, box wood, bear-berry, rhododendron and heather.

CANADIAN LIFE ZONE

The next life zone below the Hudsonian Life Zone has a higher average annual temperature (approximately 44 degrees Fahrenheit) and average annual precipitation is similar to that in the Hudsonian Life Zone.

The extensive coniferous forests are most characteristic of the Canadian Life Zone. The forests extend from the Canadian border to the Columbia River on both sides of the Cascade Mountains crest. They are also found in the Olympic Mountains, Blue Mountains and northeastern Washington. Trees most characteristic of the Hudsonian Life Zone include: Douglas fir, western hemlock, white pine, noble fir, and amabilis fir. Shrubs found in the Canadian Life Zone include: huckleberry, alder, maple, mountain ash and dogwood.

TRANSITION LIFE ZONE - ARID-TIMBERED SUBDIVISION

On the east slopes of the Cascade Mountains, northeast Washington and the foothills of the Blue Mountains the climate is more arid. As a result, the thick stands of Douglas fir give way to the more open stands of Ponderosa pine.

Average annual precipitation ranges from 20 to 23 inches. Average annual temperature is about 46 degrees Fahrenheit. Snowfall ranges from 40 to 99 inches. Trees and shrubs found in the Arid-Timbered Subdivision include: Ponderosa pine, aspen, cottonwood, Alder, hawthorn, willow, service berry, choke cherry, elderberry and bitterbrush. Many are particularly abundant along streams and near wetlands.

TRANSITION LIFE ZONE - HUMID SUBDIVISION

Average annual temperature is about 50 degrees Fahrenheit. Average annual precipitation varies from about 82 to 125 inches in the coastal lowland forests. Precipitation decreases to about 30 to 40 inches in the areas immediately surrounding the south and eastern sides of Puget Sound.

Trees typical of the Humid subdivision of the Transition Life Zone include: western hemlock, Douglas fir, red cedar, willow, aspen, hazel, alder. oak, maple and dogwood. Large amounts of precipitation, high humidity and moderate temperatures result in proliferation of mosses and ferns. Shrubs typical of this subdivision include: huckleberry, Oregon grape, thimbleberry, salmonberry, blackcap raspberry and wild blackberry.

BIOLOGY AND MANAGEMENT

Furbearing animals are animals generally recognized as having a fur coat that is of commercial value. The list of furbearers found in Washington includes: opossum. beaver, muskrat, nutria, coyote, wolf, red fox, raccoon, marten, fisher, short-tailed weasel, long-tailed weasel, mink, wolverine, badger, striped skunk, western spotted skunk, river otter, and bobcat.

For management purposes furbearing animals in Washington are classified in the Washington Fish and Wildlife Code as game animals and as furbearers. These include: beaver, muskrat, mink, river otter, marten, bobcat, badger, raccoon, long-tailed weasel, short-tailed weasel and red fox.

Other furbearers such as wolf, fisher and Canadian Lynx are NOT classified as furbearers in the Fish and Wildlife Code, but are classified as Endangered or Protected Species. Because the populations of these protected species are small and are very limited geographically, *NO HARVEST IS ALLOWED*.

Opossum, nutria, coyote, striped skunk and western spotted skunks are not classified as furbearers in the Washington Fish and Wildlife Code. Therefore they are referred to as unclassified furbearers.

In the *Biology and Management* section, the furbearing species are broken into two groups, aquatic and terrestrial.

The primary purpose of the *Biology and Management* section of this manual is to provide information about furbearing animals in Washington. By understanding the biology of these species, responsible trappers can improve their ability to trap safely and avoid non-target animals. We hope that beginning trappers will refer to the *Biology and Management* section to better understand the animals they will harvest.

Washington's Furbearers

Game Animals / Furbearers	*Endangered / Protected*	*Unlcassified Wildlife*
Badger	Canada lynx	Coyote
Beaver	Fisher	Nutria
Bobcat	Wolf	Opussum
Long-tailed weasel		Striped skunk
Marten		Western striped skunk
Mink		
Muskrat		
Raccoon		
Red fox		
River Otter		
Short-tailed weasel		

BIOLOGY AND MANAGEMENT OF TERRESTRIAL FURBEARERS AND ANIMALS

The following animals that occur in Washington spend the majority of their time on land.

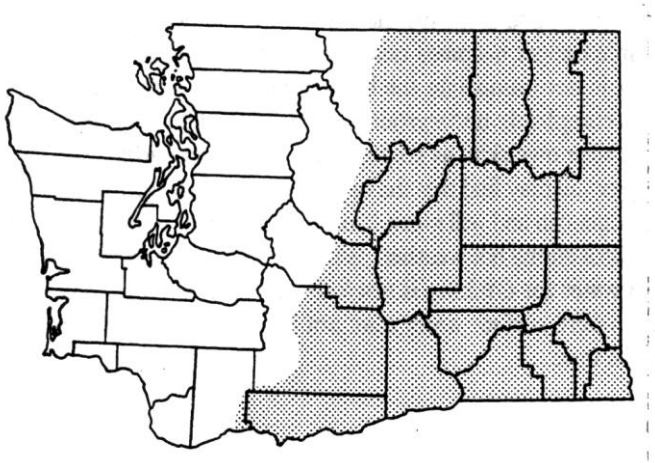
BADGER

I. NAME

Badger (Taxidea taxus) resembles the European badger and thus was given its common name. The Latin or scientific name Taxidea is a combination of the Latin word taxus, meaning badger, and the Greek word eidos. meaning like. Translation of the full scientific name means badger-like badger.

2. DISTRIBUTION

Found throughout eastern Washington, badger are primarily restricted to the Arid-Timbered and Arid-Grassland Subdivisions of the Transition Life Zone and the desert-like Upper Sonoran Life Zone. However they do occur in the Canadian Life Zone. Badger are more common in the Grasslands Subdivision of the Transition and Upper Sonoran Life Zones than in the Timbered Subdivision of the Transition Life Zone. They are even less common in the Canadian Life Zone. Badger are found in all western and most mid-western states as well as the southern parts of western and mid-western Canadian provinces. Badger are expanding their range into northeastern United States.



3. DESCRIPTION

The short, squat, compact badger is a member of the weasel family Mustelidae. As with other mustelids, badger have two anal glands that produce an unpleasant, although not strong odor. They also have two scent glands on their bellies. Relatively large round cars are set low on the sides of the wide head. Well adapted for digging and tunneling, a badger's body is relatively flattened with short muscular legs. Each foot has five clawed toes. The claws of the front feet are especially suited to digging as they are 1.5 to 2 inches long and heavy. Badger have a short bushy tail. Adult female and adult male badger are about the same size. Adult badger weigh from 13 to 20 pounds. Total length of badger ranges from 23 to 29 inches.

Pelage consists of long guard hairs and short underfur. Guard hairs are short on the head, neck and back, but are longer on the sides and rump. The face is light gray to black with a distinctive narrow white strip extending from just behind the nose up between the eyes to the top of the head and occasionally on to the neck. The nose, feet and back of the ears are black. The cheeks are white with a somewhat triangular black patch just in front of the ears. General coloration varies from yellowish brown to light silver gray to dark grizzled gray. The hide is loose around the neck and shoulders area.

4. LIFE HISTORY

Females are capable of breeding at four to five months of age, however few do. Male badger do not reach sexual maturity until 14 months of age. Badger, like most other mustelids, breed with more than one male or female. Breeding takes place from late July through August and into September. Like many other mustelids badger have delayed implantation. Total gestation lasts from six to nine months of which only about two months is active gestation. Implantation occurs from late January through mid-March with birth of litters from late March through early May. The average litter of three (range one to seven) young are born in a burrow complex prepared by the female badger. Born fully furred, with eyes and ears sealed, young badgers ears open when they are three to four weeks old. The eyes do not open until they are four to five weeks old. Shortly after their eyes are open the female begins feeding the young badgers solid food. A female may move her young to two or three different dens before they are old enough to travel by themselves. At six to seven weeks of age the cubs begin to explore their den. Eight week old, half-grown cubs are weaned and begin accompanying their mother on hunts. When about 12 weeks old the cubs begin to wander off on their own. By fall young badger are nearly adult size.

5. HABITAT

Badger are most common in the desert-like Upper Sonoran

and Arid Grasslands Subdivision of the Transition life Zones. Both life Zones are characterized by no trees. Also these Life Zones are the habitat of colonial uncommon in the Arid-Timbered Subdivision of the Transition life zone and even less common in the Canadian life Zone.

Badger prefer soils that are fairly easy to dig in. Presence of badger in an area is confirmed by the relatively large, usually wider than high, burrows they dig with a large amount of dirt in front of the entrance. Badger tracks consist of inwardly pointed tracks with distinctively long claw marks of the front feet. Feces may be found near burrow entrances.

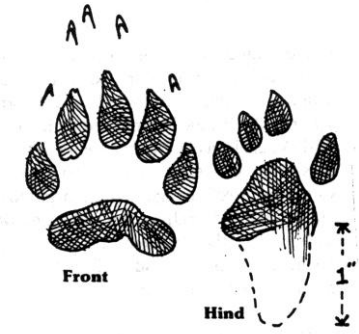
6. FOOD AND FEEDING BEHAVIOR

Primary prey of badger are burrowing rodents. Being powerful and rapid diggers, badger are well equipped for capturing rodents in their burrows where they are otherwise relatively safe from other predators. When foraging, badger will inspect old burrows, dens and digging sites for prey species that may be using them. Food items of badger include rabbits, gophers, ground squirrels, mice, voles. carrion and occasionally coyote pups. skunks and young badger. Badger will also feed on birds. reptiles and insects and probably eat some plant matter. Badger have also been noted to cache food for later eating. Selective in some of their hunting efforts, badger have been observed to choose a burrow system containing a family of ground squirrels in close proximity to a burrow system containing only one ground squirrel. Diet of badger probably reflects the abundance of prey available and the opportunistic behavior of badger. If prey is consistently available. badger will tend to forage from a single den site. moving when prey becomes less available. Badger have a remarkable ability to detect hibernating mammals from very few clues.

7. HABITS

Badger are primarily nocturnal. especially in areas of continued human disturbance. However they may be active during all times of the day.

Home range size changes seasonally. It is largest during summer and smallest during winter. Other factors influencing home range size include interactions with other badger, prey abundance and habitat characteristics. Home range of females with dependent



ground squirrels which are a main prey species of badger. Badger are young are necessarily restricted. The .4 to 1 square mile home range of male badger is usually twice as large as the .3 to .6 square mile home range of females. In fact a male's home range may include home ranges of two or more females. However, overlapping home ranges of males is not normal. Home ranges are thought to be marked by use of the anal scent glands as well as the scent glands on the belly. Although fighting among badger probably occurs, there is no evidence that it is the rule. Male badger are solitary except during breeding season. Females are also solitary except during breeding season and when rearing the young.

After leaving the family unit, young badger may travel considerable distances searching for a home range. Adult badger tend to be more sedentary, keeping their movements close to a particular den when food is available. During breeding season or when food becomes scarce, adult badger may travel longer distances, one to two miles in a night.

During the fall. badger will spend more time hunting and eating to build up fat reserves for winter. Although badger do not hibernate, extreme cold causes them to spend more time in their dens. This reduced activity helps conserve energy during cold periods of the year. During warm spells badger will leave their den to hunt. As the weather warms more time is spent hunting. Hunting by badger primarily consists of locating prey in a burrow and digging it out.

When threatened or attacked a badger will often quickly dig a hole. turn around and face the threat. In this position the formidable badger becomes nearly unbeatable. If the threat or attack is not immediate the badger may continue to dig until it is completely underground. It seems badger can turn around in their own skin. as something grabbing a badger by the rump or tail may find that the badger has, in fact, grabbed them. Badger can and will swim if necessary. They will lie in water to cool during hot weather. Whether or not badger rely on open water for drinking is not known. Many badger live in areas where surface water may not be available for long periods of time.

8. POPULATIONS

Badger mortality is probably caused by changes in habitat and prey abundance as well as by trapping, indiscriminate shooting and road kills. Many badger were killed when 1080 poison and strychnine was used for coyote control activities in the 1960's and early 1970's. However, these poisons are not now legal for coyote control in Washington.

The most devastating and long lasting impacts on badger populations comes from loss of habitat and food sources from man's activities. Conversion of badger habitat for agricultural purposes. especially irrigated croplands, and extensive rodent control programs have reduced badger range and populations. Juvenile badger are vulnerable prey for other badger. coyotes. cougars, wolves, bears, bobcats and golden eagles.

Trapped badger sex ratios are essentially 1 to 1, Age structure studies indicate that about 30 percent of a badger population are juveniles.

Internal parasites of badger include flatworms, tapeworms and roundworms. External parasites include ticks and fleas. Rabies and tularemia may occur in badger. Badger, as well as other predators that consume a lot of rodents, may also be a good indicator, through blood samples, of the prevalence of plague in an area.

9. MANAGEMENT

Occasionally badger have been blamed for killing domestic fowl, but this is a rarity. Badger have been unjustly persecuted for digging holes and causing livestock to break legs as a result of stepping in them. Incidents such as these are extremely rare. Burrowing of badger while pursuing ground squirrels and mice in fields and canal banks are about the only destructive activities. However the beneficial role badger play in rodent control far outweighs any potential damage from their burrowing activities. Until the early 1970's badger were considered predators and there were no regulations on trapping or shooting them in Washington. Now that the badger is classified as a furbearing animal, annual seasons are set for sport trapping. However most badger are caught incidental to coyote trapping. A low demand for badger pelts has resulted in little trapping effort.

Records, from Trappers' Reports, are kept on the number of badger trapped each year. From 1973 to 1982, Washington trappers reported an average annual catch of 50 badger worth an average $23.60 per pelt. Limited research on badger has been done in other states. Research specific to badger found in Washington is needed.

LONG-TAILED WEASEL

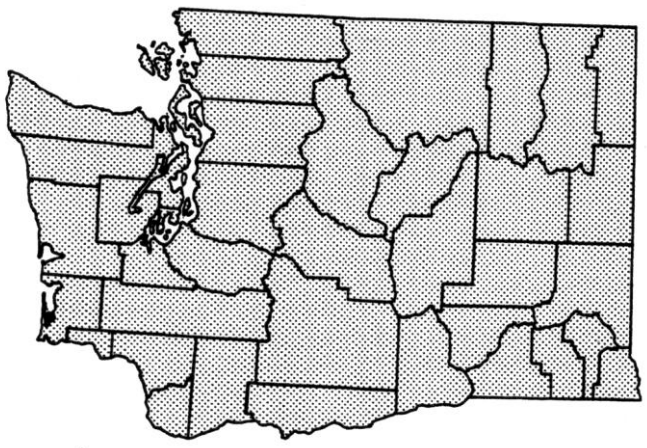
1. NAME

The long-tailed weasel (Mustela frenata) is the second smallest member of the mustelid family found in Washington. The first part of the Latin name Mustela means weasel. The second part, frenata is a variation of the

Latin word frenum, meaning bridle. Apparently long-tailed weasels in the southernmost part of their range have white markings that resemble bridles. They are also known as weasel.

2. DISTRIBUTION

Long-tailed weasels are widely distributed and found throughout Washington in all Life Zones including Arctic Alpine, Hudsonian, Canadian, Humid and Arid Transition, and Upper Sonoran. In North America, long-tailed weasels are found in the southern part of western Canada and throughout the United States except the desert areas of



Arizona, Nevada, California, Utah and New Mexico. They are found far into South America.

3. DESCRIPTION

Long, slender bodied with short legs, long-tailed weasels are similar to short-tailed weasels but are larger with a noticeably longer tail. Typically, male long-tailed weasels are larger than female long-tailed weasels. Total length of adult males averages 13 to 22 inches including the 4.5 to 6 inch tail. Total length of adult females averages 11 to 15 inches including 3.3 to 4.8 inches of tail. Adult males weighing 6.5 to 12.5 ounces are generally heavier than females which weigh 2.5 to 7 ounces.

Long-tailed weasels have five toes with curved, nonretractible claws on each foot. The head is small and attached to a long neck. The ears, set well back and low on the head, are short, wide and rounded. The small eyes are black. There are numerous long whiskers on the muzzle. Pelage consists of short guard hairs and short dense underfur. Long-tailed weasels in Washington may or may not undergo a seasonal color change depending on the area, altitude and population. Summer pelage is light yellowish brown on the top of the head, back, sides, outsides of legs and all but the tip of the tail which is black. The chin, throat, chest, insides of legs and belly are creamy white to light yellow. Winter pelage color in much of Washington is white except for the black tip on the tail. In spring and fall, colors are a patchwork of the summer and winter colors as the long-tailed weasel molts from summer to winter coat and winter to summer coat.

Like other members of the mustelid family, long-tailed weasels have two anal glands that produce a moderately foul smelling fluid. Long-tailed weasels have 34 teeth and females have eight mammae.

4. LIFE HISTORY

Male long-tailed weasels reach sexual maturity at one year of age. Female long-tailed weasels reach sexual maturity when three to four months old and breed during their first July to August breeding season. Gestation is about 278 days with delayed implantation. The active gestation period is about 27 days. The six to nine young are born in a grass and/or mouse fur lined den from April to May. At birth the young long-tailed weasels are naked except for some long white hairs, weigh about. 1 ounce and are about 2.2 inches long. Growth and development of young longtailed weasels is extremely rapid. When two weeks old males weigh .6 ounce and are 3.9 inches long compared to the smaller females which weigh .48 ounce and are 3.5 inches long. When five weeks old the young are weaned, their eyes are open and they have been eating solid food for two weeks. Also at five weeks of age, they are eating nearly their own weight in food every day and their pelt coloration closely resembles adult summer color. When six to eight weeks old young male and female long-tailed weasels can forage on their own.

5. HABITAT

Long-tailed weasels are found in all Life Zones in Washington. A factor limiting distribution of long-tailed weasels is availability of water. When water is available they may be found in a variety of habitats including brushland, open timber, brushy edges of fields, grasslands. swamps, rock piles, talus slopes, woodpiles, junk piles and in and around buildings. Den sites include hollow logs, trees or stumps, burrows of other animals, holes in and under buildings and other natural cavities.

6. FOOD AND FEEDING BEHAVIOR

The primary food of long-tailed weasels is small mammals, predominantly rodents. Small mammals that weasels eat include shrews, voles, young cottontail rabbits, mice, woodrats, rats, tree squirrels, chipmunks, ground squirrels, snowshoe hares, pikas and moles. Of these, the voles and mice are most frequently eaten. Long-tailed weasels also eat birds, insects and bird eggs as secondary foods. When primary food sources such as rodents are scarce, weasels will shift to other food sources. Long-tailed weasels can and do have a significant impact on rodent populations, especially those that are declining or low in density.

Prey pursuit, capture and killing consists of a quick dash at the prey, grabbing the prey, usually with a bite at the base of the neck, at which point the long-tailed weasel grips the prey with its body and legs to secure it for additional bites if needed for the kill. After a kill, a weasel may eat all or only parts of the prey. A weasel will continue to kill more

prey if available and those not eaten are often cached for eating later as needed. Long-tailed weasels hunt by moving rapidly and searching for prey in all burrows, crevices, holes or potential hiding places. Weasels are stimulated to attack by movement of the prey. A weasel can get through any hole it can get its head into.

Hearing of long-tailed weasels is acute but sight apparently is good only at close distances when a prey item is moving. Value of the sense of smell has been debated since some cases are noted where long-tailed weasels came within a few inches of motionless prey and apparently failed to smell or see the prey. In other instances weasels were noted tracking prey, apparently by scent.

Long-tailed weasels, to meet their high metabolic requirement, eat about half their body weight each day. They also require a readily available supply of fresh water for frequent drinks.

7. HABITS

Long-tailed weasels are solitary except during breeding season for the males and except during breeding and rearing of the young for the females. Weasels are active year round. A study in Colorado indicated long-tailed weasels are primarily diurnal and are most active in the morning and afternoon.

Most movements of weasels are related to hunting and breeding. Male weasels travel farther than females with distances averaging .13 mile and .07 mile per night respectively. Travel of weasels in brushy areas is more restricted than those in more open habitat. A study in Idaho indicated long-tailed weasels follow a circuit that was covered in a 7 to 12 day period.

As with short-tailed weasels, sizes of home ranges of long-tailed weasels vary with prey abundance, season and sex. Long-tailed weasel home ranges are larger than home ranges of short-tailed weasels. Home ranges vary from 29. 7- 39.5 acres with home ranges of males being larger than females during summer. When prey species are abundant, home ranges are more restricted. Ranges will increase two to three times in size when prey is scarce. Home ranges of males increase during breeding season.

Long-tailed weasels are territorial. with the territory shifting depending on the season. Males will defend a territory from other males. Females will also defend a territory against other females. Territories of females may be within a male's territory, however the male tends to avoid the female's territory except during breeding season. Territories of males may overlap with territories of other males, but individuals tend to avoid each other. The same is true for females. During breeding season males will expand their territory, whereas females do not. Weasels may mark their territories with scent from the anal glands and fecal material. They have been observed rubbing their bellies on sticks, logs, rocks and grass evidently marking that surface with scent. Weasels have evolved into efficient predators but rather than the wanton killer they are often depicted to be, they conserve energy by killing and caching prey for future meals.

Weasels move primarily by slow gallop or a series of jumps and occasionally walking. Their tracks are most apparent when snow is on the ground. Weasels can climb trees and will often do so to pursue prey. They are slow swimmers, but will take to water.

Other means of communication, in addition to scent marking, include threat postures and vocalized trills, squeals and screeches.

8. POPULATIONS

Population density of long-tailed weasels in good habitat may be as high as 16 to 18 per square mile. However population density is variable depending on the season and food availability.

Although sex ratios of weasel litters are one male to one female, sex ratios of trapped weasels are three males to one female. There is some dispute as to the reason for the high male to female ratio of trapped long-tailed weasels. One view maintains that there is a higher mortality of females and others say that males, usually traveling farther than females, are subject to greater chances of being trapped.

Mortality factors include predation, disease, parasites, malnutrition and accidents. Predators of long-tailed weasels include rattlesnakes, fisher, marten, snowy owls, great horned owls. barred owls, hawks, coyotes, dogs, foxes, mink, bobcats and domestic cats. Evidently where mink populations are high, long-tailed weasel populations are low because mink kill weasels and compete for the same prey items. Foxes also can keep weasel populations down when the fox population is high. Occasionally weasels are killed by cars and farm machinery.

It has been postulated that the black tip of the tail of long-tailed weasels is targeted by some predators and causes misses, especially during winter pelage.

Very little is known about impacts of parasites and diseases on weasel populations. External parasites found on weasels include ticks, fleas and mites. Internal parasites include

roundworms, flatworms and tapeworms. Weasels are susceptible to tularemia and probably rabies.

Populations of long-tailed weasels are probably affected by the availability and population fluctuations of their primary prey species, mice and voles.

Life expectancy of wild long-tailed weasels is four to six years.

9. MANAGEMENT

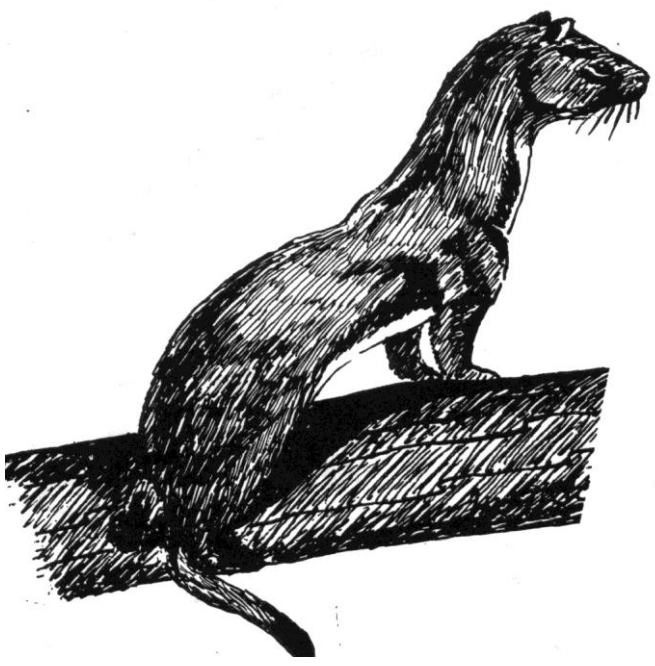
Although long-tailed weasels may occasionally kill domestic fowl, game birds and raid their nests, the benefit they provide by killing thousands of rodents far outweighs any harmful aspect. A single weasel eating two to three mice per day will consume 728 to 1095 mice per year.

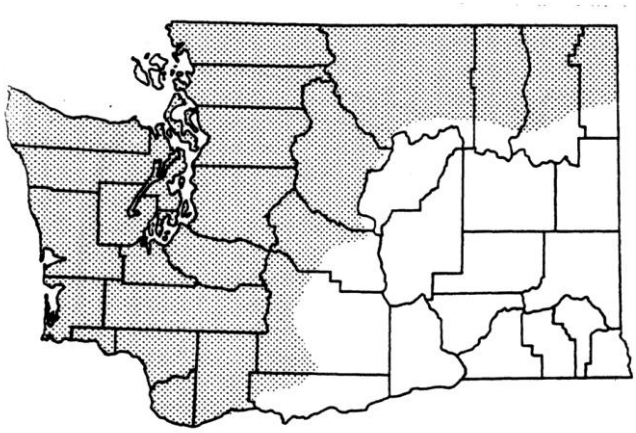
Long-tailed weasels are classified as furbearers in Washington and are protected throughout the year except during an annual sport trapping season. However the harvest is low, apparently due to low demand and low prices for weasel pelts. The white winter pelage is the most valuable. From 1973 to 1982, the average reported catch of 111 weasels (no distinction between long-tailed and shorttailed weasels) in Washington was worth an average of 94 cents per pelt.

SHORT-TAILED WEASEL

1. NAME

Short-tailed weasel (Mustela erminea) are the smallest member of the mustelid family found in Washington. The first part of the Latin name, Mustela, means weasel, the second part is a variation of the Latin name Armenius meaning of western Asia or eastern Europe. The shorttailed weasel was so named since it closely resembled the European weasel or stoat. In addition to the common name of weasel, short-tailed weasels are also called ermine.





2. DISTRIBUTION

Short-tailed weasels are more restricted in their distribution in Washington than long-tailed weasels. They are found throughout Western Washington, on the east slope of the Cascade Mountains from the Arctic-Alpine Life Zone into the Arid.-Timbered Subdivision of the Transition Life Zone, in the Hudsonian and arid timbered subdivision of the Transition Life Zones of the Blue Mountains in south-Eastern Washington and the northern one third of Eastern Washington. Short-tailed weasels are found primarily in higher elevations.

In North America short-tailed weasels are a boreal species and are the most widely distributed species in the mustelid family. They are found throughout Alaska and all but midwestern Canada. Their range extends as far south as northern California, the northern half of Nevada, the western half of Wyoming into north central New Mexico, western Montana, the Great Lakes states and the northeastern United States.

3. DESCRIPTION

Short-tailed weasels have long slender bodies and short legs. They are similar to long-tailed weasels except they are noticeably smaller and have a shorter tail. Typically male short-tailed weasels are larger than females. Total length of adult male weasels averages 8 to 13 inches including the 2.8 to 4 inch tail. The smaller females average 7 to 11 inches in total length including 1.6 to 2.7 inches of tail. Adult males and adult females weigh 2.5 to 6.8 ounces and one to three ounces respectively.

Five toes with curved, nonretractable claws are on each foot. During winter the soles of the feet

are completely covered with fur and during summer only a small area of the soles are exposed. The head is small and attached to a long neck. The ears, set well back and low on the head, are short. wide and rounded. The eyes are black. There are numerous long whiskers on the muzzle.

Pelage consists of short guard hairs and shorter dense underfur. Short-tailed weasels in Washington may or may not go through seasonal color change depending on the area, altitude and population. Summer pelage, like longtailed weasels, is light yellowish brown on the top of the head. neck. back. sides and all but the tip of the tail which is black. Sometimes, unlike long-tailed weasels, the brown of the back extends completely around the belly area on short-tailed weasels. The chin, throat, chest, belly (most of the time) and insides of the legs are creamy white to light yellow. Winter pelt color is pure white (sometimes with a yellow tinge) with a black tip on the tail. Spring and fall pelage coloration may be a patchwork of white and brown as the short-tailed weasel goes through its spring and fall molts from winter to summer and summer to winter coloration. Like other members of the mustelid family, shorttailed weasels have two anal scent glands that produce a moderately foul smelling fluid. Shorttail weasels have 34 teeth and females have eight to ten mammae.

4. Life History

Male short-tailed weasels reach sexual maturity at one year of age and breed during their second breeding season. Female short-tailed weasels, are sexually mature between three and four months of age and mate in their first breeding season during July and August. Gestation is about 270 days with delayed implantation. Active gestation varies from 21 to 28 days. A litter of six to nine young is born in a grass and/or mouse fur lined den, in April or May. At birth the young short-tailed weasels weigh .05 to. 07 ounce and are about two inches long. They are nearly naked except for a covering of fine white hairs. A distinctive character of young short-tailed weasels is a dark colored mane covering the forehead and shoulders. This mane is noticeable from shortly after birth until the young weasel is about six weeks old. Growth and development is extremely rapid. At two weeks of age they have increased in weight to .35 ounce and nearly doubled in length. By their fifth week of age young short-tailed weasels' eyes and ears are open and their fur color closely resembles adult summer coloration. By July, at about eight weeks of age, the young males have attained 85 percent of their adult weight. Young females reach 85 percent of their adult weight at four months of age during or shortly after breeding season. Both young male and female short-tailed weasels are able to forage for themselves by six to eight weeks of age.

5. Habitat

Short-tailed weasels are found in all Life Zones in Washington except the Arid-Grasslands Subdivision of the Transition Life Zone and the Upper Sonoran Life Zone. They are restricted primarily to boreal habitats or habitats within the forested areas of the North Temperate Zone. Within its boreal distribution, short-tailed weasels may be found in agricultural areas, lowlands, woodlands, meadows and high mountain habitats. However, they do not inhabit dense coniferous forests or deserts. Within the habitats occupied, short-tailed weasels prefer open meadows and fields, talus slopes and brushy areas near fresh water.

Dens may include hollow logs, trees, stumps, burrows of other animals, rock piles, brushpiles, woodpiles or other natural cavities.

6. Food And Feeding Behavior

Small mammals, primarily rodents, make up the major portion of the annual diet of short-tailed weasels. Small mammals used as food include voles, shrews, mice, snowshoe hares, pikas, bushy-tailed woodrats, gophers, young cottontail rabbits, rats, chipmunks and ground squirrels. Voles, shrews and mice are taken most often. Other food items include frogs, small birds, insects and plant matter. Short-tailed weasels have a significant impact on rodent populations, especially on declining or low density rodent populations. During periods of deep snow, short-tailed weasels will burrow through and hunt under the snow. They will often hunt for mice in their burrows. A short-tailed weasel can get through any hole it can get its head into.

Short-tailed weasels are virtually fearless and very strong for their size. They will attack prey much larger than themselves. Prey pursuit, capture and killing consists of a quick dash at the prey, grabbing the prey usually with a bite at the base of the neck. Next the short-tailed weasel secures the prey with its body and legs for additional bites if needed to make the kill. After a kill, a short-tailed weasel may eat all or only parts of the prey. Weasels will continue to kill more prey if available before eating. Prey is often cached to be eaten later as needed. Short-tailed weasels, to meet their high metabolic requirements, eat about half their body weight in food each day. Contrary to a common belief, short-tailed weasels do not suck blood or live on blood.

Short-tailed weasels hunt by rapidly moving and searching all burrows, crevices, holes or potential hiding places of prey. They are stimulated to attack by movement of the prey. Hearing of short-tailed weasels is acute and eyesight apparently is good only at close distances when prey is moving. Value of the sense of smell is not known.

A readily available supply of fresh water is needed by short-tailed weasels since they drink frequently.
Male short-tailed weasels lead solitary lives until breeding season. Females are solitary except for breeding season and rearing of young.

Short-tailed weasels are active year round. Recent studies show that short-tailed weasels hunt primarily during the day throughout summer and during the night throughout winter.

Hunting and breeding account for most movement of short-tailed weasels. A study in Idaho indicated that shorttailed weasels follow a circuit that was covered in a 10 to 15 day period.

Travel of short-tailed weasels is more restricted in brushy areas than in more open habitats. Greatest distances traveled are by males during breeding season.

Size of home ranges of short-tailed weasels varies with prey abundance, season and sex. Home ranges of males varies from 19 to 84 acres, while home ranges of females varies from 4.9 to 24.7 acres. When prey species are abundant, home ranges are more restricted. Home ranges will increase two to three times in size when prey is scarce. Home ranges of males increase during breeding season.

Short-tailed weasels are territorial, with the territory shifting depending on the season. Males will defend a territory against other males. Females will defend a territory against other females. Female territories may be within a male's territory, however the male tends to avoid the female's territory except during breeding season. Territories of males may overlap but individual animals tend to avoid each other. The same is true for females. During breeding season males will expand their territories, whereas females tend to maintain the same size territory, Short-tailed weasels may mark their territories with scent from the anal scent glands and fecal material.

Shorttailed weasels can climb trees and will often do so to pursue prey. They are slow swimmers but will take to water.

As means of communication, short-tailed weasels use threat postures and vocalized trills, screeches and squeals in addition to scent marking.

8. POPULATIONS

Population density of short-tailed weasels in good habitat may be as high as 21 per square mile. However, population density will change with the season and food availability.

7. HABITS

Although sex ratios of short-tailed weasel litters is one male to one female, sex ratios of trapped shorttail weasels are three males to one female. There is some dispute as to the reason for the high male to female ratio of trapped short-tailed weasels. One view maintains that there is a higher mortality of females. Others say that males, usually traveling farther than females, are subject to greater probability of being trapped.

Mortality factors include predation, disease, parasites, malnutrition and accidents. Predators of short-tailed weasels include marten, fisher, owls, hawks, coyotes, foxes, mink, bobcats, domestic cats and dogs. Evidently, where mink populations are high, shorttailed weasel populations are low because mink kill short-tailed weasels and compete for the same foods. It has been postulated that the black tipped tail of shorttailed weasels is targeted by some predators, particularly raptors, and causes misses, especially when the short-tailed weasel is in its white winter pelage.

Very little is known about the effects of parasites and diseases on short-tailed weasel populations. External parasites found on short-tailed weasels include ticks, fleas and lice. Internal parasites include roundworms, tapeworms and flatworms. Short-tailed weasels are susceptible to tularemia and probably rabies.

The most important factor influencing short-tailed weasel populations is probably availability and fluctuations of their primary prey species, mice and voles.

In Washington short-tailed weasel populations are probably stable but may be declining since they are not as adaptable as long-tailed weasels to environmental changes made by man.

Life expectancy of wild short-tailed weasels is four to six years.

9. MANAGEMENT

Although short-tailed weasels may occasionally kill domestic fowl, game birds or raid their nests, the benefit that short-tailed weasels provide by killing millions of rodent pests far outweighs any harmful aspect. A single weasel killing two to three mice per day will consume 728 to 1095 mice per year.

Short-tailed weasel harvest is low. From 1973 to 1982 the average reported catch of 111 weasels in Washington was worth an average 94 cents per pelt.

RACCOON

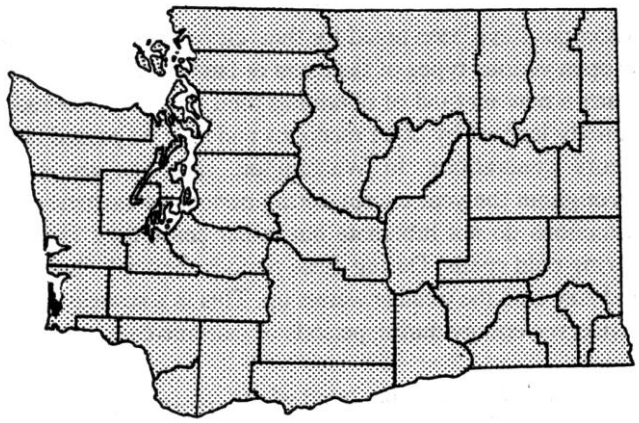
1. NAME

Raccoon is probably a variation of the Algonquin Indian name Arakunem which means he who washes with his hands. The common name coon is frequently used. The raccoon's scientific name is Procyon lotor which means before the dog and washer.

2. DISTRIBUTION

Native to Washington, raccoons are fairly common throughout the state particularly near permanent water sources such as rivers, streams, ponds, marshes and lakes from the Upper Sonoran Life Zone into the Hudsonian Life Zone. The highest raccoon populations are found in the Humid and Arid Subdivisions of the Transition Life Zone to the Upper Sonoran Life Zone.

Raccoons are present in all lower 48 states and throughout the southern half of Canada.



3. DESCRIPTION

Raccoons are well known for their bushy tail with four to seven dark rings and the black mask, a patch of black hair over the eyes and nose extending from cheek to cheek. The hair next to the mask, both above and below is white, making the mask very distinctive. Raccoons have a stocky body with a broad skull. Their face tapers from the short, rounded white- tipped ears to a pointed snout. Their relatively long legs have essentially hairless feet. The front feet somewhat resemble human hands and the back feet faintly resemble human feet. The feet are naked on the soles and have five toes each with prominent nonretractable claws. Well equipped for survival, the raccoon's hearing is acute and the senses of smell and vision are keen. The muzzle and toes are very sensitive to touch and well suited for locating, catching and eating prey.

Raccoon rely on their sense of touch when foraging in streams with their front feet. When a food item is caught it is usually quickly transferred to the mouth without a glance. Sharp nonretractable claws and long digits adapt the raccoon well for climbing. The claws and sharp teeth make the raccoon a formidable fighter.

Adult male raccoons weigh an average of about 19 pounds and are typically larger than females which average 6.5 pounds. Adult raccoons range from 24 to 41 inches in total length including the tail which is usually between 1/4 and 1/3 of the total length.

In addition to the already mentioned pelt markings and coloration, the general body color ranges from gray to black above and a paler color below. The longer guard hairs are generally black tipped with some white tipped hairs interspersed on the back and sides giving a grizzled appearance. A preponderance of white tipped hairs are found on the lower sides and belly. The fine wooly underfur is usually uniformly gray or light brown. Color variations occur between individuals and between areas. An annual molt, beginning in early spring, causes the fur to become sparse in the head and neck area.

4. LIFE HISTORY

The first spring after birth, a female raccoon reaches sexual maturity and will usually breed at this time. Males may reach sexual maturity during their first spring, but usually do not breed until their second spring at nearly two years of :age. Males are promiscuous and will mate with more than one female. Mating can occur as early as February and as late as June, but the peak seems to be around the end of March and first of April. After 63 to 65 days of gestation an average litter of four young (range two to eight young) is born. A hollow tree is preferred by a female for giving birth and brooding her young. At birth, young raccoons are covered with a thin covering of hair and the distinguishing black mask and tail rings are noticeable. However, the eyes and ears of the helpless young are closed.

After 18 to 24 days the eyes and ears open and the young raccoon's fur coat has filled out more. At seven weeks of age young raccoons have adult pelage and are able to walk,

run and climb. Also at this time, they begin to leave the den. About one to two weeks later, at eight to nine weeks of age, the young begin to follow their mother, although not far from the den. During their attachment to the den site, the young are nourished only by milk from their mother. Weaning starts after the young begin to accompany their mother regularly and begin foraging for themselves at 10 to 12 weeks old.

By 16 weeks of age the young are usually weaned. The young remain with their mother, usually as a group, in her home range throughout the fall and winter. Dispersal of the young occurs by early spring as they move to territory of their own. Raccoons may live to be 16 years old.

5. HABITAT

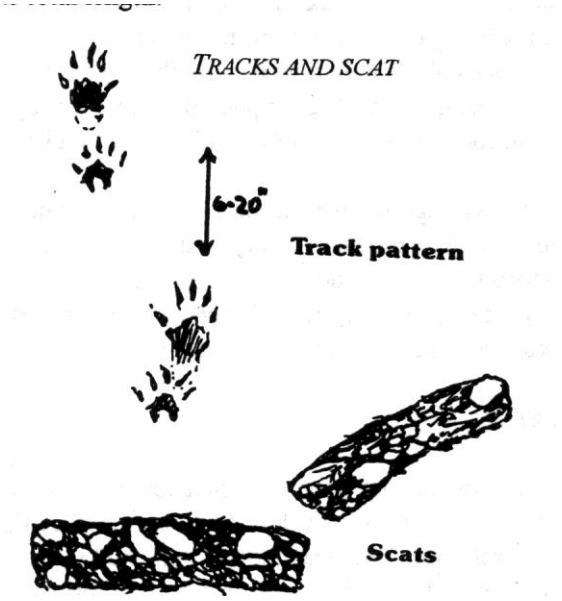
Good raccoon habitat generally includes a forested area adjacent to a perennial stream or body of water. Although raccoons prefer forested areas they do very well using rocky crevices, caves, old buildings, burrows, dens, brush, brush piles and even buildings occupied by humans. When food is available, and it usually is, raccoons do extremely well around urban. suburban and agricultural areas. In some cases they become damaging or annoying pests, killing domestic fowl and destroying their nests, destroying gardens and crops of sweet corn. Dens are used for three activities: refuge, brooding and overwintering. Large mature cottonwood trees with holes in them are often used as den trees. If suitable habitat exists, raccoon tracks can easily be found in mud, sand or snow along streams, ponds and other wetland areas.

6. FOOD AND FEEDING BEHAVIOR

While foraging along streams or in wetland areas from dusk to dawn, raccoons are omnivorous and opportunistic. They will eat whatever is available. Depending on the locality, their diet may be primarily fruit, nuts and berries from late summer into winter.

In spring the diet may change to primarily animal matter. Food of raccoons in Washington includes crayfish, aquatic insects, terrestrial insects, shrews, mice, gophers, squirrels, freshwater mussels, young muskrats, frogs, fish, small birds, bird eggs, poultry, domestic waterfowl, carrion, peaches, apples, prunes, pears, cherries, corn, wild fruit, garden produce and garbage. Raccoons inhabiting the saltwater shorelines of Washington consume a great deal of marine invertebrates. Raccoons often are attracted to dog and cat food left out for domestic pets. In addition they will raid garbage cans, gardens and fruit trees.

Unless another food source is available, raccoons will



typically forage for food along a stream. Much time is spent in shallow water streams or on the edges of streams where raccoons use their very sensitive front feet to search out crayfish, aquatic insects or freshwater mussels. Raccoons also frequently moisten other food items in water. These activities lead to the misconception that raccoons "wash" their food.

7. HABITS

As excellent climbers and swimmers, raccoons are well adapted for living in forested wetlands. One of the few mammals capable of descending trees head first, raccoons are capable of rotating their hind feet 180 degrees. Moving slowly across land, raccoons seem to waddle or have a swinging gait which they can quickly turn into a fast run if needed. Excellent night vision, a very sharp sense of hearing and sensitive touch help raccoons during their nocturnal foraging.

Raccoons have been noted for their cleverness at being able to open various types of fasteners or latches. Once raccoons learn a new method of obtaining food, this new method is quickly learned by other raccoons and may be passed on to future generations. In Washington, raccoons are active throughout the year except during periods of extreme cold. Raccoons do not hibernate but rather cease their foraging during cold spells. During these periods they will "hole-up" and stay until the weather warms up. This is a strategy which conserves energy during periods of extreme cold.

A common toilet may be found where raccoons inhabiting a certain area will defecate. These toilets may consist of a large accumulation of feces over a period of time. However these toilets may be restricted to areas near frequently used den sites. Otherwise raccoons probably defecate randomly

as they move around during their foraging.

Raccoons have several types of vocalizations including a purr, a twittering that is almost bird-like and various growls, snarls and snorts.

Although adult raccoons are primarily solitary in nature, they do not appear to be very territorial. Home ranges of adult males overlap with other adult males and females. Adult males may defend a localized food source or a female in estrus. Situations where raccoons may be found in groups include adult females with offspring, winter dens and a localized, abundant food source. Home range size depends on the season, habitat quality and raccoon's sex and age. Home range sizes vary from about 12 acres in a suburban location to nearly 12,355 acres in a rural area with the majority ranging from 98 to 247 acres. Throughout the year, raccoons tend to restrict movement, for short periods, to small areas that shift within their larger home range. Raccoons may make long movements, outside their normal home range, to a seasonal food source such as a fruit orchard or corn field.

8. POPULATIONS

Mortality of raccoons is primarily from hunting, trapping, road kills and malnutrition. Malnutrition may predispose raccoons to mortality from parasites, diseases and predators. Juvenile raccoons are the primary victims of starvation since they have fewer reserves to draw from during food shortages in late winter and early spring. Although parasites may contribute to mortality of starving raccoons, well fed raccoons can have a very high parasite load without much effect. Most wild raccoons die within their first 2 years. Survivors may live to be 16 years old. Predators include cougar, bobcat, wolves, coyotes. foxes, fisher and great horned owls.

Parasites of raccoons include roundworms. tapeworms, thorny-headed worms, ticks, fleas and lice. Diseases that contribute significantly to raccoon mortality include canine distemper, to a lesser degree, feline distemper and, perhaps, rabies. However, the only known carriers of rabies in Washington are bats. Other diseases of raccoons include St. Louis encephalitis, eastern equine encephalitis, fox encephalitis, histoplasmosis, coccidiosis and toxoptasmosis. Raccoons can also be reservoirs for bacterial diseases including tularemia, tuberculosis, listeriosis and leptospirosis. High levels of leptospira in raccoon populations can be a human health hazard, especially in a suburban area.

9. MANAGEMENT

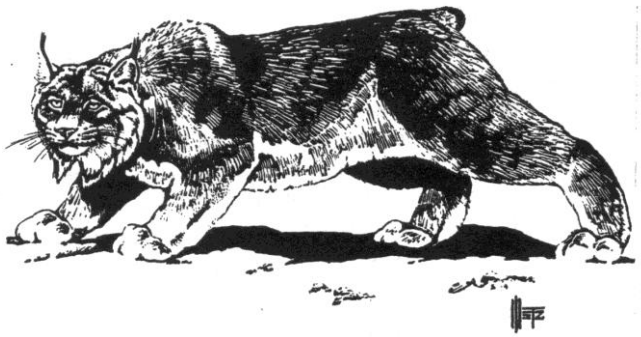
Classified as a furbearer in Washington, raccoon management includes both trapping and hunting seasons. Data on raccoon harvest are collected from Trappers' Reports and Game Harvest Questionnaires. In 1982 and 1984 raccoon skulls were collected from trappers and hunters. Teeth were extracted and sent to a laboratory to determine the age of each raccoon harvested. Using this technique the age structure of the harvested raccoon population was obtained. This, in conjunction, with the sex ratio of the harvested raccoons, helped evaluate the status of the general population and was also used to set seasons.

Raccoons have been responsible for some agricultural damage including eating garden produce, eating fruit crops in orchards, killing domestic fowl and destroying nests. Raccoons have been blamed for destroying game bird and waterfowl nests. Raccoon populations in Washington are stable and probably increasing in many suburban locations where they are not hunted or trapped, but are fed and tolerated by people living there. Raccoons have become serious and persistent pests in some suburban areas. An annual average of 2132 raccoons worth an average $22.51 per pelt were reported between 1973 and 1982.

CANADA LYNX

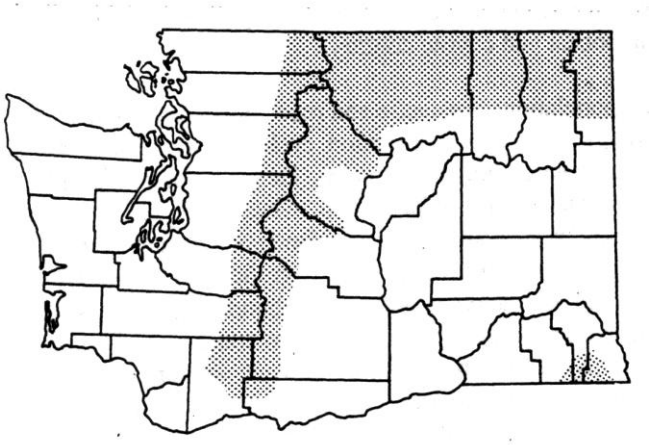
1. NAME

The lynx (Fells lynx) was so named because it closely resembles the European lynx. The first lynx documented in North America was in Canada. hence they are often called Canada Lynx. Other common names include lynx, link, gray wildcat, and gray lynx. Felis is the Latin name for cat.



2. DISTRIBUTION

In Washington, lynx are primarily restricted to the Hudsonian and Canadian Life Zones of the Cascade Mountains, Blue Mountains and Selkirk Mountains of northeastern Washington. An occasional lynx has been caught in the Arid Timbered Subdivision of the Transition Life Zone, however, their occurrence in this Life Zone is probably rare. As a rule of thumb, lynx tend to be found in areas above 4500 feet in elevation. In the early 1970's a lynx was trapped on Badger Mountain in Douglas County, a very unlikely location to find a lynx. Lynx are found throughout most of Canada and Alaska. mountainous areas of Idaho, Montana. Wyoming, Colorado and Utah. They are also found in northern Minnesota. northern Wisconsin, northern Michigan. parts of New York, Maine. New Hampshire. North Dakota and Vermont.



3. DESCRIPTION

Lynx resemble bobcats, but have distinctly longer legs, noticeably large well-rutted paws and a flared facial or cheek ruff that tapers to a point behind and below the jaw line. The back of lynx cars are a buff color and edges are black with prominent ear tufts. A white spot is centrally located on the back of lynx ears. Also, a lynx's very short tail, averaging 4.3 inches long, is a light brownish and buff color. It consistently has a black tip with no white or dark bar marks. Unlike the bobcat. lynx do not have spotted fur or the often distinctive black markings that bobcats have. .Lynx pelage consists of long guard hairs and soft. very dense light brown underfur. The dense fluffy fur of both male and female lynx in winter pelage is similar in color. The upper body is usually a grizzled, grayish brown mixed with buff or pale brown. The long white or gray-tipped guard hairs gives the lynx its grizzled coloration. Legs, feet, and underparts are grayish to buff white with occasional indistinct brown spots, especially on the insides of the legs. Spring pelt coloration is paler and more buff than the winter coat. A single annual molt begins in late spring and ends by late fall. The new fur of the summer coat is darker and more brown than the weatherworn winter coat. Lynx have five toes on each front foot and four toes on each hind foot. Each toe is equipped with a retractile claw. Only four toes and the pad show in tracks left by the front feet. The front part of the hind foot pad has one lobe, whereas the bobcat has two lobes. During the winter, fur nearly covers the toe and foot pads so the tracks are indistinct. Very large well-furred feet with wide spreading toes provide a snowshoe effect, thus enabling lynx to travel on deep snow with little difficulty. Lynx hind feet, averaging nine inches in length (range eight inches to ten inches), are typically twice as long as hind feet of bobcats.

Adult male lynx range from 15 to 31 pounds in weight with an average of 23 pounds. Slightly smaller, adult female lynx range from 10 to 22 pounds in weight with an average of 16 pounds. Adult male lynx average 31 inches in length (range 28 to 34 inches). Adult female lynx average 29 inches in length (range 26 to 32 inches). Lynx tend to be lighter in weight than bobcats. Weight determines how far lynx may sink in snow and thus affects their mobility in the deep snow conditions found in typical lynx habitat. Eyesight and hearing in lynx are well developed. However, the sense of smell is poorly developed. Lynx have large yellow eyes that are well adapted for seeing in conditions of poor light. Lynx have 28 teeth and females have four mammae.

4. LIFE HISTORY

Lynx are promiscuous and apparently female lynx are capable of breeding during their first spring; however,

they do not attain adult size until two years of age. Prey abundance seems to determine whether or not breeding takes place. Male lynx do not breed until their second spring. Breeding takes place between the first of March and the first of May. After 63 days of gestation, one to four kittens are born in a den near the end of May or early June. Den sites include a hollow log, stump, timber clump. windfall , or brush pile. At birth lynx kittens are blind, have folded ears, and are covered with a grayish buff coat of fur with brown or black spots and streaks. Kittens have adult pelage by their first winter. The newborn kittens weigh an average of seven ounces and are about six inches long. Their fur has longitudinal streaking on the back. sides and legs. At 12 to 17 days of age the kittens' eyes open and when 12 weeks old they are weaned. After having been fed meat for six to seven weeks. they learn to hunt. Kittens will remain with their mother until the beginning of the next breeding season, their first spring.

5. HABITAT

Lynx are typically associated with dense boreal forests where deep snows and extremely low temperatures occur. Lynx rarely leave the cover of timber. In Washington, highest densities of lynx are found in extensive thick stands of lodgepole pine in mountainous areas generally above 4500 feet elevation.

6. FOOD AND FEEDING BEHAVIOR

Lynx are primarily dependent upon their eyes and ears for locating prey. For the most part, lynx are solitary hunters except when females are accompanied by young.

The primary food source of lynx throughout the year is the snowshoe hare. In addition, they do eat mice, ground and tree squirrels, grouse and ptarmigan.

Their large feet and long legs enable them to travel through deep powder snow much more easily than other animals.

7. HABITS

Primarily solitary except during breeding season and rearing of young, lynx do most of their hunting at night. However, they will also hunt during the day. especially in remote areas. A lynx study in Washington found that 24 square miles was the average home range of adult male and female lynx. Studies in other areas found home range size ranging from 5 to 47 square miles for adult females and 5 to 94 square miles for adult males.

Home range size is probably influenced primarily by prey abundance in addition to other factors such as lynx population density, age and sex.

Home ranges of both male and female lynx will often overlap. However. home ranges of males tends to overlap less than do home ranges of males and females. Average daily movement of lynx ranges from three to six miles. Minimum distances between bedding sites may range from three quarters to three miles. Some long distance movements do occur. One lynx captured and radio-tagged in northcentral Washington was trapped near Prince George, British Columbia.

Lynx may mark home ranges or at least communicate with other lynx by urinating on bushes, stumps or other objects along their travel routes. Lynx also may communicate by leaving their feces along their travel routes. Adult lynx do not cover their feces: juvenile lynx do. Lynx make a number of different sounds, most of which are vocalized during mating or during rearing of young. Lynx are extremely curious and will investigate any movement or likely looking shelter for prey. They have been known to follow people due to their curiosity.

Lynx are good swimmers. They can run short distances quickly, but tire rapidly. Some sources say that lynx can be outrun by man.

8. POPULATIONS

Lynx populations in Washington, although not large, are stable. However. they are subject to fluctuations of prey abundance and habitat loss. Apparently, lynx can not compete well with bobcats or coyotes. Thus, deep powdery snow which a lynx can travel through, but which greatly hinders coyote and bobcat movement, separates lynx country from bobcat and coyote country.

Lynx populations are cyclic and reach peaks about every 9-10 years. The lynx population cycles closely follow the snowshoe hare population cycles. This is a classic example of a predator-prey relationship. Since lynx are heavily dependent on snowshoe hare as a food source, abundance of snowshoe hares plays a very significant role in lynx population fluctuation. In addition to abundance of snowshoe hares. lynx populations are affected by trapping and loss of habitat. Lynx may be killed by wolves, wolverines, dogs, coyotes, cougars and bears. They also may be injured or killed by large prey animals. Lynx are susceptible to feline distemper (panleukopenia), rabies, pasteurellosis and mycoplasma. Internal parasites found in lynx include tapeworms. roundworms, flukes and spiny-headed worms. External parasites of lynx include fleas and lice. Parasites and diseases have not been documented as limiting factors of lynx populations.

9. MANAGEMENT

In Washington lynx are fully protected and there is no hunting or trapping allowed for this species. Increased cutting of lodgepole pine, fires and outbreaks of insects that are killing lodgepole are causes of concern about future population levels.

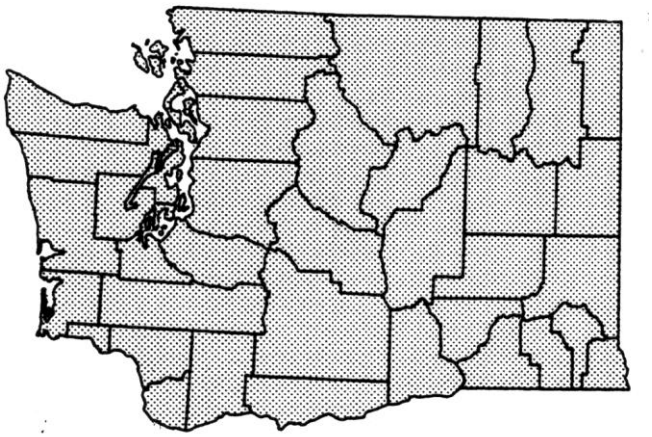
BOBCAT

1. NAME

Bobcat (Felis rufus) are also known by the common names of wildcat, bay lynx, catamount, cat o' the mountain. barred bobcat, pallid bobcat, red lynx and cat lynx. The Latin name Felis means cat and rufus means red.

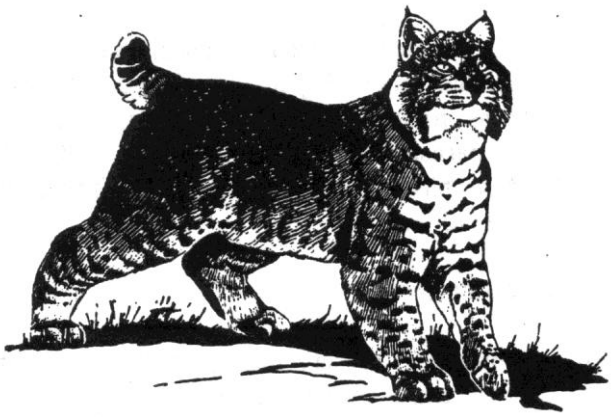
2. DISTRIBUTION

Found throughout all of Washington, bobcats are probably more common than most people realize. Bobcats are present in all Life Zones except the Arctic-Alpine Life Zone. Although bobcats are present in the Hudsonian and Canadian Life Zones, they are probably not abundant and are likely move to areas of shallower snows during winter. A bobcat caught in the normally deep powdery snows of winter in the Hudsonian and Canadian Life Zones is probably doomed to starvation since bobcats cannot negotiate through deep powdery snows very well. Bobcats are found throughout 47 of 48 United States as well as in Southern Canada in a narrow band along the U.S.-Canadian border.



3. DESCRIPTION

Bobcats resemble lynx, however, a number of characteristics easily distinguish the two cats. Tending to be smaller than lynx, bobcats do not have the noticeably longer legs and disproportionately larger feet of lynx. Tufts of black hairs are at the tops of a bobcat's ears, however they are significantly smaller than those of lynx. The backs of bobcats' ears have black rims with a white spot in the center. A bobcat's tail (ranging from five inches to eight inches) averages 6.5 inches in length. Although short compared to a domestic cat, the bobcat's tail averages two inches longer than the tail of lynx.



Bobcats have five toes on the front feet and four toes on the hind feet. Only 4 four toes of the front feet register in a track. Each toe is equipped with a retractile claw. A bobcat's hind feet (ranging from three inches to five inches) average 4.5 inches in length and are about one half the size of the hind feet of lynx. Also, the ruff around a bobcat's face is not as long nor as large as that of lynx.

Adult male bobcats averaging 21 pounds (ranging from 16 to 57 pounds) tend to be larger than adult females which average 19.5 pounds (ranging from 8 to 33 pounds). Adult male bobcats average 34 inches in length and adult females average 31 inches long.

Pelage of bobcats consists of long guard hairs and thick, soft shorter underfur. Guard hairs on the back and sides are tipped with black or brown. Underfur on the back and sides is reddish to light buff brown. Fur of the belly and inner legs is white with black or dark brown spots and streaks. The top of the tail is the same color as the back with black barring or partial rings and black on the tip. White is the color of the underside of the tail extending to the tip. Unlike lynx, bobcats do not have a completely black tipped tail. Bobcats, unlike lynx, tend to have more distinct and more black or brown spotting, streaking and barring especially on the belly and legs.

Bobcats of eastern Washington tend to be a much lighter buff color than those of western Washington. Both color phases occur along the eastern side of the Cascade Mountains. In the fur trade the light colored bobcats are

referred to as lynx cats, and the darker more reddish bobcats of western Washington are called bobcats.

Bobcats go through two annual molts, one in the spring and one in the fall. Bobcats have 28 teeth and females have six mammae.

4. LIFE HISTORY

Female bobcats are capable of breeding at one year of age; however, males normally do not breed until two years old. Polygamous, bobcats do not mate for life. Breeding season in Washington tends to peak between February and April with births occurring in April through June. However, unbred females will go into estrus 44 days after the previous estrus period. Thus, it is possible that litters may occur at nearly any time of the year.

After about 62 days of gestation a litter of two to three kittens is born. At birth the kittens' eyes are closed, they weigh about 10 to 12 ounces, and are fully furred with spotted fur. Also, kittens have distinct facial markings. When 10 days old the kittens' eyes open. At four weeks of age the kittens are able to move around and begin exploring their surroundings. Also, at this time the female introduces the kittens to solid food. When seven to eight weeks old the kittens are fully weaned and eating only solid foods.

Learning to hunt, kittens accompany the female until they are about a year old. Kittens do not attain adult size and weight until about two years of age.

Like lynx, bobcat reproductive success is greatly dependent upon prey populations. When prey populations are low, bobcat reproductive success is low.

Bobcats may live to be as old as the 15.5 year old male taken in western Washington.

5. HABITAT

A number of different habitat types are used by bobcats. In particular, brushy areas, timbered areas, areas having rock outcroppings, cliffs, and ledges in the Upper Sonoran Life Zone to the Canadian Life Zones, seem to be preferred haunts of bobcats.

Finding bobcats in agricultural areas is not uncommon, provided enough brushy or timbered areas are present. Bobcats tend to avoid open fields and meadows, but prefer to stay within easy reach of, or within good escape cover.

Rock cliffs, outcroppings, and ledges are of major importance to bobcats for shelter, raising young, breeding and refuge. In addition to rocky areas, brush piles, hollow trees and hollow logs are used as denning and resting areas.

Bobcats tend to occur less frequently in areas of deep winter snows because snow greatly reduces their mobility and ability to catch prey. Thus, bobcats and lynx do not often frequent the same habitat.

6. FOOD AND FEEDING BEHAVIOR

Most important sources of food for eastern Washington bobcats are cottontail rabbits and jackrabbits. In western Washington the most important food sources are mountain beavers and snowshoe hares. Other food items of bobcats include mice, voles, shrews, moles, gophers, yellow-bellied marmots, bushy-tailed woodrats, chipmunks, porcupines, muskrats, ground squirrels, deer, flying squirrels, Douglas squirrels, beavers, western gray squirrels, grouse, opossums, raccoons, insects, reptiles and various song birds. Bobcats will also readily eat carrion. Being opportunistic, bobcats will usually take anything they can get. Domestic animals occasionally taken by bobcats include poultry, house cats, small pigs and sheep. Male bobcats will kill and eat small bobcat kittens. Often after killing a large animal and having eaten its fill, a bobcat will cover the remains with debris such as snow, grass, or leaves. A carcass thus cached will usually be revisited by the bobcat until most of it is consumed.

Primarily dependent upon its eyes and ears when hunting, bobcats usually move slowly, or stay in hunting beds and do a lot of waiting and watching. Prey, once located, are stalked until within range of a quick dash and pounce. If prey is moving, bobcats attempt to move into a position where the prey will come within easy pouncing distance. Point of attack for killing of most larger prey is the neck and head area. Bobcats often follow well worn tracks or roads when traveling or hunting. Bobcats can swim if necessary.

7. HABITS

Primary activity periods for bobcats occur just before sunset to after sunset and again before sunrise to just after sunrise. Thus, bobcats are more crepuscular than nocturnal. However, bobcats may be active during any time of day.

Home range size of radio-tagged bobcats in Washington varies from 2.5 to six square miles for adult males, and 1.5 to 3.2 square miles for adult females. Home range size of bobcats in eastern Washington tend to be larger than those in western Washington. Females tend to use their smaller home ranges more intensively than males.

Although bobcats are territorial, home ranges of males will overlap home ranges of other males and females. Also, home ranges of females will overlap those of other females. However, home range overlap between males seems to be more restricted than the home range overlap between females. Evidence indicates that there are two populations of bobcats in an area, those that establish and maintain home ranges and transients. The transient population is believed to be primarily dispersing juveniles. Transient bobcats are tolerated by residents as long as they do not challenge resident bobcats in use of preferred habitat. Individuals from the transient population will quickly take over a vacated home range after the resident leaves or dies. Daily movement of bobcats varies from 1.6 miles for females to 3 miles for males. Length, duration, and frequency of movement is influenced by prey abundance and season. Bobcats are very shy and secretive. In the wild they are seldom seen.

Communication between bobcats is accomplished by scent marking areas with urine, scent gland secretions and feces. Adult bobcats tend to cover their feces when hunting or traveling. Feces in den areas and well traveled trails tend to be left uncovered. Bobcats have various types of vocalizations, including growling, purring, hissing, meowing and occasionally a loud scream. Most vocalizations are used in conjunction with mating or rearing of young. Some are used during confrontations with enemies.

8. POPULATIONS

Bobcat populations are stable in Washington. Survival of kittens is often directly related to abundance of prey. Female bobcats may not breed or carry a litter to term if food is scarce. Also, bobcats may not breed when bobcat population density reaches a high level. Ratios of male to female bobcats in Washington tend to be nearly equal, with a Few more males than females.

Bobcats from western Washington and eastern Washington show an average age of 3.1 years. Adult bobcats may fall prey to cougars, coyotes and feral dogs. Young bobcats may be killed by eagles. foxes, great horned owls, bears and adult male bobcats. Also. adult bobcats may receive fatal or debilitating injuries from prey animals.

Evidently, there is direct competition for prey between bobcats and coyotes. Many knowledgeable individuals detected an increase in the number of bobcats during the peak of the 1080 poisoning program against coyotes in the late 1960s and early 1970s.

There are a number of diseases that infect bobcats. Some of these include panleukopenia (feline distemper), rabies, plague, leptospirosis and toxoplasmosis. Although documentation exists of bobcats dying from diseases in the wild, it is not believed that diseases are a limiting factor in bobcat populations. Internal parasites found in bobcats include tapeworms and roundworms. External parasites include fleas, ticks: lice and mites. However. infestation of external parasites on bobcats is not normally very heavy because bobcats tend to change dens frequently. The single most important limiting factor of bobcat populations is prey abundance. Unlimited trapping and hound hunting can also limit populations.

9. MANAGEMENT

Bobcats are classified as both furbearers and as game animals in Washington. Seasons are available for bobcats to be pursued by hunters with hounds. trappers, and people who want to hunt bobcats by using a predator call. Recently, bobcats were studied intensively in Washington. During the study, bobcat carcasses were collected from trappers and hunters. From carcasses, age structures, sex ratios and food habits were established. Bobcats were also radio-collared and their movements monitored to determine seasonal and home ranges.

In Washington, bobcats are not often responsible for killing domestic animals, but occasionally are responsible for losses of domestic fowl, sheep and house cats. Mostly, bobcats tend to use wild animals as prey items. Information on bobcats harvested by trappers is collected from Trappers' Reports and used in season setting. Average annual reported catch of bobcats between 1973 and 1983 was 582 with an average value of $61.29 per pelt for western Washington bobcats and $151.10 for eastern Washington bobcats, although prices have fluctuated wildly over that period.

Although bobcats are specifically managed by and under the authority of the Washington Department of Fish and Wildlife, export of bobcat pelts is monitored and regulated by the federal government. Thus, under provisions of the Convention of International Trade in Endangered Species (CITES) all bobcats taken must be tagged with tags provided by the Washington Department of Fish and Wildlife.

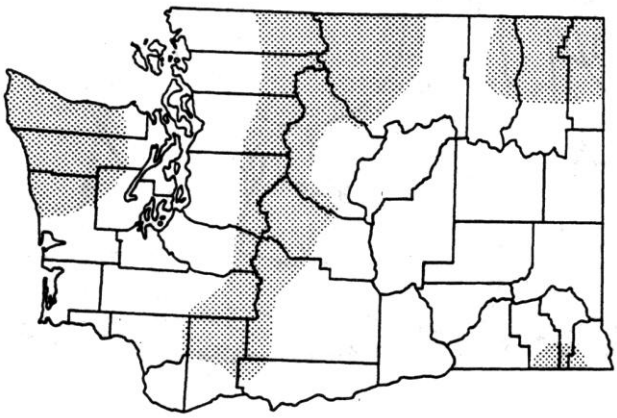
MARTEN

I. NAME

Common names of marten include pine marten and American marten. Marten (Martes americana) are members of the weasel family (Mustelidae). They are closely related to the more valuable sable of Asia and northern Europe.

2. DISTRIBUTION

Marten populations occur throughout the Cascade Mountains, Olympic Mountains, mountains of northeastern Washington and possibly in the Blue Mountains in southeastern Washington. Marten can be found throughout all timbered areas of Canada and Alaska. In the western U.S., marten are present in Oregon, California, Idaho, Montana, Wyoming, Utah, Nevada, Colorado and New Mexico in timbered mountainous areas. Marten are also present in the Great Lakes states and the New England states. Marten are easily trapped and over harvesting has probably contributed to reduced marten populations in the more accessible regions of their range. In addition, extensive clear cutting probably limits them also.



3. DESCRIPTION

About the size of a small house cat, marten have a longer, more slender body with short legs. The head is small with relatively large, rounded ears and a short, pointed muzzle. Paws of a marten have large, furred pads with semi-retractile claws. There are five toes on each foot. The bushy tail is about one-third the total length of the average two-foot long male and the average 1.7-foot long female. Females average 1.25 pounds in weight compared to an average of 1.75 pounds for males.

Like other members of the weasel family, marten have a pair of anal scent glands. Abdominal scent glands are found on both sexes and are used to mark territories, especially during the breeding season.

Pelage coloration varies from yellow to nearly black depending upon location, season and individual. However, the most common color is usually a golden brown with darker tail and legs. Edges of the cars are while and the face and head are usually lighter in color. Typical of marten is a distinctive orange or yellow patch, of irregular shape and varying in size, located on the throat and chest. Differences between summer and winter pelage are distinct. The summer pelt is thin, coarse, and light in color, while the dark, prime winter pelt is soft and rich in texture. Marten have 38 teeth and females have six mammae.

4. LIFE HISTORY

Sexual maturity is usually reached by 15 months of age in both males and females. However, marten usually do not successfully breed until their second year. Thus, females do not give birth to their first litter until their third year. Breeding occurs in midsummer. primarily July and August. After breeding, the fertilized eggs become inactive in the uterus during the stage of delayed implantation common to most mustelids. Gestation lasts from 220 to 275 days of which active gestation, the period after the fertilized egg attaches to the uterus, is about 27 days. The average litter of three young is usually born in April but may vary from mid-March to late April. At birth the nearly naked young, sparsely covered with fine yellow hair, are blind and deaf. After 10 days their coats become dark gray and turn dark brown in their third week. When about 24 days of age the ears open and at 39 days the eyes open. When 46 days old the young are able to crawl out of the nest. Weaning occurs at seven weeks when the young are quite active. The young leave their mother in late summer or early fall when they have reached adult size at four to five months of age.

5. HABITAT

Although preferring mature conifer or mixed forest stands, it has been found that marten use of forests is not greatly affected by selective logging or low intensity fires. However, clear cutting and extensive fires reduce marten

use for up to 15 years. Availability of prey has a definite impact on habitat use. Marten will use meadows during summer if food is more available there.. whereas they prefer mature forests in winter when prey are more available there. Den sites consist of two main types: hollow trees at considerable heights above the ground and lined with grass, leaves and moss; and dens located on or underground in rock piles, hollow logs, tree roots or under the snow. Squirrel nests are used for dens and woodpecker holes in large trees are important nesting sites of marten

6. Food And Feeding Behavior

Food of marten include birds, eggs, insects. fruit, reptiles and small mammals. Red-backed and meadow voles are the most preferred, although squirrels seem to be an important food item in Washington. Additionally, marten do eat rabbits, chipmunks, pikas and carrion. The cyclic nature of marten populations is believed to be associated with the abundance of small mammal populations even though marten can use a wide variety of foods. By having the highest energy requirements, female and juvenile marten are most seriously affected by a food shortage.

7. Habits

Being very curious with keen senses of hearing, sight and smell makes the marten easily baited and trapped. While hunting, marten are very thorough in searching out brush piles, stumps, holes and crevices. Although normally hunting and traveling on the ground, marten are excellent climbers and can travel and pursue prey through trees in mature forests. Both male and female marten may be active at night. However, males tend to be more active during the evening and females are more active during the day. Active throughout the year, marten are solitary except during breeding season. A female will maintain a permanent den before and after her litter is born; otherwise, marten usually den up only temporarily during heavy rains or extremely cold weather. Marten travel on top of the snow but much of their hunting is done burrowing through the snow next to windfalls or stumps projecting above the snow.

Marten home ranges tend to shift with availability of food. When a good food supply exists, adult males tend to have a minimum home range of about 1 square mile and .4 square miles for adult females. However, under poorer conditions home ranges may be up to 7.7 square miles for males and 1.7 square miles for females. A territorial male will tolerate the presence of adult females and juveniles of both sexes but not adult males. Adult females will defend their territories against other adult females. Territories are marked using scent glands. Juvenile marten may travel long distances before finding suitable habitat in which to establish a territory when they reach sexual maturity.

Although marten may be seen occasionally, their presence is usually and most easily determined by tracks in the snow. Moving about by a loping style the tracks are distinctive in that they are usually two closely placed prints at intervals of 15 to 20 inches. Clearly imprinted marten tracks only show four distinctive toe marks.

8. Populations

With a good food supply, marten populations tend to be stable and may even increase as juveniles begin to disperse in late summer. If food availability shifts, so do marten populations. A reduced food supply can result in a disappearance of juveniles and adult females from an area. If sufficient food is not found in new areas, survival of juveniles is reduced and reproductive success of adult females, if they survive, is reduced. Thus, food availability is an important factor affecting marten populations.

Trapping can also affect marten populations due to their intense curiosity and ease of trapping. However, in Washington over-trapping is probably not an important factor. Increased encroachment into marten habitat by large clear cut logging operations is probably the single most important limiting factor of marten in Washington.
In addition to man, other predators of marten include coyotes, fisher, foxes, lynx, cougars, eagles and great horned owls. Being excellent climbers probably reduces predation of marten by terrestrial predators.

Marten are subject to parasites including fleas, ticks, mites, flatworms and roundworms. However, parasites or diseases are probably not an important mortality factor of marten. Marten populations are slow to increase due to the low number of young produced and the fact that marten do not conceive their first litter until two years old.

9. Management

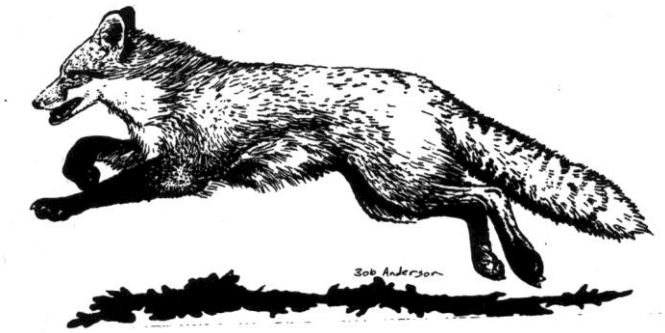
After being closed for a number of years, marten trapping season was opened in the mid-1940s. Tagging of marten pelts was required from 1950 to 1955. During this time the highest number of marten pelts tagged was 1,098 in the 1951-52 season. From the mid-40s to present, reported marten harvest has varied from as low as five in the 1968-69 season to as high as 1,233 in the 1944-45 season. From 1973 to 1982, the average annual reported marten catch was 148 with an average value of $21.66 per pelt.

Management of marten in Washington has primarily consisted of establishing trapping seasons for a sport harvest.

RED FOX

1. NAME

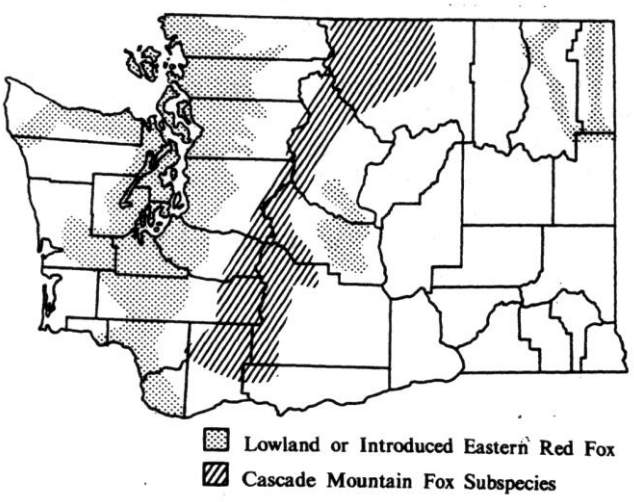
Red fox (Vulpes vulpes) was present in Canada and the northern United States when Europeans arrived. Vulpes is the Latin name for fox. It has now been determined that both European and North American red fox are not only of the same genus but also are the same species. However. there are a number of different subspecies of red fox. In Washington there are two recognized subspecies, Cascade red fox and Eastern red fox. Common names used to describe various color phases include black fox, silver fox and cross fox.



2. DISTRIBUTION

Cascade red fox are native to Washington and restricted primarily to the Arctic-Alpine and Hudsonian Life Zones, of Cascade Mountains from the Canadian border south to points of Klickitat and Skamania Counties.

Eastern red fox. often called lowland red fox. were introduced in Skagit. San Juan, Island and Kitsap counties between 1909 and 1947. Fox farms, most located in western Washington with some in Kittitas County and Ferry County of eastern Washington. were also responsible for introduction of eastern red fox. Escapees from fox farms resulted in establishment of populations in the lowland areas. They became established in the Humid Transition Life Zone. Arid-Timbered Subdivision of the Transition Life Zone and Arid-Grasslands Transition Life Zone of northeastern Washington. Kittitas and Chelan counties. as well as throughout most of Western Washington. There are scattered records of red fox east of the Columbia River and south of the Spokane River, but origin of these foxes is unknown.



3. DESCRIPTION

Red fox belong to the dog family, Canidae. and resemble small dogs. Adult red fox stand about 14 inches at the shoulder and average three feet in Length (range 34 to 37 inches), including a 12-inch long bushy tail. They have erect, relatively large, pointed ears and a long, pointed muzzle. A red fox's body is long and lean and is not readily seen until it is skinned. ,adult males weigh 10 to 15 pounds. whereas adult females weigh slightly less.

Although only four toes show in each footprint, there are five toes on the front feet. one being a dewclaw. During winter fur completely covers the feet and toe pads. Eyes of red fox are unique in that they have vertical slits for pupils, similar to cats. This is an adaptation for seeing at night. The soft pelage of red fox is long and dense. It provides excellent insulation against extremely cold weather. Coloration varies from burnt-orange to black with white-tipped guard hairs which leads to the names red fox, cross fox and silver fox. Pelage of the red fox color phase is a yellowish orange to red on the body and tail. The tail tip is white in all color phases of the red fox. The legs are black as are the backs of the ears. Fur on the chin. throat, chest, belly, inside of ears and insides of the upper part of the legs is white.

Pelage of the silver fox color phase is black with white-tipped guard hairs giving it a grizzled coloration. Cross fox coloration is a deeper brown than the red fox color phase. Usually a cross fox has a band of darker fur extending from one side to the other over the shoulders and another dark band extending down the back. These two bands form a cross at the shoulders. thus causing the name cross fox. The cross fox phase is more common in the northwest than elsewhere in North America.

Fur is shed once a year beginning in February and ending in July. A new coat is fully grown out by October and usually prime in November. The senses of sight, smell and hearing are highly developed in red fox. Red fox have scent glands on the dorsal side of the tail at the base and on the pads of their feet. A red fox has 42 teeth and a female has eight mammae.

4. LIFE HISTORY

Reaching sexual maturity at 10 months of age, red fox may breed their first year. Breeding season occurs from December to April with the peak in February. Females come into estrus for one to six days only once a year. After mating, a pair bond is formed and both parents aid in raising the pups.

After 51 to 53 days of gestation, an average litter of five pups (range I to 10) is born. At birth pups weigh about four ounces. They are blind. deaf and covered with a thick wooly fur. Their color resembles the color they will have as adults. A single litter may contain all color phases. After giving birth, the female remains with the pups while the male hunts and provides food. When about nine days old the pups' eyes open. The pups begin to venture out of the den at five weeks of age when they are also introduced to solid foods. By this time the pups may have been moved to different dens several times by their mother, or the litter may be split up between dens, especially if disturbed. When about two months of age the pups are weaned and they spend more time outside the den. By three months of age the pups are accompanying the adults and learning to hunt. The adults remain with the pups until they begin dispersing in September and October at about four to five months of age. Mortality of young fox is high during their first year, but they may live to be more than six years old in the wild.

5. HABITAT

The two subspecies of red fox found in Washington evidently inhabit two distinct habitat types. Cascade red fox are restricted to the subalpine meadows and timbered areas in close proximity to timberline in the Arctic-Alpine and Hudsonian Life Zones of the Cascade Mountains. So called lowland red fox or introduced red fox prefer the habitat closely associated with agriculture in the Upper Sonoran, Arid-Timbered subdivision, Arid-Grassland Subdivision and Humid Subdivision of the Transition Life Zone. They prefer openings and meadows with good cover or brush nearby. They may inhabit parks and golf courses. Abandoned marmot and badger dens are used by fox, or they may dig their own dens. A den may be used year after year. Often den sites may include brushy areas, under old buildings, or brush piles. Dens may have more than one entrance.

6. FOOD AND FEEDING BEHAVIOR

A study of the Cascade red fox found that pocket gophers are the most important food item. Other food items included snowshoe hares. mice, voles, shrews, moles. ground squirrels, tree squirrels, marmots, pikas. bushy-tailed wood rats, chipmunks, small birds, beetles, grasshoppers, berries, some grasses and carrion of deer, elk and other animals.

Cascade red fox also included garbage in their diet. Food items of lowland red fox include primarily mice and voles, but they will also eat ground squirrels, rabbits, carrion, insects, ground nesting birds such as Pheasant, quail, grouse and ducks.

In addition, fox may eat opossum, young raccoon, skunks, housecats, dogs, weasels, mink, muskrats and bird eggs. They probably also eat grasses, wheat, corn, rose buds, apples, pears and berries. Domestic fowl and young pigs, sheep, calves and goats have, on occasion, been their menu.

Red fox are opportunistic predators, taking whatever is available and easily caught. A hunting red fox generally follows the same trail moving back and forth searching for and following scents of prey. Prey the size of rabbits and larger may be chased down or ambushed by several foxes. If food items cannot be eaten at one sitting, the remains are often cached by burying in dirt, snow or dead grasses and leaves. Fox may travel up to five miles in a night when hunting for food.

7. HABITS

An average home range size of .12 square miles was found for two radio-tagged male Cascade red fox, whereas an average home range size of .09 square miles was found for four radio-tagged female Cascade red fox. Home range of introduced lowland red fox averages about one to three square miles. Size and shape of home ranges are influenced by food abundance, season, fox population density and habitat available.

During breeding and rearing seasons the adult male red fox

defends the territory against other intruding red fox and assists in raising the pups. After the breeding season and dispersal of the pups, red fox tend to become solitary in their habits. However, the female's territory is usually within the territory of the male.

Communication among red fox is accomplished through scent and sound. Modes of scent communication involve marking of territories and food caches with urine, scent posts and feces. Scent glands on the feet mark a fox's trail. and the anal scent glands are thought to emit a scent signaling alarm. The scent gland on top and at the base of the tail is probably used to mark territories since it is rubbed against trees, rocks, brush and grasses. Vocal communication between red fox consists of yaps, barks, whines and high-pitched howls. Being nocturnal and crepuscular, red fox are most active in the evening through the night into the early morning. Daytime movements are usually in the immediate vicinity of the den.

Red fox can run at speeds up to 26 miles per hour for short distances. They will readily swim if the need arises.

8. POPULATIONS

Internal parasites found in red fox include roundworms, tape worms and flukes. External parasites include fleas, mites, lice and ticks. In other areas of North America, sarcoptic mange has been shown to be a severe limiting factor of red fox populations.

Diseases of red fox include distemper, rabies and leptospirosis. Rabies has, in the eastern United States, been responsible for die-offs of red fox.

Red fox are subject to mortality from trapping, hunting and road kills. Predators of adult and young red fox include golden eagles, wolves, coyotes, bobcats, lynx, cougars, bears and fisher. Great horned owls may take pups. Dogs will also kill adult and young red fox.

Knowledgeable individuals feel that coyotes are a very strong limiting factor by direct predation on fox. It was noted during the extensive 1080 poisoning program, when coyote populations were greatly reduced, that red fox populations increased in lowland areas. Many of man's habitat-altering activities stimulate an increase in rodent populations, thus the food source of red fox has increased. However, suitable denning and cover sites are also needed. A lack of these sites may be a limiting factor.

Cascade red fox populations of Washington seem to have remained stable in recent history. Lowland fox populations of Washington appear to fluctuate to a greater degree, especially lowland fox in eastern Washington. As indicated previously, this is thought to be primarily related to coyote density. Lowland red fox populations of western Washington seem to be stable.

9. MANAGEMENT

Red fox are classified as game animals and furbearers in Washington. At present no trapping or hunting seasons are open in areas where Cascade red fox populations exist. However, there are hunting and trapping seasons in areas where lowland red fox are found.

A student from the University of Washington recently conducted a study on Cascade red fox to determine food habits, distribution, home range and other aspects of their ecology. Lowland red fox carcasses were also collected for the purpose of determining whether or not the two populations of red fox subspecies were in fact distinct. The study concluded that they were.

Information on the number of red fox trapped is compiled from Trappers' Reports. From 1973 to 1982, the average annual catch was 109 of red fox, worth an average $52.01 per pelt.

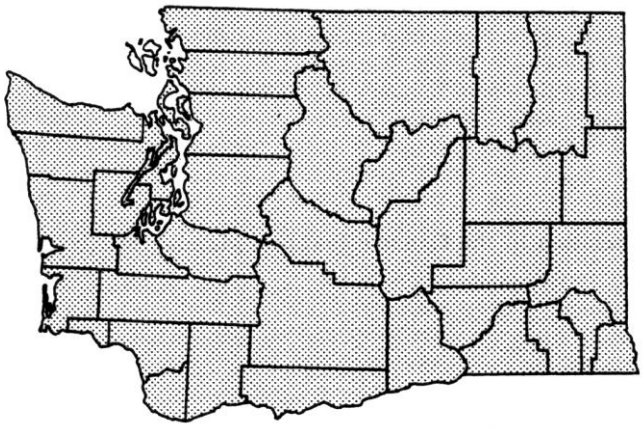
COYOTE

I. NAME

The coyote (Canis latrans) is also known as brush wolf or prairie wolf. The word coyote comes from the Aztec word coyotl meaning barking dog. The Latin or scientific name means dog barking.

2. DISTRIBUTION

Coyotes are found throughout Washington from the desert-like Upper Sonoran Life Zone to the Arctic-Alpine Life Zone. Coyotes have adapted well to the presence of man and may be found within city limits or close to areas of high human population density. Prior to settlement of North America by Europeans and subsequent expansion westward, coyotes were restricted primarily to the open prairie habitat. Coyotes have capitalized upon man's activities and expanded their present range to include most of North America and Central America.



3. DESCRIPTION

In appearance, coyotes which resemble medium sized dogs, may be confused with gray wolves which are larger and have a heavier build. Ears of coyotes are relatively large and pointed whereas ears of wolves are relatively smaller with more rounded tips. A coyote's head tapers to a long narrow muzzle compared to the more massive head and wider muzzle of a wolf. Coyotes have long, slender legs and small feet with four toes on each hind foot and five toes on each front foot. However only 4 toes of the front foot show in the tracks. The black-tipped, bushy tail, less than half the total length of a coyote's body, is normally carried well below the back level. In comparison a wolf usually carries its tail higher.

Pelage consists of long, coarse guard hairs and short, soft, wooly underfur. Guard hairs are longest over the shoulders and along the back. They become shorter on the sides and shortest on the belly. The underfur is also proportionally shorter on the sides and shortest on the belly. The banded coloration of coyote hairs gives them the mixed blend of gray with reddish tone. Pelt coloration ranges from light tan or white with a smattering of black to dark reddish gray with distinct dark patterns formed by numerous black tipped guard hairs. The top of the muzzle, outer forelegs and backs of the ears are a rust color. The lower part of the muzzle, chest, belly and insides of the legs are light tan to white. Eastern Washington coyotes usually tend to be lighter in overall coloration than western Washington coyotes. They have one annual molt in late spring.

Adult male coyotes are usually heavier and larger than adult females. Average weights of adult male and female coyotes are about 30 and 25 pounds respectively. Ranging from 41 to 53 inches in total length including 12 to 16 inches of tail, adult coyotes may weigh from 20 to 35 pounds. Coyotes' eyes are yellow with round black pupils.

Coyotes have a tail gland about two inches from the tail base. They also have two anal scent glands.

Coyotes have extremely acute senses of sight, smell and hearing. Interbreeding of coyotes with dogs and wolves can, and has, occurred. However, dog-coyote hybrids have a lower reproductive success due in part to the fact that hybrids breed in November and thus litters are born in January.

4. LIFE HISTORY

Young coyotes reach sexual maturity by their first breeding season. However they may breed only if existing conditions are favorable, such as a good food supply and coyote population density is low. Young females that breed may produce a smaller litter than adult females. A male and a female coyote may form a pair bond and breed throughout their lives, however this is not a strict rule. Males are capable of breeding from December through March. Females have only one estrous or period of heat, usually lasting seven to 10 days sometime between mid-January and mid-March.

Before the litter is born the female will dig out and clean several potential dens, referred to as clean-outs. Dens are usually old badger holes or dens of another burrowing animal. Coyotes may use the same den yearly or make a new den in the same general locality. Occasionally two adult females may den together. After about 63 days of gestation an average litter of five to six (range one to twelve) furred, blind and helpless pups are born. Most pups are born in early to mid-April, however they may be born as late as mid-May. The male coyote will bring food to the female for a short period after the pups are born. Both the male and female carry food to the den in their stomachs. When they arrive at the den the food is regurgitated for the pups. At 10 to 14 days of age the pups' eyes open. When three weeks old the pups emerge from the den and begin to eat solid food.

If the adults feel the pups are threatened or the den is

heavily infested with parasites the adults will move the pups to another den. They may do so several times and up to five miles one way on one move. They may also move the pups closer to a food source.

The pups are weaned at about six to eight weeks of age. At this time they begin to accompany the adults and learn to hunt. When about nine months old pups have reached adult weight. Although the family group may stay together into early winter, young coyotes usually begin dispersing in November. Normally they only move 10 to 25 miles, but distances up to 100 miles have been recorded for dispersing young coyotes.

5. HABITAT

Coyotes are very adaptable and are found in sagebrush and bunch grass rangeland, irrigated and dryland farmland, timberland and alpine meadows and in close proximity to, or in, towns and cities. Den sites include brush covered slopes, steep banks, rock ledges, thickets, hollow logs, old buildings and culverts.

6. FOOD AND FEEDING BEHAVIOR

Coyotes are very opportunistic. They feed on a wide variety of foods. Food items include carrion, mice, rabbits, insects, marmots, fruits, small birds, game birds, fawns of deer, calves of elk and cattle, lambs of domestic and bighorn sheep and domestic fowl as well as an occasional dog or cat. Seasonal changes affecting availability of prey greatly influence the diet of coyotes.

Generally coyotes will not expend a great amount of energy and take chances of injury, which occurs when they try to take big game animals or large animals. Therefore most coyotes will prey primarily on small animals such as mice, rabbits and ground squirrels. When small animals are not readily available, coyotes driven by hunger will tend to take more chances to get food. Some coyotes learn to kill adult sheep, but most will take lambs. It is the rare coyote that tries to kill a healthy deer, elk, cow or bighorn sheep. During years of high coyote densities or periods of low populations of rodents, coyotes can become a serious threat to young deer, elk, cattle or sheep. In most cases big game animals are a part of coyote diets as carrion. However, during deep snow conditions, especially if the snow is crusted, coyotes are able to prey on animals caught in the deep snow.

Coyotes in urban and suburban areas have been observed killing and feeding on domestic dogs and cats. Coyotes in these situations have obviously lost a lot of their fear of humans. In fact, coyotes within the city limits of Los Angeles have attacked children, and in one instance killed a young child.

A pair of coyotes will sometimes hunt together. Although there are circumstances of more than two coyotes hunting together it is not typical. In many cases coyotes hunt alone, especially when the primary prey is small rodents. Coyotes can be important for rodent control. By preying on rodents, coyotes can save livestock forage that would be consumed by the rodents. Deep snow reduces rodent availability and will cause coyotes to shift to a different prey base.

7. HABITS

Very elusive animals, coyotes in Washington tend to travel and hunt singularly or in pairs. Most instances of "packs" of coyotes are family groups before the young disperse. Coyotes may be active any time of day, however most activity is at night from shortly after dusk to dawn. This is especially true with coyotes that are continually harassed by humans. Undisturbed coyotes will hunt during daylight hours and may even follow farm machinery. catching mice as they are flushed from hay or by a plow.

When running. coyotes may reach speeds of 40 miles per hour for short distances.

Coyotes mark their home ranges with scent posts. They urinate on clumps of grass. rocks. stumps or small bushes. Feces are also probably used to mark home ranges. Home ranges of coyotes vary from 10 to 60 square miles with an average size of about 30 square miles. Coyotes do not usually defend a territory unless it is a den site. Coyotes will shift their ranges depending on the seasons and food availability.

Whether as singles or in packs, coyotes in the same geographical area have a social hierarchy. Although not as strongly social as wolves, coyotes do have generally similar social communication through posturing. tail and ear position, tail movement and vocalization. Coyotes can often be heard yipping and howling any time from dusk to dawn. especially during breeding season. A major influence on whether or not coyotes will gather in packs is the size of the prey. Where the primary prey is small rodents, coyotes tend to live singularly or in pairs. Groups of coyotes form when the food source is very localized such as winter killed deer or elk.

Coyotes will move when deep snow conditions occur. They will return when the snow is gone or earlier if the snow crusts enough to support their weight.

Coyotes do not do well in situations where they are subject to competition from other large carnivores such wolves and cougars. Coyotes do not tolerate and will kill bobcats and foxes if they get the opportunity. Coyotes often follow trails, draws, fence lines, roads and ridge tops. Their tracks look like a medium sized dog's tracks and can be found in dust, sand, mud or snow in areas where coyotes are present. The front foot track is larger than the track of the hind foot. Also coyote scat may be found, usually in conspicuous places, on or near their travel ways.

8. POPULATIONS

The single most important factor affecting coyote populations is availability and abundance of food. Abundance of prey affects litter size, survival of young and density of a coyote population. When rodent populations are low. female coyotes have smaller litters and there is lower pup survival.

Coyotes are host to external parasites including fleas, ticks. lice and mites. Internal parasites include tapeworms, roundworms and protozoa, such as Giardia. Diseases affecting or carried by coyotes include tularemia, rabies, distemper. bubonic plague and canine parvovirus.

Trapping, shooting and road kills also contribute to mortality of coyotes. Young coyotes may be killed by badgers, eagles, cougars and dogs. Although adult coyotes have few natural predators they may be killed by bears. cougars or wolves.

Coyotes less than a year old have a mortality rate of about 70 percent. The majority of individuals in a coyote population are one to four years old. The older coyotes, four to eight years old, have the highest survival rate. Wild coyotes can live to be 13 to 14 years old.

9. MANAGEMENT

Coyotes are not classified as furbearers in Washington, therefore the season is open all year. Information on harvested coyotes is gathered from hunting questionnaires and Trappers' Reports.

In past years coyotes have been persecuted by armies of government trappers and control specialists. Despite the arsenal of control materials, including a variety of poisons, traps, guns, M-44's and airplanes used by trained personnel, coyotes have survived extremely well and even expanded their range. However. in some areas coyote populations have effectively been reduced.

Individual coyotes can inflict heavy losses on sheep bands and may kill newborn calves. Trappers are encouraged to work with livestock owners who may have trouble with individual problem coyotes. Not all coyotes will attack livestock, in most cases it is only an individual or a pair, perhaps with pups.

Between 1973 and 1982, the average annual reported catch of 4733 coyotes taken by trappers was worth an average $45 per pelt for eastern Washington coyotes and $21 per pelt for western Washington coyotes.

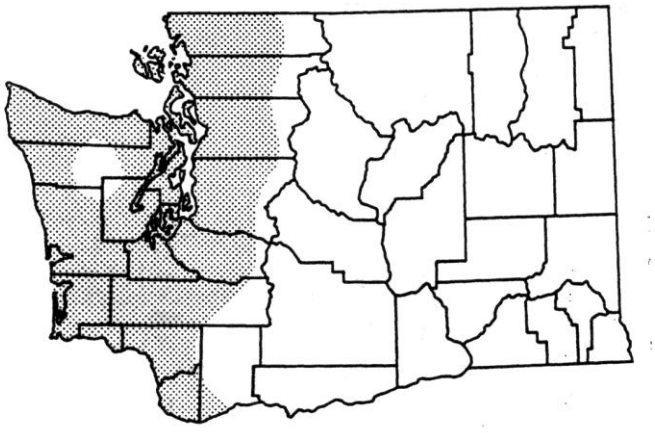
OPOSSUM

1. NAME

Opossum (Didclphis virginiana) are the only marsupial found in North America. They are known as Virginia opossum and possum. The first part of the scientific name Didelphis, comes from the fact that the uteri of the female are not fused together at their bases as is the case with most other mammals.

2. DISTRIBUTION

Originally restricted to the southeastern United States, opossum have expanded their range since the arrival of Europeans. The extensive distribution opossums now have is due primarily to activities of man - especially translocation. Opossum were first documented in Skagit and Pacific Counties of Washington in the late 1930's and early 1940's. Since then opossum have extended their Washington range to include all counties of western Washington. However, there are no records of opossum on the east side of the Cascade Mountains. Opossum are also found in western Oregon and California, southwestern British Columbia and throughout the mid-western and southeastern states.



3. DESCRIPTION

Like other members of the marsupial order, female opossum have a fur-lined pouch in which the very young live. Opossum are cat-sized with males weighing six to seven pounds, but individuals weighing up to 14 pounds have been recorded. The lighter females weigh an average of four to five pounds with an upper limit of seven pounds. Opossum may reach total lengths of 36 inches of which about 12 to 15 inches is a round, scaly, sparsely haired tail. Most of the tail is flesh colored to dirty white, however it is black at the base. Being prehensile, the tail can be used for grasping branches or limbs to aid in climbing and balancing. The head is conical, tapering to a slender, pointed snout tipped by a flesh colored nose. The face is light gray to white in color, whereas the general color of the fur from the neck to rump is grayish white. Pelage consists of long, white guard hairs and underfur that is white with black tips. The thin, naked ears are leather-like, prominent and black in color except for the top quarter which is white. The eyes are black.

Opossum are short-legged with five toes on each foot. Each toe of the front feet is clawed, however, only the four outside toes of the hind feet have claws. The inner toes of the front and hind feet are opposable. They serve the same function as a thumb and enable opossum to grasp and hold objects with their feet.

Opossum in colder climates will often have ragged ears and shortened tails from frostbite.

Opossum have 50 teeth including four long canines. Male opossum have a scent gland under their chin. Secretions from this gland often stain the chest a yellowish color. Opossum also have two anal scent glands.

4. LIFE HISTORY

Although breeding can occur year round, most breeding occurs in February. After a gestation period of 12 to 13 days the average litter of nine (range 5 to 13) extremely small (1/3 to 1/2 inch long) young is born. At birth the young crawl from the urogenital opening, up the female's belly to the pouch. During birth the female is in a sitting position and the young, with only the two front legs developed, climb up to and into the pouch by moving the front legs in a swimming motion. Once in the pouch the young locate and firmly grasp one of the 13 nipples or die. Young successful in getting to the pouch and attaching to a nipple will remain attached for about 60 days. At 60 days of age the young are fully furred. When 70 to 85 days old young may accompany the female, however they are in the pouch. If left in the den the young cry when separated from the female. When 83 to 91 days old the young cease to cry when the female leaves, weaning begins and they begin to show interest in solid foods. By 96 to 106 days of age

young opossum are weaned. The young begin to leave the den to forage on their own and eventually disperse. At this time the female may enter estrous, be bred and give birth to a second litter in about mid-June. Opossum are promiscuous and breed with more than one male or female. Young opossum are sexually mature by six to eight months of age. However, they probably do not breed in Washington until they are about one year old.

5. HABITAT

Deciduous woodlands near wetlands are apparently preferred opossum habitat. Availability of suitable den sites is an important factor influencing habitat use since opossum do not make dens. Den sites include burrows of other animals, rock piles, brush piles, spaces in or under buildings and hollow logs or trees. An opossum will gather dry leaves and grasses, grasp the bundle with its tail and carry it for lining the den.

6. FOOD AND FEEDING BEHAVIOR

Omnivorous and opportunistic, opossum will eat nearly anything available. Types and amounts of foods eaten vary with seasonal availability. Food items include: fruits, berries, insects, reptiles, amphibians, worms, grubs, grains, birds, bird eggs, green vegetation, nuts, crayfish, mice, occasionally young rabbits and carrion. Opossum attracted to carrion from road killed animals often become road killed themselves. They have become nuisances in suburban areas by getting into garbage cans or pet food left out by pet owners. When foraging, opossum explore every potential location for food in their seemingly erratic travels.

7. HABITS

Conclusions from some studies in other states imply that opossum may have home ranges of 11 to 203 acres depending on the availability of dens and food. Although solitary, opossum do not defend a territory. Only a female with young tends to use a single den for any length of time, whereas other opossum change dens frequently. Nocturnal animals, opossum may travel a total distance of one-half to two miles during their nightly foraging. Foraging is apparently done in areas near a den the opossum is using at the time.

When caught out in the daylight, with little chance of escape, opossum may feign death or "play possum". Falling on its side, with the body slightly curled, lips pulled back and mouth partly open from which much saliva drools, and feet clutched into tight balls, the opossum gives the appearance of being dead. The eyes stay open and often feces are excreted and a greenish foul smelling fluid is secreted from the anal glands when the opossum feigns death. When in this condition it seems no amount of prodding or shaking will produce a response from the seemingly limp and lifeless opossum. When the threat of danger leaves the opossum recovers and quickly leaves the area. In most cases of threat, however, opossum will hiss and bare their teeth.

In general, opossum are not graceful animals. Their running appears to be no more than a fast walk with the tail rotating in a circular motion for balance. Strong, but not agile climbers, opossum ascend trees for escape, foraging, resting and to look for potential dens. Opossum willingly enter water and they may do so often, especially in shallow water when searching for food. They are strong swimmers and able to swim relatively long distances.

Constantly grooming and "washing" their faces in a fashion similar to cats, opossum apparently keep themselves very clean. Male opossum will mark objects by alternately licking and rubbing the sides of the head against the object. Although done year round, this activity increases during breeding season and is done to advertise the male's presence to other opossum.

Opossum accumulate large amounts of fat in preparation for winter. When extremely low temperatures occur, opossum den-up for considerable lengths of time. However, if the cold period is extended, they will come out to forage for food.

8. POPULATIONS

Some estimates of population density indicate from 10 to 634 opossum per square mile. Average annual density per square mile is probably around 25 to 50 opossum. In good habitat, annual population density fluctuates tremendously. Late summer to early fall is the period of highest density and late winter to early spring the period of lowest density. This reflects high reproductive potential during breeding season and high mortality rate during late fall through winter. During late fall, nearly 88 percent of the population are young of the year and only 10 percent of the population makes it through the winter. Population turnover is estimated to be 3.5 years with most opossum living approximately one year. However, opossum, may live up to three years in the wild.

Opossum populations appear to be subject to cyclic fluctuations with peaks occurring every six years.

Opossum are prey for dogs, coyotes, fox, raccoons, bobcats, eagles, hawks, owls and large snakes. Juveniles are most

vulnerable and are probably preyed upon by adult opossums also. Natural predation is probably a small contributing factor to opossum mortality. Winter kill and road kill probably account for most opossum mortality in Washington. Trapping and hunting have minimal or no effect on opossum populations in the state.

A few diseases opossum may carry include tularemia, streptococcus, staphylococcus, leptospirosis, spotted fever, ringworm, toxoplasmosis and trichomoniasis. There are many more diseases opossum may carry but rabies is not one. Impact of diseases on opossum populations is probably minimal.

Numerous external parasites, many of which are vectors of diseases such as typhus, spotted fever and Chagas's Disease, have been found on opossum. These include lice, ticks, fleas. mites, pentastomids (tongue worms) and hemiptera bugs. However, opossum are evidently not susceptible to sarcoptic mange mites. Internal parasites of opossum include roundworms, flatworms, tapeworms and thorny-headed worms. Impact of parasites on opossum is likely insignificant, unless the opossum has become stressed from other factors such as disease or malnutrition.

Opossum populations are stable within their range in Washington.

9. MANAGEMENT

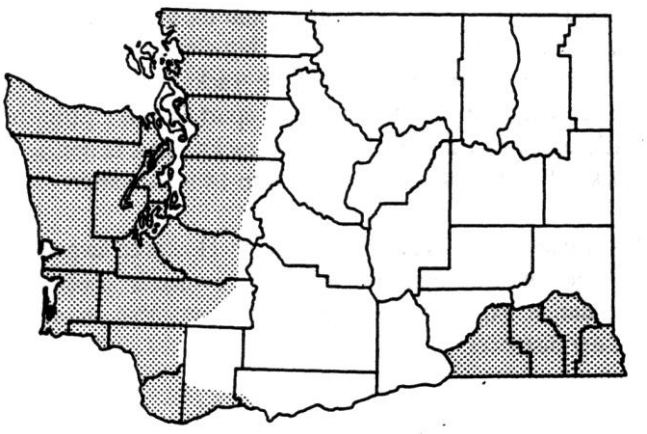
Opossum are not classified as furbearers in Washington, therefore, the season is open all year. It is estimated that the annual harvest in the United States between 1971 and 1980 was more than one million pelts worth more than $2. 5 million.

Opossum have caused some damage or nuisance complaints in western Washington primarily by getting into garbage cans, eating pet food and living in houses. Occasionally they are blamed for killing domestic fowl.

WESTERN SPOTTED SKUNK

I. NAME

Western spotted skunks (Spilogale gracilis) are known as civet cats in the fur trade. The first part of the Latin or Scientific name Spilogale, is a combination of two Greek words Spilos meaning spotted and Gale meaning weasel. The last part of the Latin name gracilis is Latin meaning graceful. In some areas spotted skunks are called hydrophobia cats because of the frequent occurrence of rabies in them. Other common names include polecat, tree skunk, marten, skunk, weasel skunk, four-way skunk, four striped skunk. little spotted skunk, sachet kitty and black marten.



2. Distribution

In Washington, western spotted skunks are found west of the Cascade Mountains and in the southeastern part of the state. The Snake River is the northern boundary of western spotted skunks in southeastern Washington. They may occur in the Cascade Mountains since there is an historical report of one in the Lake Kachess area of Kittitus County and one was captured in California at an altitude of 8,400 feet. Apparently the Cascade Mountains and the Snake are barriers to western spotted skunk population expansion although there are rare reports of spotted skunks in other areas. Life Zones inhabited by western spotted skunks in Washington include primarily the Humid Transition Life Zone and to a lesser degree the Upper Sonoran, Grassland

and Timbered Subdivisions of the Arid Transition and Hudsonian and Canadian Life Zones.

Western spotted skunks are found throughout all western states with limited populations in Montana, Wyoming and New Mexico. They are also found in southwestern British Columbia and most of Mexico.

Another species of spotted skunk, the eastern spotted skunk, is found in the mid-western and southeastern United States.

3. DESCRIPTION

Western spotted skunks are considerably smaller than striped skunks. Adult males average 1.5 pounds and adult females average 1 pound. Total lengths of adults range from 14 to 22 inches with five to nine inches of tail. Both males and females are similar in markings but males tend to be larger in size.

Pelage is black with irregular white spots and four to six irregular white stripes. The fur is finer, more silky and denser than that of striped skunks. Black and white coloration of western spotted skunks makes them hard to see at night especially if they are not moving. Unlike striped skunks, western spotted skunks have a broad white triangular patch on their face and four or more white body stripes.

All five slightly webbed toes on each foot are clawed, an adaptation for digging. the claws of the front feet are longer and more curved than those on the hind feet.

Musk produced by the two anal glands of western spotted skunks is more pungent than striped skunk musk. The musk fluid of spotted skunks is similar in appearance to skimmed milk with curd of cream. The color varies from white to greenish yellow. Primary use of the musk is for defense.

Western spotted skunks have 34 teeth and females have eight mammae.

4. LIFE HISTORY

Male and female spotted skunks are sexually when four months old and mate during the September October breeding season. . Unlike striped skunks, western spotted skunks have delayed implantation as do many of the other mustelids. Gestation is 210 to 230 days including an active gestation period of about 28 to 31 days. Each year a single litter, averaging four young (range three to six young) is born in May in a den selected by the mother.
At birth the young have a thin covering of hair, but the white can be seen on the skin. At about one month of age the eyes open and the young are able to discharge musk. When six weeks old, young spotted skunks begin to forage by accompanying their mother, in single file, on her nightly foraging. At this time they have begun to eat solid foods and the process of weaning has started. They are completely weaned by two months of age. When three months old, the young skunks are almost adult size. Between the ages of three and four months, the young begin to disassociate from the family group. Young are raised solely by the female with no help from the male.

5. HABITAT

Western spotted skunks prefer open grassy and weedy areas adjacent to good cover. A good food supply of insects and rodents determines when and what areas are used. Cover sought by spotted skunks includes: fence rows, embankments, brushy draws, rock outcroppings, abandoned farm buildings, brush piles, rock piles and junk piles. They will use farm buildings being used by people. However they are not as tolerant of human activity as are striped skunks. Den sites may include rock crevices, spaces in and under buildings, culverts, hay piles, brush piles, hollow logs, hollow trees, hollow stumps and burrows of other animals. Dens may contain nests of grasses or leaves.

6. FOOD AND FEEDING BEHAVIOR

Food items of omnivorous western spotted skunks include beetles, worms, bees, wasps, crickets, grasshoppers, grubs, carrion, rodents, young rabbits, bird eggs, frogs, salamanders, lizards, crayfish, fruit, nuts, corn, mushrooms and other plant material. Relative to striped skunks, western spotted skunks eat as much as four times more rodents. After catching a large food item such as a mouse, spotted skunks will often carry it a distance, sometimes to a den before eating it. Like striped skunks, spotted skunks will roll hairy caterpillars on the ground to remove hairs before eating them. They will also roll beetles that emit a defensive scent, causing the beetle to deplete its scent before eating it. Insects, when more available, make up the largest part of the diet in summer and fall. Winter and spring diet is primarily rodents, mostly mice and voles with occasional rats and rabbits. They will wade in shallow water to forage for crayfish. Western spotted skunks have been known to raid chicken houses, killing chickens and eating eggs. However, they are probably more of a nuisance by eating pet foods left outside. With such an easy food source, skunks will learn to stay close by people.

7. HABITS

A strictly nocturnal animal, western spotted skunks usually

begin foraging after dark and are back in a den before daylight. They may not venture out on a bright moonlit night. Seldom are they out during the day. In fact if they are out in daylight and acting bold or aggressive they should be suspected of having rabies.

Spotted skunks are noted for their defensive posture of standing on their front feet with hind feet and tail high in the air. This in conjunction with stamping of the front feet on the ground gives due warning to a threat and usually precedes discharge of musk. Musk is discharged with good accuracy up to ten feet toward a threat that takes no heed to the warning. Releasing of musk can take place during the warning posture of standing on the front feet, as well as when all four feet are on the ground.

Like striped skunks, spotted skunks do not hibernate but restrict their movements and stay in dens during periods of Extreme cold. They are excellent climbers and often climb trees when foraging or to escape enemies. When denning in buildings, spotted skunks may climb into the second story and use the attic or loft as a den.

Females with young may defend a natal den. However, other spotted skunks are not territorial. They will use a den with other individuals at the same time or intermittently. On an annual basis a spotted skunk's home range is within .25 square mile. However during breeding season, males may extend their travels over a four square mile area. Hair of spotted skunks can be distinguished from that of striped skunks. Tracks in dirt, mud and snow can prove presence of spotted skunks. Their tracks are similar to, but smaller than those of striped skunks. When walking slowly the prints of the hind feet are directly on top of the tracks of the front feet and are spaced about 5 to 5.5 inches apart. When loping the tracks are placed similarly to weasel tracks. At a faster pace tracks of spotted skunks are from 9 to 14 inches apart.

Spotted skunks will readily enter water. However, expanses of water greater than 600 feet have evidently precluded population expansion. Striped skunks are able to swim greater distances.

8. POPULATIONS

Not being as adaptable to human activity as striped skunks, western spotted skunk populations have apparently declined since the early 1900's. This decline is due primarily to habitat destruction, pesticide use and their low tolerance to human activity. Populations of spotted skunks are more localized, even in good habitat, than the widely distributed striped skunk.

Predators of western spotted skunk include coyotes, domestic dogs and cats, bobcats, great horned owls and foxes. However, little is known about predation and its effect on spotted skunk populations. They are host to external parasites including fleas, mites and ticks. Internal parasites include tapeworms and roundworms. Diseases that may infect spotted skunks include histoplasmosis, microfilaria, listeriosis, mastitis, distemper, Q fever and rabies. Presently spotted skunk populations are relatively stable within their range in Washington.

9. MANAGEMENT

Western spotted skunks are not classified as furbearers in Washington. Therefore they are not protected or managed under trapping or hunting seasons. Data is collected from Trappers' Reports on skunks, but there is no distinction between spotted skunks and striped skunks.
On a nationwide basis the annual harvest of spotted skunks (western and eastern) has been an average of about 18,000 pelts worth an average of $2 each. From 1973 to 1982 the average annual Washington harvest of all skunks (spotted and striped combined) was 367 pelts worth an average of $3.38 each.

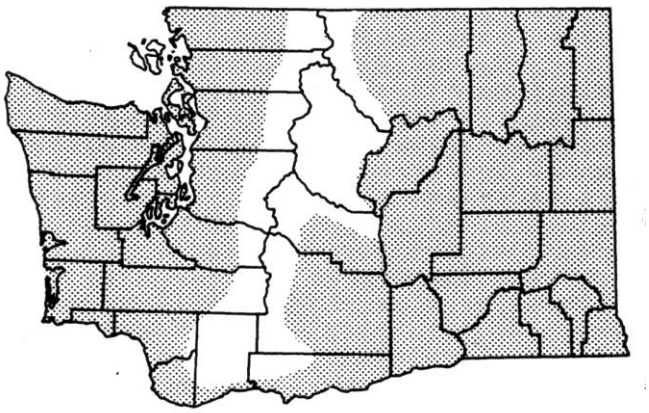
STRIPED SKUNK

1. NAME

A member of the weasel family, the striped skunk (Mephitis mephitis) is well known to most people. The Latin name means bad odor bad odor. The common name of the skunk is a derivation an of Abenaki-AIgonqum Indian word, seganku or segongu.

2. DISTRIBUTION

Striped skunks are found throughout Washington in the Upper Sonoran, both Timbered and Grassland Subdivisions of the Humid and Arid Transition Life Zones. A few may be found in the Canadian Life Zone close to the Transition Life Zone. Striped skunks are found throughout southern Canada, all contiguous 48 United States and northern Mexico. However. they are absent from the desert region of southeastern California.



3. DESCRIPTION

A small, heavy bodied animal, the striped skunk is about the size of a domestic cat. It has two small, rounded ears on a relatively small. triangular shaped head. The head tapers to a rounded nose pad. The small, beady black eyes are lacking nictitating membranes which is unusual among the carnivores. Front and back legs are short. However, the front legs are shorter than the back legs. There are five clawed toes on each bare soled foot. Claws of the front feet are long and curved for digging. Claws of the hind feet are much shorter and not as curved. Striped skunks have long and very bushy tails. Pelage consists of long, coarse guard hairs with thick, soft wooly underfur. Coloration is glossy black with white on the crown of the head and back of the neck. At about the shoulders the white of the back of the neck splits into two relatively wide stripes that extend back and down behind the front legs and onto the sides. The stripes do not always extend back to the tail. Stripes may vary in length and width. On occasion a striped skunk may have no stripes at all. Hair on the tail is mostly black with some white hairs which are primarily on the tail tip. A thin white stripe of hair, located on the face, begins within an inch of the nose pad and extends almost to the top of the forehead.

Striped skunks begin molting underfur in early spring and guard hairs in early summer. The male is slightly larger than the female. Total lengths of 20 to 30 inches is the normal range for adults. The tail, included in total length, is about 7 to 10 inches long. Adults usually weigh 3.5 to 10 pounds.
Striped skunks, like all mustelids, are equipped with two anal scent glands. These have given them considerable notoriety. A yellowish oily fluid is produced by the scent glands. This very strong, foul smelling substance is used for protection. They can accurately discharge the fluid a distance of several yards.

Female striped skunks usually have 12 mammae, but may vary from 10 to 14 mammae. Striped skunks have a total of 34 teeth.

4. LIFE HISTORY

When eight to nine months old both male and female striped skunks are sexually mature and usually breed during the first breeding season. Breeding season of the promiscuous striped skunk is late February through mid-March. During mid-May, after a gestation period of 62 to 66 days the kits are born in a den lined with dried grasses and other vegetation. Litter size of first time breeding females is 'about four kits with subsequent litters containing 2 to 10 kits (average five to seven). At birth, kits are blind, helpless and have a thin coat of fur. The white markings, however are distinct. When two to four weeks old the kits' eyes open and they are able to take the defensive stance. At this time they can also discharge scent from their anal glands. At six to eight weeks of age the kits are weaned. Shortly thereafter at two months of age kits begin accompanying their mother on foraging trips. When traveling with their mother kits follow her in single file. Kits begin to disperse and lead more solitary lives when three months old.

5. HABITAT

Striped skunks prefer open fields or croplands with grassy or brushy fence rows, brush patches and brushy draws. They usually are not far from an open water source. They also do very well in suburban or urban locations where

piles of brush, old buildings, junk piles. woodpiles and holes under houses provide den sites. People often provide a food source in the form of dog food, cat food or garbage. Other types of den sites include old marmot holes, old badger holes, old coyote dens, culverts, rockpiles or any other natural cavity. Although they seem to prefer not to, striped skunks can dig their own dens.

6. Food And Feeding Behavior

Omnivorous and opportunistic, skunks will eat whatever they can find or catch. Digging is the primary method they use to obtain many of their food items. Food items include insects, grubs, crustaceans, reptiles. amphibians, moles, shrews, mice, rats, voles, ground squirrels, young rabbits, ground-nesting birds and their eggs, garbage, carrion and domestic fowl, especially if the domestic fowl is in a confined area that striped skunks can get into. Striped skunks are generally too slow to catch fast moving prey. Vegetative food includes berries, fruit, grasses, roots, nuts, grains and corn. Skunks will invade gardens and pull ripened ears of sweet corn down within their reach or tear the ears from the stalk and consume the corn from the cob. They will dig out and eat wasps and wasp larvae.

Striped skunks will roll beetles that give off a defensive odor in the dirt before eating them. Apparently this is done to reduce the amount of secretions in the beetle before it is eaten. Toads, before being eaten, are also rolled in the dirt which removes toxins on the skin. Skunks have been blamed for destroying duck, pheasant and quail nests.

7. Habits

Primarily nocturnal, striped skunks will begin daily foraging at dusk. They may forage until early morning. Striped skunks are not frequently seen during the day, but may be seen shortly after daylight as well as on or along roads at night.

Eyesight is not well developed in striped skunks. However their senses of smell and hearing are very well developed.

A threatened striped skunk usually goes through a series of warning motions before discharging its musk. When first threatened a striped skunk faces the threat, raises its tail, arches its back and stamps its front feet on the ground. If the threat continues, the skunk starts short charges at the threat with sudden stops. Next the skunk backs up facing the threat. If these procedures are not sufficient warning for the threat, the striped skunk will discharge its musk with a high degree of accuracy. The musk can be discharged directly behind, to the sides or in the direction the striped skunk is facing. To discharge in a frontal direction the skunk makes a short dash with a sudden stop, the hind end is raised up quickly with support on the two front feet. When discharging the musk, the openings of the scent glands can be aimed, one or both glands can be discharged and the discharged musk may be either in a fine mist or a stream of larger droplets. Also, if threatened, skunks may growl, hiss or click their teeth. Striped skunks can also squeal and make a twittering sound similar to a raccoon's bird-like call.

Although striped skunks do not seem to like swimming they are good swimmers and will swim or wade across waterways. They are not climbers.

Movement of striped skunks is fairly restricted, however individuals may travel long distances. Longest recorded straight-line distances moves range from .34 to 1.5 miles and occurred during breeding season. Home ranges of female striped skunks are relatively small, overlap and cover an area of .25 to 1 square mile. Males usually have home ranges larger than one square mile. Striped skunks do not normally defend territories.

Winter activity is affected by factors such as availability of food, temperature, snow cover, snow crust, hunger and breeding season. Striped skunks do not hibernate, but will stay in dens during periods of deep snow and extreme cold. If warm spells occur they will emerge from the den for short periods to forage. They may also emerge to forage when they have been in the den for extended periods and become hungry. Striped skunks are generally not a sociable animal, except during the winter denning period when as many as 20 individuals have been found in a communal den. Cases have been recorded of striped skunks sharing a burrow system with other animals such as opossum, marmots and cottontail rabbits. For the one to three month long cold weather stays in dens, striped skunks begin storing large amounts of fat in late summer and fall. Striped skunks use dens year round for daytime resting, hiding and as a nest for rearing young. A characteristic of striped skunk dens is that the entrance is often partially covered by vegetation. Winter dens may be plugged with leaves and grass.

They usually travel at a slow walk, however when moving rapidly they canter or lope. Since they are easily winded, striped skunks cannot lope for long distances.

Sign of striped skunks include their tracks, droppings and holes dug while foraging for rodents and insects. Tracks may be seen in bare dirt, on trails or around typical denning areas such as brush piles, culverts or old buildings. Obviously the smell of musk is a sure sign of the presence of striped skunks. Also at den sites occupied by skunks there is a distinctive odor, but not always from the musk.

8. POPULATIONS

Striped skunks are host to external parasites including ticks, fleas, mites and lice. Internal parasites include roundworms, tapeworms, flatworms, protozoans and thorny-headed worms. Diseases that affect striped skunks include rabies, leptospirosis, aspergillosis, pleuritis caused by streptococcus and micrococcus bacteria, histoplasmosis, listeriosis, canine distemper, canine hepatitis, Q-fever, tularemia and Chagas' disease. Many of these are very serious diseases that can be transmitted to humans and domestic animals. Predators of striped skunks include coyotes, bobcats, foxes, badger, lynx, cougars, fisher, golden eagles and great horned owls. Man is a secondary predator of striped skunks by trapping, shooting, road kills and killing by farm machinery. Some domestic dogs seemingly are not affected by the musk and will kill striped skunks. Poisoning from insecticides applied to agricultural crops is also suspected of contributing to striped skunk mortality.

9. MANAGEMENT

Striped skunks are valuable for their control of agricultural pest species such as mice and insects and for the value of their fur. However this may be argued by a swather operator who has a fresh skunk stuck in the hay conditioner. Specific insect pests eaten by striped skunks include army worms, cutworms, hop-plant bugs, Colorado potato beetles, scarab beetles, may beetles, june beetles, grasshoppers, cicadas, crickets, sphinx moths and squash bugs.

Striped skunks are often blamed, but are not always guilty, for raiding chicken houses or destroying nests and eggs of domestic fowl. The most frequent complaint about skunks in Washington is that they will den under houses, particularly where domestic pet food is left out 24 hours a day. Sometimes the people living in a skunked house are forced to vacate until the smell dissipates. As mentioned earlier, skunks can cause damage to garden produce but they are not the only animal that will do this. In nearly all situations involving nuisance or problem skunks, preventative measures can be taken. These include sealing holes under buildings; cleaning up piles of brush, wood or junk; not leaving domestic pet food out 24 hours a day; not providing any other food source; building short fences around gardens and bee hives; locking up domestic fowl in sheds or houses at night; and building skunk-proof fences around poultry yards. For coyote trappers near agricultural areas, striped skunks can be a problem by continually getting into coyote traps. Striped skunks are not classified as furbearers in Washington, therefore the season is open all year.

Striped skunks may be important as vectors for many diseases. Although data are collected from Trappers' Reports on skunks caught, there is no distinction between striped and spotted skunks. Data on striped skunks caught in North America indicate that in recent years the average annual catch is 175,000 pelts worth an average of $550,000, approximately $3.14 per pelt. There is also a market for skunk essence or musk. From 1973 to 1982 the average annual Washington harvest of all skunks (striped and spotted combined) was 367 pelts worth an average of $3.38 each.

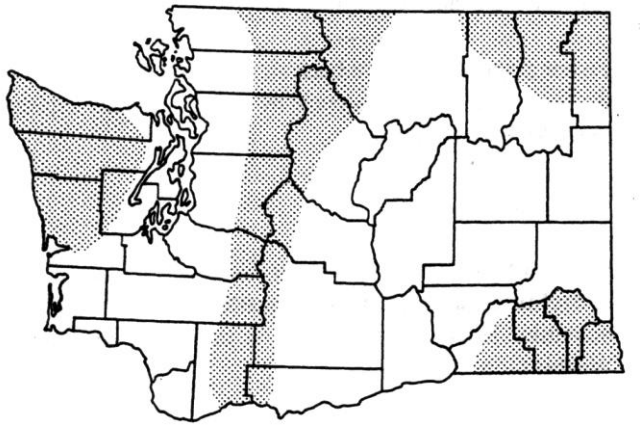
FISHER

1. NAME

Fisher (Martes pennanti) are members of the Mustelidae family. The fisher's common name is probably a variation of the common names of the European polecat fitchet, fitche or fitchew.

2. DISTRIBUTION

The few recent records of fisher in Washington indicate that they may be found in the timbered areas of southeastern and northeastern Washington, the Cascade Mountains and the Olympic Peninsula. Apparently never very common in Washington, fisher are now very rare. Limited populations of fisher may be found in California, Oregon, Idaho and Montana. Good populations of fisher may be found throughout most of Canada, Minnesota, Wisconsin and the New England states.



3. DESCRIPTION

Resembling a large marten in form, fisher have a long, slender body with short legs, small rounded ears on a wedge-shaped head and a long, tapering bushy tail. Fisher have five toes on each of their relatively large feet. Each toe is equipped with a sharp, curved, unsheathed claw. During winter their feet are heavily furred nearly covering the pads.

Pelage coloration varies with sex and season but generally is gray brown to dark brown to nearly black. Coloration of the tail, legs, feet, nose and body behind the front shoulders is darker than the lighter, grizzled or frosted coloration of the head, neck and shoulders. A few patches of white may be found on the throat, neck, belly, inner part of upper leg or around the anus. Fur of the males is coarser and longer than fur of females which is generally darker and silkier.

Like other members of the weasel family, fisher have two anal glands that produce a foul-smelling brownish fluid. This fluid may or may not be released when the fisher is frightened or hurt. The fluid from the anal scent glands is used to mark territories at scent stations. Also used to mark territories is another set of small scent glands on the pads of the hind paws. Males are more muscular and have a heavier build, especially in the head and shoulder area, than females. Weighing an average of 10 pounds (range 7.5 to 12 pounds), males are larger than females which weigh an average of 5 pounds (range 4.5 to 5.5 pounds). Males usually range from 35.5 to 47 inches in total length whereas females range from 29.5 to 37.5 inches long. About one third of their length is tail. Fisher have four mammae compared to six mammae found on marten.

4. LIFE HISTORY

Reaching sexual maturity at one year of age, female fisher will breed at this time. Although males are sexually mature at one year of age, they may not breed until they are older. Breeding takes place during March and April.

As with most other mustelids, implantation of the fertilized egg is delayed. Active gestation is only about eight weeks and young are born about 51 weeks after breeding. The den site is usually a hollow tree or log although holes and other well sheltered spots may be used. New born kits, nearly naked with only a partial covering of fine hair, are blind and helpless. The female enters estrus within six to eight days after an average sized litter of three kits are born. At this time, when the kits are only six to eight days old, the female leaves for two to three days to find a male to breed with. After mating the male becomes solitary and the female returns to her litter. At about 7.5 weeks of age the kits' eyes open and the female begins to feed them meat. Kits are weaned at four months of age. Late summer or early winter finds the kits and mother separating, each going its own way.

5. HABITAT

Stands of dense mature or second growth forests of mixed conifers and hardwoods, especially near permanent water sources, and swamps are preferred fisher habitat. Fisher generally avoid open areas, but can survive in the timbered habitat of their primary prey species, snowshoe hare and porcupines. Two types of dens are used. Temporary dens, seldom used for more than two or three days, may be located under logs, brush piles, tree roots or in hollow trees, ground burrows or under the snow. Temporary dens are usually near a good food source. Nesting dens are mostly found high in hollow trees.

Sign of fisher is usually restricted to tracks in shallow snow, usually in a loping pattern resembling a marten track. However, fisher tracks are larger than marten tracks, and are consistently farther apart. In addition, fisher have five, usually evident, toe marks in each track. A two to three foot loping span is typical for fisher whereas marten seldom lope farther than two feet in one jump. In deep snow fisher will resort to walking rather than loping to take advantage of the snowshoe effect of their large feet, but the marten will continue its lope even in deep snow.

6. FOOD AND FEEDING BEHAVIOR

Fisher are opportunistic feeders and eat whatever may be available including snowshoe hares, mice, shrews, voles, squirrels, forest grouse, small birds and eggs. Carrion can be a very important food item especially in the winter.

Other foods include insects, reptiles, amphibians, various fruits and nuts. A mainstay of fisher diet can be porcupine. Fisher are noted as an effective porcupine predator. They kill porcupines by repeatedly attacking the head and face. After tiring the porcupine, the fisher flips the porcupine on its back and attacks the unprotected belly and throat. Usually most of the porcupine is consumed leaving the large bones, feet, intestines and a neatly cleaned skin as though the porcupine had been skinned with a knife. Other prey are usually killed by a bite at the back of the neck.

7. HABITS

Primarily active at night, fisher can also be active during the day, especially at dawn and dusk. Fisher generally lead solitary lives except for short periods during breeding season. Travel is usually on the ground, but fisher are excellent climbers and very agile in trees. They can even catch a marten in the trees. Fisher can swim if necessary although they apparently prefer not to. Traveling an average straight line distance of .8 miles per day for females and 1.7 miles per day for males, fisher move in rough circuits varying from 6.2 to 18.6 miles in diameter. Circuits are traveled at intervals of 4 to 12 days and the size is usually determined by food availability and the season. Home range size averages nine square miles for males and six square miles for females but varies with habitat quality and food supply.

8. POPULATIONS

Although fisher populations in Washington were evidently never large, the primary limiting factor is probably habitat destruction by large scale logging operations, especially clearcutting of large areas.

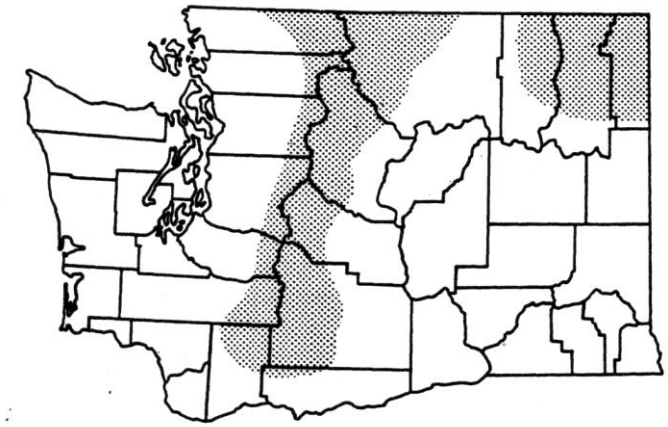
Most natural mortality of fisher seems to occur when they are kits. During this time they are subject to intraspecific fighting and chilling especially when the female leaves the kits for a short period within a few days after birth. Also, kits probably fall prey to hawks, owls, bobcats, coyotes and possibly black bears. The most important mortality factor of adult fisher is trapping. Parasites and diseases, although apparently not a serious mortality factor, do occur in fisher. Parasites found in or on fisher include roundworms,

flatworms, flukes, ticks, fleas and mites.

Fisher populations have been shown to be cyclic, following the snowshoe hare - lynx cycle by about 1.2 years especially in mid-western Canada.

9. MANAGEMENT

Fisher are a protected species in Washington State. Reports of sightings and sign are documented and confirmed when possible. However, very little is known about fisher in Washington.



WOLVERINE

1. NAME

Gulo gulo is the scientific Latin name given the wolverine. Gulo is Latin meaning glutton, which is one of the common names given wolverines in addition to skunk bear and devil bear. Wolverine are the largest terrestrial member of the mustelid or weasel family found in North America.

2. DISTRIBUTION

Records of wolverines killed, seen and tracks seen indicate that, although very rare, they may be found in northeastern Washington, Okanogan highlands and throughout the Cascade Mountains. They live primarily in the Canadian to Arctic-Alpine Life Zones and possibly into the Humid and Arid Transition (Timbered) Life Zone. Reports of isolated cases of wolverines being seen or killed near Wilbur in Lincoln County, Badger Mountain in Douglas County and Sunnyside in Yakima County over the past 30 years demonstrate that wolverines can show up in places thought very unlikely to be wolverine habitat. Wolverines evidently were never very common in Washington and apparently became even less common after the arrival of white men.

3. DESCRIPTION

Powerfully built and resembling a small bear, wolverine are noted for their arched back, short bushy tail, relatively long legs and large feet. The five toes on each foot are equipped with fairly long, large, sharp, non-retractile claws with which the wolverine can easily climb trees. Thick bristly hair covers the soles of the feet except for the foot and toe pads. Relatively small rounded ears are wide set on the broad head. The eyes are relatively small.

The pelage consists of short, dense, wooly underfur and long guardhairs which gives wolverines a shaggy appearance. Color is usually a blackish brown with light yellowish-brown to gray forehead. Two broad, light yellow to orange colored stripes begin at the shoulders and extend low along the sides over the hips and join on the rump at the tail base.

Wolverines, like other members of the weasel family, have two anal glands that secrete a rank-smelling, yellowish brown fluid. Male and female wolverines are similar in appearance but the males are generally larger. Adults range from 36 to 41 inches in total length including the seven to nine inch tail. Weights range from 16 to 38 pounds. The skull is massive and equipped with 38 strong teeth capable of crushing bones.

4. LIFE HISTORY

Both male and female wolverines reach breeding age as yearlings although males generally do not breed until they are two to three years old. Believed to be polygamous, male wolverines may breed with the one or more females found within his territory.

Two-year-old females will usually produce a litter. Breeding peaks in May and June but may take place from late spring into early fall. After breeding, the fertilized egg blastocyst does not attach to the uterine wall until January or February and may attach as early as December and as late as March. Thus, the gestation period is highly variable but generally believed to be between 215 and 275 days including the active gestation period of 30 to 40 days.

Litters averaging two to three young, ranging from one to six young, are born in February or March. However litters may be born as early as December and as late as April. Young are born with unopened eyes, unerupted teeth and fully covered with white fur. Dens may be in sheltered locations such as caves, rock outcrops, under logs or tree roots. Many dens have been found to be unlined holes dug down to the earth beneath snow. Weaning of the young begins about seven to eight weeks after they have been introduced to solid food when about six weeks old. The first solid food brought to the young is regurgitated from the female. Growth is rapid and the young leave the den in April or May. They usually reach adult size by early winter. Dispersal of young wolverines is subject to some dispute. Some believe that it occurs by November and others believe that the young remain with their mother through winter and disperse in the spring. Longevity of wild wolverines is believed to be 8 to 10 years. Captive wolverines have lived 15 to 16 years.

5. HABITAT

Primarily an animal of the boreal forests and Arctic tundra of Canada and Alaska, wolverines may, as evidenced from isolated records, be found in most habitat types in Washington. Preferred habitat is the timbered areas at higher elevations of the Cascade Mountains and even into the barren Arctic-Alpine areas above treeline. Evidently a requirement of wolverine habitat is that it is remote with infrequent intrusions by man.

6. FOOD AND FEEDING BEHAVIOR

Wolverine diets may consist of insects. berries, nuts. roots, fruits, carrion, birds, small mammals,and fish. Wolverines will eat nearly anything and go to great lengths to satisfy their appetite, as many a north country trapper can attest. Wolverines are notorious for plundering food caches and cabins as well as following traplines and eating trapped animals and bait. Although capable of killing large animals, wolverines more often eat the remains of kills of other predators. Wolverines have been observed driving bears, coyotes and cougars from a kill. Wolverines have been observed attacking caribou, elk and moose but their main prey items probably consist of rodents from beaver to mouse size. Wolverines may stay at a food source until it is consumed. Uneaten food is often cached by covering it with sticks, grass or snow and marked with sent or urine. Sometimes food may be hung in a tree.

7. HABITS

Very territorial animals, wolverines are generally solitary and thus high population densities are not found in any habitat type or area. Territorial males exclude other males, but allow females to enter their territory. Territorial females do not tolerate trespass of other females. Territorial males may have territories up to 195 square miles, whereas territories of females are about 65 square miles. Territories are marked with scent, urine and feces. Primarily nocturnal animals, wolverines may be active during daylight. During periods of good food supplies and good weather, wolverines have been observed following a three to four hour activity cycle. They hunt for three to four hours then sleep for three to four hours. It is not considered unusual for hunting wolverines to travel 20 to 40 miles per day.

8. POPULATIONS

Evidently wolverine populations were never very large. The greatest population limiter within the preferred habitat of wolverines is their own extreme territoriality. This, in conjunction with the continued encroachment and increased presence of man into once remote terrain, probably accounts for a low population of wolverines in Washington. Man is probably the greatest threat to wolverines, although there is a record of a wolverine dying of quills from a porcupine it had eaten. There are several records of wolverines being killed by wolves.

Parasites found in wolverines include flukes, tapeworms and roundworms, but parasites seem to be rarely responsible for mortality of wolverines.

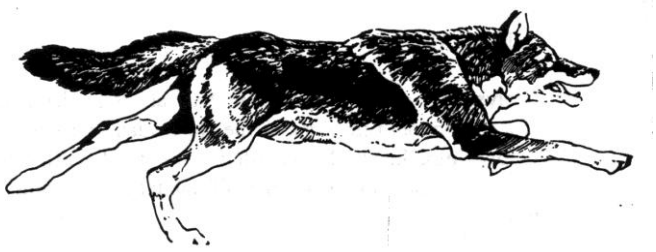
9. MANAGEMENT

In Washington, wolverines are a protected species. Sightings of wolverines and their sign are documented and verified when possible.

WOLF

1. NAME

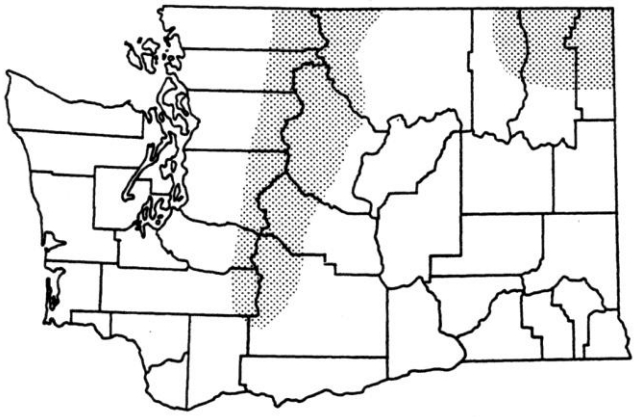
The scientific or Latin name for wolf is Canis lupus, meaning dog-wolf. Common names of the wolf include



timber wolf and gray wolf.

2. DISTRIBUTION

Before settlement of Washington by white men, wolves were found throughout most of Washington, particularly on the west side of the Columbia River and in the mountainous areas of northern, northeastern and southeastern Washington. However, wolves are now rare in Washington. No breeding populations have been confirmed. In the mid-1970's a wolf was killed in Douglas County, a wolf was captured at a campground in the Entiat Valley in Chelan County, and a trapper caught one in the Entiat Valley. Occasional reports are received of wolf sightings, primarily in the Cascade Mountains. Very few of these have been confirmed. Often a very large coyote or coyote-dog cross can be mistaken for a wolf. Wolves are an very rare animal in Washington.



Remnant populations of wolves may also be found in Idaho and Montana. Established breeding populations of wolves can be found in Wisconsin, Minnesota, Alaska and all provinces of Canada.

3. DESCRIPTION

Wolves are the largest canid found in North America. Similar in size to a large German Shepherd, adult male wolves average five to six feet in length and weigh 60 to 100 pounds, whereas adult female wolves are somewhat smaller. Adult wolves may measure up to three feet tall at the shoulder. Their legs are conspicuously long with large feet. The relatively short tail is held straight back when walking or running, unlike the coyote which does not usually hold its tail up. When compared with coyotes, wolves have ears with rounded tips and their frame is heavier and larger. A wolf's head is broader and more blunt than a coyote's. Pelage consists of long, coarse guard hairs and thick, soft underfur. Most wolves have a pelt coloration, similar to coyotes, of grizzled gray or a combination of gray, brown and black with light creamy white underparts. Pelt coloration in the far north varies from white to black.

4. LIFE HISTORY

Male wolves reach sexual maturity at three years of age and females at two years of age. A pair will mate for life unless one is killed. Wolves are highly socialized animals usually

found in packs of 2 to 14 individuals. Most packs contain only four to seven members consisting of the adult breeding pair, pups and close relatives. Only the dominant male mates with the breeding female which comes into heat for five to seven days between January and April.

A litter of 1 to 11 (usually six) pups is born after 63 days of gestation. Pups are born fully furred with eyes shut. At 11 to 15 days old the pups' eyes open. The female stays with the pups for the first several months, nursing them until they are weaned at about five weeks of age. During this time other members of the pack hunt and bring food to the female and pups. The pups, when about eight weeks old, are moved to a summer den also known as the rendezvous site. Pups begin learning about the pack relations and their place within the pack social structure when they first come out of the birth den at about three weeks of age. At about 10 months of age the pups begin participating in the hunt. As the pups reach adulthood they may remain with the pack or strike out on their own in search of new territory. Wolves may live to be 10 years old, but usually five to six years is the normal life expectancy in nature.

5. HABITAT

Wolves are adaptable to most habitats from desert-like Upper Sonoran Life Zone to the Hudsonian Life Zone just below timberline in the mountainous areas of Washington. An important component of wolf habitat is availability of prey species.

6. FOOD AND FEEDING BEHAVIOR

Primary prey species, in areas where breeding populations of wolves are found, include deer, elk, moose, bighorn sheep, caribou and beaver. Food studies of wolves in winter found that animals smaller than a beaver were seldom eaten. However, summer was the primary time when small animals including rabbits, hares, raccoons and mice were consumed. Also during the summer, vegetation and fruit was eaten. Wolves' digestive systems are well adapted to their carnivorous diet. Teeth of wolves are well designed for tearing and cutting large chunks of meat and cracking and crushing bone. Wolves will gorge themselves on a kill, eating up to 20 pounds of meat in one feeding. They are well adapted for going without food for up to seven days. It is even speculated that wolves can go for two weeks without eating.

Cooperation between pack members determines hunting success. A pack will track prey in single file until time for attack when they spread out and try to surround the intended victim. Another hunting strategy used by wolves involves the pack splitting up and one group driving the prey to the other group.

7. HABITS

As shy reclusive animals, wolves tend to avoid areas frequented by man. Wolves in areas inhabited by man are more nocturnal than wolves in areas where contact with man is infrequent. The highly structured pack society dictates breeding of only the dominant male and dominant female. The other members of the pack contribute to the caring of the young and the success of the hunt. The pack's home range can vary from 15 to 90 square miles during winter depending on the abundance of prey. Scent posts are used by a pack traveling regular runways to mark their territory. Wolves communicate with each other by howling, barking, posturing, growling and whining.

8. POPULATIONS

Aside from hunting and trapping by man, the greatest population limiter of wolves is the combination of social factors and food supply. When certain densities of wolves are reached within a specific area the population tends to stabilize if the food supply is abundant. A mortality rate of up to 60 percent of young wolves occurs when food supply is scarce.

Wolves are affected by a number of diseases, most of which are caused by internal and external parasites. Some internal parasites affecting wolves include flukes, tapeworms, roundworms and thorny-headed worms. External parasites affecting wolves include stable flies, black flies, horse flies, deer flies, mosquitoes, mange mites, ticks, fleas, tongueworms and lice. Rabies, a viral disease, is thought to be an important disease affecting wild populations of wolves. Other diseases and disorders noted in captive wolves include distemper, liver cancer, thyroid cancer, bladder stones and chronic nephritis, but their impact or prevalence in wild wolves is not known. Added factors possibly having significant effects on wolf populations include injury and accidents, malnutrition and social stress in addition to persecution and exploitation by humans.

9. MANAGEMENT

Wolves are a protected species in Washington and listed as an endangered species by the federal government in the contiguous 48 states. Reports of wolf sightings are documented and verified when possible.

BIOLOGY AND MANAGEMENT OF AQUATIC FURBEARERS AND ANIMALS

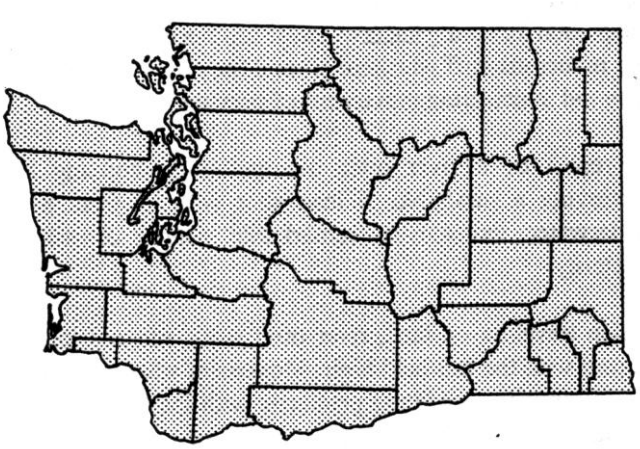
RIVER OTTER

1. NAME

River otter (Lutra canadensis) are members of the mustelid family. The first part of the Latin name, Lutra, is Latin for otter. The second part of the Latin name canadensis, is the Latinized form of Canada. Common names include northern river otter, Canadian otter, land otter and fish otter. The word otter is derived from the Anglo-Saxon words oter or otor.

2. DISTRIBUTION

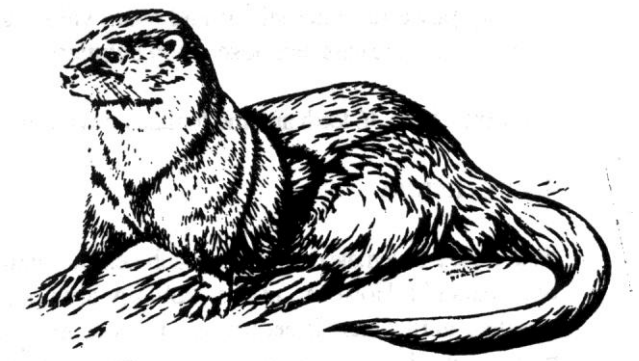
River otter are relatively common and are found in nearly all natural waterways of Washington. River otter use small intermittent freshwater streams during spring runoff and inhabit small streams, marshes, sloughs, rivers and lakes from the Upper Sonoran Life Zone to the Canadian Life Zone. They can also be found in the saltwater bays and inlets along the coast of Washington.



Distribution in North America includes most of Alaska, northern, north-central and eastern Canada, southeastern, northeastern and northwestern United States, Atlantic states, Gulf states, and Great Lakes states. Restricted river otter populations are also found in California, Colorado, New Mexico, Utah, Nevada and western Montana.

3. DESCRIPTION

Very well adapted for their aquatic existence, river otter are !one, slender and heavy bodied with short legs. The broad, flattened relatively small head is attached to a long, thick muscular neck. The muzzle is blunt with a large nose pad. The eyes are small, and well adapted for seeing food items in murky or dark water. Small, rounded, well-furred ears are set well back and low on the sides of the head. The long thick and somewhat flattened tail tapers to a point. The hind legs are longer than the front legs. The feet have five webbed toes and are fur covered except for the foot and toe pads. Each toe has a heavy blunt claw.



Pelage consists of short guard hairs and thick downy underfur. The underfur is so dense that it is essentially waterproof and thus protects the otter's skin from direct contact with the water, which would result in heavy loss of body heat. Pelt color varies from light brown to deep, nearly black brown with the darker coloration on the back and sides.

The belly is a lighter brown than the back. Typically the lower muzzle, jaw, cheeks, throat, chest and inside of front legs are a distinctly lighter color varying from a light tan to silver gray. However, this lighter coloration may, on some individuals, be restricted to the lower muzzle, lower jaw, and throat. River otters have numerous long, stiff, white whiskers on the muzzle, lower jaw and lower front cheek. Adult females weighing an average of 19 pounds and reaching an average total length of 44 inches are smaller than adult males which average 25 pounds in weight and attain a total length of about 48 inches. The tail averages 16 to 19 inches and is about 1/3 the total body length.

Superb swimmers, river otter have a snake-like agility and are very powerful. Internal ear and nasal valves allow river otter to close the ears and nose when submerged.

River otter have 36 teeth and the females have four mammae.

4. Life History

Both male and female river otter reach sexual maturity when two years old. However, males probably are not successful breeders until older. Breeding usually occurs over a three month period in late winter to early spring. Peak breeding period occurs in March and April shortly after the litter is born. Females are in estrus for about 42 to 46 days and will advertise for males by scent marking. Copulation usually takes place in the water but may occur on land. Males and females are promiscuous, however a male may defend his right to breed an estrous female. Before and after breeding male otters usually lead solitary lives. A study in Oregon concluded that most female river otter breed annually, although river otter in some parts of North America may only breed every other year.

As with most other members of the mustelid family, river otters have delayed implantation. Thus, the fertilized egg does not attach to the uterine wall for a period of time after breeding. Gestation ranges from 288 to 375 days, including the active gestation period of about 50 days. Beginning of active gestation, when the fertilized egg attaches to the uterine wall, occurs sometime in late January through February. An average litter of two to four young (range one to six) is usually born during March through April. However litters may be born from November to May. The blind and helpless young are born, in a natal den selected by their mother, fully furred with ears open. By three to seven weeks of age the young otters' eyes have opened and they have tripled their birth weight of about five ounces. Young otter begin playing with each other and their mother when 3.5 to 6 weeks old. At about seven weeks of age the young are given their first experience with water and begin to learn to swim. Also about this time they have learned to use a common toilet area. When about 8.5 to 10.5 weeks old the pups begin exploring beyond their den and are introduced to solid foods. A devoted mother, the adult female river otter teaches her young to swim and also forage for themselves by catching prey and releasing it for them to catch. At about three months of age the pups are weaned but may remain with the female until they are about a year old.

5. Habitat

Adapted to and dependent on aquatic habitats, river otter are found along the coast of Washington, especially in mouths of rivers and saltwater bays. They occur throughout the San Juan Islands and in rivers, streams, lowland lakes and high mountain lakes throughout Washington. River otter tend to avoid polluted waterways as well as adjacent area of heavy human impact. Most important habitat factors for river otter are amount and quality of water, denning sites and abundance of food.

6. Food And Feeding Behavior

River otter are opportunistic in their feeding, taking what is most available. Most of the food consumed by river otter is fish, but other items include freshwater mussels and snails, crabs, crayfish, amphibians, insects, birds (primarily injured waterfowl), bird eggs, small mammals and carrion of fish and waterfowl. Although occurring in smaller quantities than fish, the other food items are important in providing proper nutrition. The most abundant and slower fish will comprise the largest part of the diet. Thus fast swimming trout make up a smaller portion of fish caught. Fish most commonly caught and eaten include suckers, squawfish, carp, dace and shiners, all of which are "rough" fish or nongame fish. Fish are usually brought out of the water for eating. Small mammals killed and eaten by river otter include young muskrat, young beaver and mice. However predation on small mammals is infrequent. Foraging river otters dive after and chase fish; dig in the bottom materials of their aquatic environment; seize waterfowl from below; stalk land birds and mammals on land; and pillage eggs and nestlings from bird nests. River otter have a high rate of metabolism and food passes through the gut within an hour.

7. Habits

Typically river otter do not venture far from water, but often do travel short distances on land. They are very intelligent, curious and constantly exploring during most of their activity periods.

Hearing of river otter is acute and their sense of smell is apparently well developed. River otters' nearsightedness is an adaptation for seeing underwater. It has been speculated that the numerous stiff whiskers around the river otter's muzzle may aid in detecting movement of prey items in water.

A report of a river otter manipulating, dropping and retrieving a small No. 6 lead shot with its front paws underwater indicates a remarkable degree of manual dexterity.

When traveling on land, river otter walk, run and lope or bound with the tail held high. Movement when swimming slowly involves paddling primarily with the hind feet. For swimming fast, up to seven miles per hour, river otter move their tail and back part of the body in a strong undulating motion. Although not as graceful on land, a river otter was observed traveling at 15 to 18 miles per hour.

River otters groom themselves by scratching, rubbing and rolling in any relatively dry material such as grass and sand. This activity, done primarily for drying the fur to maintain its insulating quality, takes place in areas called rolling sites, scrapes, haul-outs, or landings. These areas are a common sign of river otter presence.

River otter are active primarily from dawn to midmorning and do most of their feeding at this time. They are also active in the evening. However river otter may be active during any part of the day. They are active year round. Apparently river otter along the coast of Washington are more active in estuarine areas during the spring. In the fall they are most active in freshwater areas. Much of the activity period, when not feeding, is spent playing or at least it seems like they are playing. River otter will climb onto a steep stream bank and slide down on mud, grass or snow head first into the water. Climbing back up the bank they will repeat this performance. River otter often play whether alone or in a group and they may use objects such as sticks, rocks or shells for playing.

River otter do not dig their own dens, but they do use dens of other animals such as beaver and nutria. Other den sites include hollow logs, log jams, piles of driftwood, piles of large boulders, unused boat houses and duck blinds.

A study of river otter in Idaho found little indication that they are territorial. But it was speculated that population density of river otter had a great deal of influence on whether or not they are territorial. River otter are constantly on the move except for females with young in a den. River otter tend to follow a regular circuit that is covered over a period of one to four weeks. Greatest distances traveled, other than during mating season, are during winter and may be two to three times greater (up to 60 miles) than the average circuit of 20 miles. River otter have been observed taking short cuts of up to 15 miles cross country. Males tend to travel farther than females, however all movements of river otter are related to availability of food.

In Idaho, river otter densities were estimated at three to four individuals, consisting of nonbreeders, subadults and family groups, per 9 miles of waterway. Density of breeding adult males was estimated at one per 12.4 to 18.6 miles of waterway.

Communication between river otter is primarily through vocal and scent means. River otter have several vocal noises they make including a loud chirp (similar to a marmot's), grunts, growls, snorts and bird-like chirps. Scent as a means of communication is apparently the most important. River otter, like other mustelids, have two anal glands which produce a scent that may be excreted when the otter is frightened or fighting. They maintain scent posts and leave scent at haul-outs, landings, rolling sites, diggings, bedding sites, dens or scrapes. Often the scent left is in the form of feces with scent on it, mounds of grass, dirt and leaves or tufts of grass twisted together with scent deposited on them. Thus scent marking is communicating to other river otter that an area is occupied. Adult males and females with pups may have somewhat well defined territories. Also used for marking areas, river otter fecal material may be found on points of land, haul-outs, rolling sites, logs and rocks protruding from the water. Fecal material may contain fish scales, bones and skeletal parts of crayfish.

8. POPULATIONS

Predation of adult river otter is probably rare, but predators of river otter include: coyotes, bobcats, lynxs, wolves, dogs, foxes, cougar, black bears and possibly eagles. The only predator that could have a significant impact on otter populations is man.

River otter are host to a number of internal parasites including roundworms, tapeworms, flatworms and thorny-headed worms. Parasites apparently contribute little to mortality of otter.

Diseases that river otters may contract include canine distemper, hepatitis, feline panleukopenia and pneumonia. Extent and impacts of diseases on wild river otter populations is not known.

Other mortality factors of river otter include road kill and starvation, however they have little effect on populations. Chemical pollution including DDT, PCB's and mercury may have a greater impact on river otter populations through interference with reproduction, direct mortality or mortality of food species. By far the most significant impacts on river otter populations; include reduced water quality from chemical pollution, sedimentation from soil erosion; stream bank habitat destruction by housing developments; and poor agricultural practices. Unregulated trapping can cause a decline in populations, however, if habitat is in good condition, river otter populations can recover. Currently river otter populations are stable on a statewide basis in Washington.

9. MANAGEMENT

River otter have invaded and eaten fish in private fish ponds and hatcheries. The greatest damage occurs at

hatcheries. They have also been accused of depleting game fish populations. There have been no studies that substantiate this latter allegation. In fact, existing studies show that river otter prey primarily on rough fish species and thus reduce competition for food with game fish species.

Presently a trapping season is open for river otter in all of western Washington. Four counties in Eastern Washington (Okanogan, Chelan, Kittitas and Yakima) have a trapping season with a quota of two river otter per licensed trapper.

River otter are also under authority of the Endangered Species Scientific Authority of the United States. This agency has required each state to provide information on status of their river otter populations. The Washington Department of Fish and Wildlife requires that all river otter trapped in Washington to be tagged.

From 1973 to 1982 in Washington the average annual reported catch of 432 otters was worth an average of $52.50 per pelt.

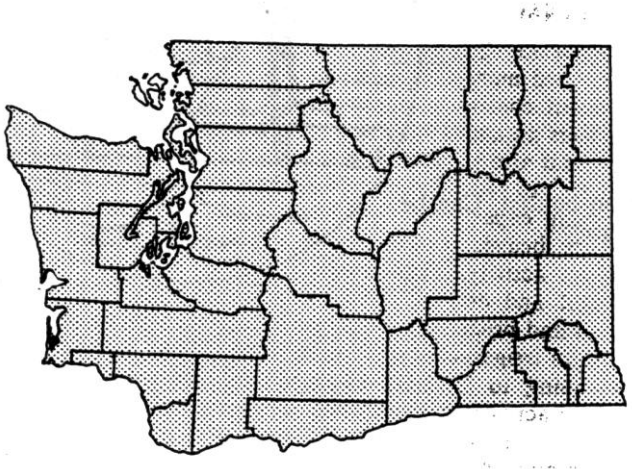
BEAVER

I. NAME

Beaver (Castor canadensis) are the largest rodents native to North America. The first part of their scientific name, Castor comes from the fact that both males and females have castor glands located under the skin between the hind legs.

2. DISTRIBUTION

A result of over harvest in the 1800's, beaver populations were extremely low or nonexistent in much of their former range during the early 1900's. Before the Europeans came, beaver could be found throughout North America from northern Canada and Alaska to northern Mexico. Presently, beaver are found throughout most of their historic range. Thanks to modern wildlife management programs, beaver populations are stable and increasing. Beaver can be found in suitable habitat throughout Washington.



3. DESCRIPTION

Beaver are well equipped for their semi-aquatic existence. They have a thick coat of light brown to dark brown fur consisting of longer guard hairs and shorter underfur. When groomed and oiled, the beaver's fur keeps it relatively dry and allows it to work in water under extremely cold conditions. A very striking characteristic of beaver is their flat scaly tail averaging 9 to 12 inches long and 3.5 to 6.5 inches wide. It is used for swimming, diving, signaling alarm, and maintaining balance when cutting trees and feeding. The tail also provides fat storage and is a heat radiator to help

regulate body temperature. The nose and ears of a beaver have internal valves that close when the beaver is submerged. A transparent membrane protects the beaver's eyes when underwater.

For cutting trees and feeding, beaver have large orange upper and lower incisors. The incisors grow continuously, but are worn down by tree cutting, feeding and gnashing them together. The incisors are harder on the front surface than the hack. Thus the back wears faster and creates a sharp edge which enables the beaver to easily chew through wood and fell very large trees. Behind the incisors are fur-covered lips that can be closed to allow beaver to cut wood and peel bark underwater.

Heavy toenails on each of the toes of the front feet aid the beaver in digging. The front feet are used for manipulating branches and twigs when feeding. The hind feet are very large with webbing between the five toes. Each toe on the hind feet has a heavy toenail except the second from the outside. These toenails are split and used for grooming the fur which is also oiled with oil from oil glands located next to the castors. The oil, castor, urine and fetes are all excreted through a common opening called the cloaca. Male and female beaver are indistinguishable by external appearances except for swollen mammaries on nursing females or enlarged teats on adult females. Beaver average 30 to 60 pounds in weight, although beaver weighing nearly 100 pounds have been documented. Weights over 60 pounds are not common. Acute senses of small and hearing compensate for the beaver's small, weak eyes.

4. Life History

Beaver begin breeding at the age of two to three years. A pair of beaver will mate for life unless one is killed. They will breed between January and March. After a gestation period of 100 to 110 days a litter of one to six young (average four) are born between April and June. The kits are born fully furred with eyes open and are able to swim shortly after birth. The female nurses the kits until they are weaned at about 8 to 10 weeks of age. The kits will remain with the adults until they are two year old when the adult beaver force them to leave. The two year olds then go off on their own in search of a mate and suitable habitat where they begin a colony.

5. Habitat

Beaver may be found where preferred foods are in good supply along rivers, lakes, marshes and small streams with adequate year round water flow. Beaver can be found in streams in the desert-like Upper Sonoran Life Zone to the high mountain lakes and streams in the Hudsonian Life Zone. Generally, beaver prefer relatively slow moving streams. With enough building material, beaver can alter their habitat by building dams and creating ponds. As a result the beaver increase water depth and surface area providing escape cover and some insurance that they will be able to move about freely under the ice during winter. By altering the stream, beaver improve habitat for many other species of wildlife and fish. Dam building activities of beaver increase water storage on streams, reduce sediment load, reduce erosion, increase the water table and increase the width of the riparian zone.

6. Food And Feeding Behavior

Preferred foods of beaver include the inner bark, leaves and twigs of cottonwood, quaking aspen and willows. However, they will eat parts of many other types of trees, shrubs, grasses and aquatic vegetation. In most cases beaver will build a food cache consisting of limbs and branches of food trees for use during the winter. The limbs and branches are shoved into the mud on the bottom of ponds or streams near the entrance to a bank den or lodge. During freeze up beaver feed on the branches from the food cache. Beaver have special stomach glands and a predigestion chamber called an appendix which aid in the digestion of the wood and bark. Beaver have been observed consuming their own feces, known as coprophagy. This is believed to help the digestive system obtain as many nutrients as possible from the woody food consumed.

7. Habits

Sign of beaver presence includes felled trees with the distinctive large teeth marks, peeled twigs and branches, slides and trails leading from water to trees or shrubs and dams. Beaver living along large rivers live in bank dens as do many beaver inhabiting smaller slow moving streams, where dams are built using any type of material available. In cases where a suitable bank den cannot be made the beaver will construct a dome shaped lodge of sticks and

mud. Colonies of beaver may contain 2 to 12 individuals per colony. The colony is usually made up of the adult breeding pair plus kits of the year and yearlings. In some instances there may be two breeding females in a colony. Once a pair of beaver establish a territory, they defend it by attacking intruding beaver. Beaver also make scent mounds of mud mixed with dead leaves and vegetation that has settled on the bottom of streams or ponds. The scent glands or castors produce a yellowish substance which the beaver incorporates into the materials placed on the scent mound. Thus, the beaver mark their territory by scent and possibly avoid fighting by warning intruders. In an active colony the beaver regularly visit their scent mounds to add more scent and materials. Also, where dams are present, active colonies will keep the dams in good repair and will constantly and progressively enlarge the dam as the water level increases. Many times a series of dams are built on a stream. Beaver are nocturnal, they are active during the night from dusk to daylight. However, beaver may occasionally be seen during the daytime.

8. POPULATIONS

By the early 1900's beaver populations in much of Washington had been overtrapped. In the early 1900's beaver were protected by law. When the Washington Department of Fish and Wildlife was formed in 1933 beaver were still protected. However, beaver populations began increasing, and for damage control, beaver were either harvested by Department trappers or live-trapped and reintroduced into new areas. Now beaver can be found in all counties of Washington except San Juan County. Beaver populations are affected primarily by availability of good habitat and by trapping. To a lesser extent populations are impacted by overpopulation, predation, parasites and diseases. Beaver kits are most vulnerable to predation. Predators of beaver include cougars, coyote, lynx, bears, bobcats. wolverines, mink, eagles, great horned owls and dogs. External parasites of beaver include lice and mites. Internal parasites include roundworms, flatworms and giardia. Tularemia may cause extensive die offs of beaver populations. Sudden thaws during the winter, resulting in flooding and entrapment of beaver in their dens or under ice can cause mortality.

9. MANAGEMENT

Prior to 1963 beaver management practices primarily addressed nuisance beaver control. Presently beaver management consist of setting seasons in an attempt to offer trappers an annual season during the period of pelt primeness and also address local damage control problems. The intent is to provide recreation, keep populations within the carrying capacity of their habitat and, in some areas to reduce beaver populations and minimize conflict with human activity. These conflicts include cutting of ornamental and orchard trees along waterways, flooding of roads and property from dam building activities and damming of irrigation or stock water ditches. Presently there is beginning to be more awareness of the importance of beaver activity in the ecology and hydraulics of streams, especially in the more arid areas east of the Cascade Mountains. A result of this increased awareness is more specific regulations being placed on individual streams.

Cooperation between trappers, landowners and the Department of Fish and Wildlife is needed to improve beaver management. Also important is educating the general public about the positive influences beaver have on streams.

From 1973 to 1982 in Washington the average yearly reported catch has been approximately 6,026 beaver, worth an average of $20.67.

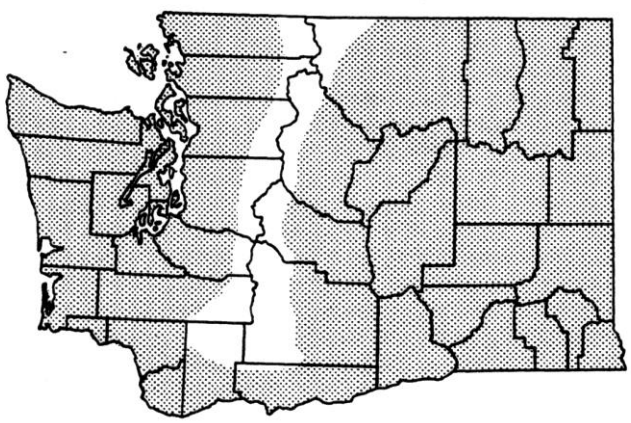
MUSKRAT

1. NAME

Muskrat (Ondatra zibethicus) is a member of the rodent family. Muskrats get their common name from a musky smelling secretion or scent produced by two scent glands located under the skin in the anal area of males.

2. DISTRIBUTION

Sometimes referred to as the "bread and butter" species of furbearers because they are so common and easily caught, muskrats make up the largest part of furbearers caught in Washington. Muskrats are found in all Life Zones throughout Washington as well as the rest of North America except Florida.



3. DESCRIPTION

Round bodied with small inconspicuous ears, muskrats look like a large rat. The muskrat is well suited to its aquatic existence. Like the beaver, muskrats have valves that close off their nostrils and ears to keep water out when submerged. They resemble the beaver in that they have furred extensions of their lips which can be closed behind the front incisors to keep water out when chewing or feeding under water. Unlike the beaver, muskrats do not have fully webbed hind feet. Instead they have a fringe of stiff hairs on the edges of the hind feet and toes of the hind feet. These hairs serve the same purpose as webbed toes enabling the muskrat to propel itself quickly through the water. The front feet have large claws for digging and are used for manipulating food materials while feeding. A muskrat's continuously growing large incisors, like all rodents, need to be worn down by chewing and grinding. A distinctive characteristic of muskrats is the somewhat flattened, not round, long scaly tail. Unlike the beaver's tail which is flattened from top to bottom, the muskrat's tail is flattened from side to side. The tail is used for swimming and as a support when muskrat are sitting on their hind feet when feeding. To help regulate body temperature, the tail also serves as a heat radiator.

Adult muskrats may weigh two to four pounds and reach lengths of 18 to 25 inches including the 8 to 11 inch tail. Fur of muskrats consists of long outer, guard hairs and thick soft underfur. Pelt color of individual muskrats ranges from light to dark brown on the back with light cream or silver on the belly.

4. LIFE HISTORY

Adult muskrats begin breeding in March. At this time they become very territorial and do a lot of fighting as evidenced by the increased number of damaged pelts taken in March. An average of six blind and naked kits are born in April after about 30 days of gestation. The kits are dependent on their mother for approximately 30 days. During this time the female may be bred and nearly ready to give birth by the time the first litter is able to take care of themselves at an age of six weeks.

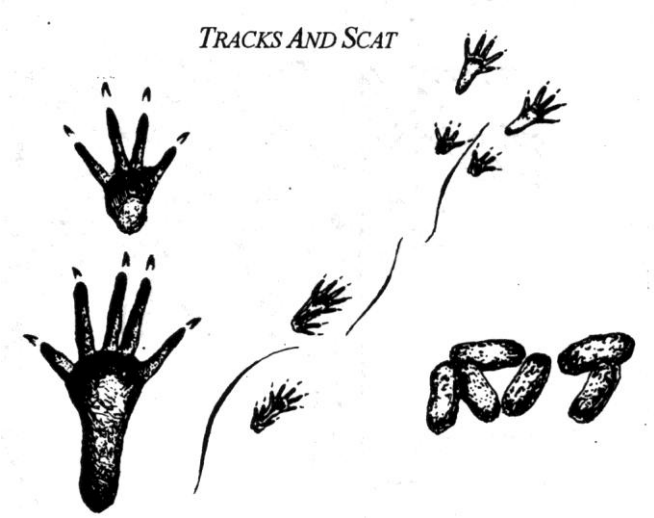
This type of reproductive potential, depending upon the amount and quality of the habitat, allows for as many as four litters to be born to a single female in one season. Additionally it is possible for females of the first litter to produce a litter in late summer or early fall. This high reproductive rate compensates for the high mortality among muskrats. Another factor affecting the size and number of litters is the population density. If density is low, litter size tends to be large and more litters are produced.

Young muskrats may remain in their parents home range until the next spring at which time they disperse to find their own territories. Pelt primeness patterns of muskrats can be used to tell adults from young.

5. HABITAT

Muskrats can be found in nearly every waterway, lake or pond in Washington. Large numbers of muskrats are generally found in lakes, ponds or slow moving

waterways where a good food supply of cattails, submerged vegetation, sedges and other aquatic vegetation can be found. Although muskrats will build houses of dead aquatic vegetation and root wads, most muskrats in Washington dig burrows into banks of the waterways they inhabit. Entrances of the burrows are underwater as are the entrances to the houses. Weakening of irrigation ditch banks and earthen dams by digging of burrows into them has been cause for persecution of muskrats in some areas. Muskrats have also been blamed for undercutting and sloughing of stream and pond banks as a result of their digging activities. Presence of muskrats in suitable habitat is apparent from houses; droppings on logs, rocks' and objects protruding out of the water; troughs leading to underwater entrances in shallow pond or lake sides; and paths leading from water to vegetation used as feed. Other muskrat sign includes floating vegetation that has been clipped and piles of clipped vegetation usually found under overhanging vegetation or in a well concealed spot on the edge of the water. Many times bank burrows will be cared in by livestock using the shore area.



6. FOOD AND FEEDING BEHAVIOR

Primarily herbivorous, muskrats prefer the roots and inner part of the stalks of many aquatic plants. Some of the plants they eat include cattails, bulrushes, pond weeds, watercress and sedges. Also muskrats have been known to eat agricultural crops including clover, alfalfa and corn if they are adjacent to inhabited areas. Animal matter has also been found to be a part of a muskrats diet including freshwater mussels, crayfish, snails, frogs and even other muskrats. Many plant foods eaten by muskrats are dug from the bottom or edges of ponds, marshes or streams and taken to a favored, usually concealed, feeding site. Discarded material from feeding builds up into what is known as feedbeds or feeding platforms.

7. HABITS

A primarily nocturnal animal, muskrats are not often seen out before dusk or after daylight. However, seeing muskrats out during the day is not uncommon. In March, at the onset of breeding season, muskrats begin dispersing in search of a mate and suitable territory. During the breeding season from early spring into fall, muskrats, especially the males and females with litters, are extremely territorial and will fight to drive away or kill intruding muskrats. When muskrats become too numerous an eat-out can occur wherein nearly all available food is eaten. In this situation much vegetation can be destroyed resulting in loss of both food and cover. The area of the eat-out is then virtually uninhabitable for muskrats and only a few muskrats may be found where once there were hundreds. Reestablishment of vegetation suitable for food and cover may take several years. In other cases, muskrats may enhance waterfowl populations by opening up cattail choked ponds. Excellent swimmers, muskrats can move through the water at speeds of one to three miles per hour. The two scent glands found in male muskrats become enlarged during the spring breeding season. They are usually not visible the rest of the year. The .glands produce a yellowish substance which is used for marking territories. Houses and burrows dug in banks are used for feeding, hiding, resting and as nests for raising young.

8. POPULATIONS

As with many wild animal populations, muskrat populations seem to be cyclic with peaks every 7 to 10 years. An annual mortality rate of approximately 75 percent of a muskrat population is considered normal. The majority of the mortality is made up of young-of-the-year muskrats. Muskrats may live three years, but very few do. Primary causes of mortality result from predation by mink, coyotes, raccoons, bobcats, great horned owls, hawks, weasels, dogs and man. When available habitat is in good condition muskrats are able to reproduce in sufficient numbers so that normal predation has little effect on the population. However, diseases resulting from too many muskrats can be devastating. Entire populations can be wiped out in a very short time. In Washington, tularemia is the only known disease that can affect muskrat populations. In other states an infectious hemorrhagic, also known as Errington's Disease, has destroyed under-harvested muskrat populations. In addition to predators and disease, muskrats are host to parasites including fleas, mites, tapeworms, roundworms and flukes and Giardia. Although no parasites are directly responsible for muskrat mortality, they may predispose muskrats to other types of mortality. Other factors that may impact populations include spring flooding which can drown early litters, flood burrows and houses and leave muskrats more exposed to predators. Flooding can also lead to a scarcity of food. Droughts can dry up good habitat, forcing muskrats to move or die. During extremely cold periods, ice formation all the way to the bottom of shallow lakes and ponds can freeze out muskrats.

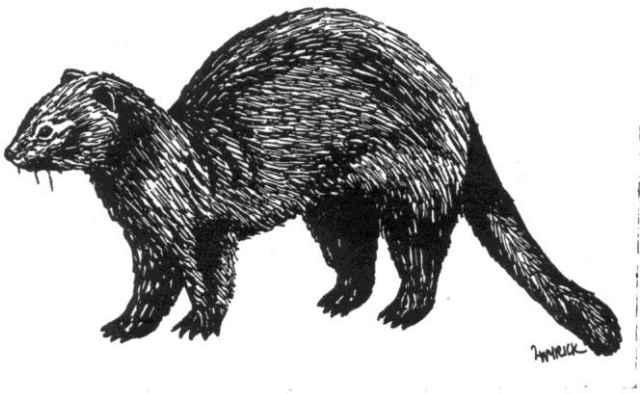
9. MANAGEMENT

Muskrat management in Washington has generally involved setting seasons to allow a harvest. The harvest helps to keep populations down and reduces eat-outs and disease caused die-offs. Muskrats left after trapping season will have less competition for food, cover and space. With fewer animals, there will be decreased chances of disease transmission between animals should a disease outbreak occur. Muskrats are also trapped to reduce damage they do to crops and the banks of streams, ponds and ditches. Current information suggests that most muskrats should be harvested during the fall and winter season, leaving the survivors to reproduce from February on. Higher populations can be maintained than with heavy spring trapping.

Other than trapping to reduce populations, another management technique can be employed to increase habitat for muskrats. Dams or levees can be built to flood areas and keep a constant water level which will allow muskrat populations to become established or expand. In many cases muskrat populations have expanded as a result of man's activities. The Columbia Basin Project and other irrigation projects are examples where muskrats have benefited from "progress". But muskrats are not generally welcomed by agencies and people responsible for maintaining ditches and canals.

From 1973 to 1982 the average annual reported catch of muskrats in Washington was 28,590 pelts worth an average of approximately $4.20 each.

MINK

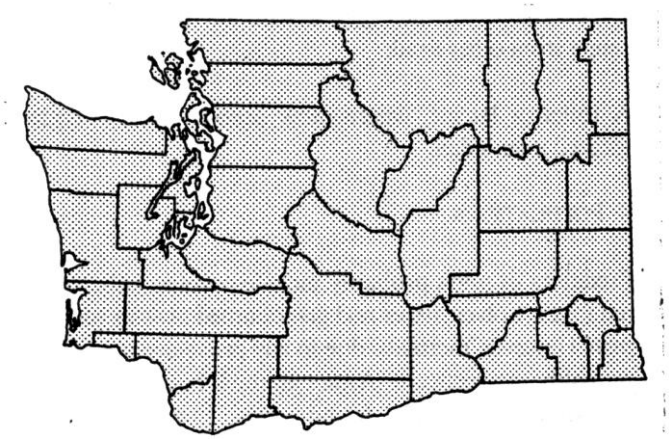


1. NAME

Mink (Mustela vision) are found throughout Washington near most streams and bodies of water. The scientific or Latin name, Mustela means weasel and vision is a Swedish word meaning type of marten that lives near water. The common name of mink is believed to be a variation of the Swedish word menk or the Old English word mynk.

2. DISTRIBUTION

In addition to being found throughout Washington, mink are found throughout most of North America. However mink are apparently absent from Arizona and have restricted distribution in Utah, New Mexico, Texas, Oklahoma, Nevada and California.



3. DESCRIPTION

A typical weasel-like animal, mink have a long thin body and neck, a small head with flattened, pointed face and small rounded ears. Short, sturdy legs with partially webbed feet aid the powerful swimming mink. The feet, with five clawed toes each, are fully furred except for the toe pads and soles. A bushy tail is one-third to one-half the total length. Adult male mink weighing 2 to 3.5 pounds are typically larger than adult females which weigh 1.5 to 4 pounds. Total length of adult males ranges from 23 to 28 inches compared to 18 to 23 inches for adult females. Mink have 34 teeth and eight mammae.

Pelage coloration of wild mink ranges from a rich chestnut brown to nearly black with white spots, varying in size and shape, located on the chin, throat, chest, abdomen and anal areas. Escaped ranch mink may result in pelts of almost any color. The soft fur consists of long glossy guard hairs and thick oily underfur providing mink with waterproof protection for their semi-aquatic existence. Sometimes a mink's underfur is white rather than the typical brown, these are referred to as "cotton" color. Mink undergo two molts each year. The spring molt, beginning in March or April, ends in July and the October molt continues through November.

Like all members of the weasel family, mink have two anal glands which produce a very strong musky scent. Some people think the odor produced by mink is more offensive than skunk. Scent is usually released when mink are frightened, excited or fighting. A high degree of curiosity with excellent senses of hearing, smell and sight make mink effective and efficient hunters.

4. LIFE HISTORY

Sexually mature at 10 months of age, male and female mink usually do not breed their first year. If they do mate their breeding success is usually poor. Solitary except during breeding season, male mink will travel long distances searching for females during the late February to early April breeding season. A male will mate with as many receptive females as he can find. Mating activity is very vigorous, with both sexes acting as though fighting and this well may be the case especially if the female is unreceptive. A female will mate with more than one male.

Before giving birth, pregnant females will select a den, usually near water, located in an old muskrat burrow, abandoned beaver den or other suitable site such as a hollow log, brush pile, tree root or in a rock pile.

Implantation is delayed, resulting in a gestation period of 51 days, but ranging from 40 to 75 days. An average litter of four young (range one to eight) is born 28 to 30 days after implantation. At birth, usually between late April and mid-May, young mink are blind and naked except for short, Fine, white hairs. At about three weeks of age, the kits' eyes open and they begin eating solid food brought by their mother. When about five weeks old the kits begin to explore beyond their den which is lined with grass, leaves, fur or feathers. At eight weeks of age young mink are weaned and about half the adult size. They are now capable of catching their own prey. The rapidly growing kits remain with their mother in her territory until late August when they begin to disperse. The adult male does not care for the kits during any period of their growth; in fact he may kill them. As with young of most species of wildlife, many young mink die during their first year. Survivors can live for three to seven years.

5. Habitat

A semi-aquatic animal, mink prefer habitat near swamps, marshes, streams, rivers, lakes, ditches, canals or ponds. Presence of mink is thought to be determined by availability of suitable dens as well as a good food source. Both must be within a relatively close distance to water. Mink will travel some distance from water when hunting. Shorelines with dense brushy or grassy banks or piles of large boulders are frequently used by mink. Cavities in piled boulders or brush and burrows made by muskrat and beaver are used by mink for dens. Log jams on streams are also favored hunting and denning sites.

Presence of mink in areas of suitable habitat is indicated by their tracks, often found in mud along wetland shores.

6. Food And Feeding Behavior

Efficient predators, mink will eat nearly anything they can kill. Strictly carnivorous, mink will feed on fish, muskrat, mountain beaver, small rodents, carrion and rabbits. Food studies of mink indicate that they are opportunistic and tend to feed upon what is seasonally available rather than hunting specific prey species. Unwary fishermen have found their fish catch stolen by mink.

Mink have been justifiably blamed for killing domestic fowl including chickens and ducks. Mink will also feed on muskrats caught in traps. Characteristically mink kill prey by a bite on the neck at the base of the skull. Also typical, mink will begin to feed on muskrat at the base of the skull, neatly peeling the skin back as they consume the meat. Other smaller food items are usually consumed entirely. Mink will cache food for later use.

Continually on the move, hunting mink thoroughly investigate all areas of their travel routes where they may find prey items.

7. Habits

Although they are primarily nocturnal, mink may occasionally be seen during day. Solitary, except during breeding season, adult male mink are active year round and will maintain a home range of two to three square miles. Although travel is usually restricted to within 1000 feet of a den being used, adult males are capable of traveling long distances in a single night's hunt. Males will use a number of dens in their home range. Adult females, also solitary except during breeding and rearing of young, maintain home ranges of about one square mile or about half the size of adult male home ranges. Movements of most mink are centered on a den they are using. Adult males tend to travel more than juveniles and adult females' movements are most restricted. Extremely cold weather or deep snow may cause mink to restrict their movements more closely to their dens. Dispersing juveniles may travel 2 to 28 miles in search of suitable habitat to establish a home range.

Excellent swimmers capable of catching Fish, mink readily enter the water when traveling, hunting, in pursuit of prey or for escape. In some areas that completely ice over, mink may use dens with underwater entrances and do much of their hunting under the ice.

Mink mark their home ranges with scent posts, however it is questionable whether they defend any part of their home range from other mink.

A toilet or latrine, where mink deposit feces, is typically located near a den.

8. Populations

Predators of mink probably include coyotes, bobcats, lynx, red foxes, wolves, fisher and great horned owls in addition to man. However, mortality due to any predators except man is probably insignificant. Although mink host many parasites including tapeworms, roundworms, flatworms, parasitic protozoa, mites and fleas, parasites are probably unimportant as a mortality factor of wild mink populations. Numerous diseases of ranch mink include tularemia, rabies and parvo enteritis. However, diseases having a significant effect in wild mink populations have not been documented.

Long lasting environmental pollutants including mercury, polychlorinated biphenyls (PCB's) and chlorinated hydrocarbon pesticides such as DDT, DDE and dieldrin all have been shown to cause mortality and reproductive failure of experimental and ranch mink. A significant number (50 to 60 percent) of the fertilized eggs are lost before birth, thus contributing to a lower reproductive rate. Good habitat including suitable den sites and abundance of food is probably the single most important influence on mink populations.

9. MANAGEMENT

Generally mink populations in Washington are stable, but some populations have declined due to habitat alteration and pollutants. Although mink have been responsible for killing domestic fowl and catching Fish in fish ponds, they do not pose a serious threat from a damage standpoint.

The single most important thing that can be done for mink is protection and enhancement of the wetland and riparian habitats upon which they are so dependent.

Pelt primeness is an important consideration in setting trapping seasons for mink. Mink pelts reach primeness in middle or late November but start deteriorating in quality by mid-December. Singeing begins in early to mid-January and skins are of little value after that. An average annual catch of 801 mink worth an average of approximately $14.21 per pelt was reported in Washington from 1973 to 1982.

NUTRIA

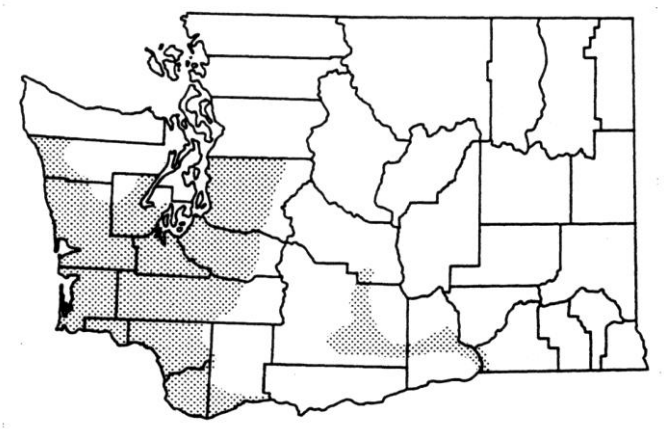
1. NAME

Nutria (Myocastor coypus) are also known by the common name of Coypu. The First part of the scientific name is a combination of Greek words, rays and castor, meaning mouse-beaver. Coypu is the name given the nutria by South American Indians.

2. DISTRIBUTION

Native to the southern part of South America, nutria were imported to the United States for Fur farms in the late 1930's. They were either released or escaped and are now found throughout much of western Washington, especially southwestern Washington. Nutria are found in eastern Washington but their range is very restricted. Most of the nutria in eastern Washington are found in Yakima and Benton Counties. At one time they had moved up the Yakima River into the southern part of Kittitas County. Evidently the extremely cold weather in eastern Washington prohibits nutria from extending their range.

Nutria are found in at least 15 states and one province. The



largest populations are found in the Gulf States and Mid-Atlantic States.

3. DESCRIPTION

Semi-aquatic and somewhat resembling a beaver, nutria may attain a weight of more than 37 pounds. However, average weight ranges from 15 to 18 pounds. Although similar in appearance, females are slightly smaller than males. Total length ranges from 34 to 42 inches including 12 to 17 inches of tail. The tail is very distinct in that it is round. It is covered with scales and scantily haired except for about one inch at the base which is furred. A nutria's head is rectangular in shape and larger in proportion to its body than beaver or muskrat. Nutria's ears are round, covered with short hairs and only the tips protrude from the long hair on the head.

Nutria have four large, reddish orange incisors that grow continuously and need to be worn down. The two upper incisors protrude noticeably beyond the upper lip.

Nutria have furred inner lips that can be closed behind the incisors, like beaver and muskrat. This enables them to chew underwater while keeping water out of the mouth. Short legged, nutria have five clawed toes on each foot. The small front feet, used for digging and manipulating foods while feeding, are not webbed. The hind feet are large with webs between all toes except for the two outer toes.

Pelage consists of three inch long, coarse, outer guard hairs, shorter secondary guard hairs and thick, wooly underfur. The underfur is thickest on the belly, thus making the belly fur the most valuable part of nutria pelts. The hair on the tapering muzzle is white. Nutria also have distinctly long, white whiskers on their muzzle. Fur on the back varies from a grizzled dark brown to a grizzled yellow brown. The sides and belly are a lighter color. The secondary guard hairs give the nutria their general overall coloration. A rather unique characteristic of female nutria is that their four to five pair of mammae are located on the back. Thus, the young can nurse when the female is in the water or in an upright position in the nest.

Two glands at the corners of the mouth produce an oil which nutria use to waterproof their fur. For marking sites within their home range, nutria have an anal gland. Droppings of nutria are similar in shape to muskrat droppings but they are about two inches long or over 2.5 times longer than muskrat feces. Nutria feces are also unique in that they have five distinct longitudinal grooves. Nutria in locations where extreme cold weather is typical may have the tips of their tails and parts of their feet missing from frostbite.

4. LIFE HISTORY

The promiscuous nutria are capable of breeding all year. Males reach sexual maturity at six months of age. Females are sexually mature at five months of age and can produce a litter before they are one year old. However, a study of nutria in Oregon found most females did not have their first litter until they were 1 to 1.5 years old. Young females tend to produce smaller litters averaging four to five young. Older females produce litters averaging six to eight young with the largest number being 11 young. Peak periods of birth in Oregon were in January, March and May with a small peak in October. Extended periods of extremely cold weather greatly reduce the survival of young nutria and interfere with reproductive activities of adults. In addition to weather, litter size is affected by food type and availability. After 128 to 131 days of gestation the young nutria, fully furred and active, are born in grass lined burrows or a floating platform nest made from available vegetation. The floating platform nests are usually concealed by tall overhanging emergent vegetation. Capable of swimming within 24 hours after birth, young nutria are often brought vegetation by their mother. However at one week of age young nutria can forage for vegetation on their own. Often they accompany their mother on excursions away from the nest. Weaning occurs when young are five to seven weeks old, but they can survive when weaned at five days of age.

5. HABITAT

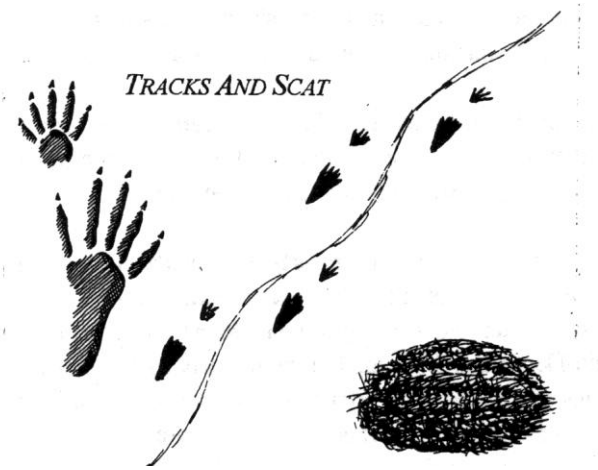
In areas of Washington not subjected to long periods of extreme cold, nutria prefer slow moving water or marshy areas. However they will live along rivers, lakes, streams, ponds and backwater areas. When inhabiting drainage ditches, canals, or ponds, nutria may dig burrows and cause banks or levees to collapse. Nutria skin infections caused by mechanical irritants such as burrs or beggar's ticks result in reduced pelt value as well as some mortality. Nutria are host to roundworms, flatworms, and tapeworms. Also coccidia infect nutria. Strongyloides myopotami, a roundworm parasite that infects nutria can also infect humans. Commonly called nutria itch, this infection results in a skin rash. External parasites found on nutria include ticks, fleas and lice.

Young nutria, like most other young animals, are more vulnerable to predators than adults. Predators of nutria probably include coyotes, great horned owls, foxes, great blue herons, hawks, eagles, raccoons, dogs and man.

6. MANAGEMENT

Nutria are not classified as a furbearer in Washington. However, reported catch of nutria is compiled from Trappers' Reports. In addition to being competitive with muskrat, nutria tend to be very destructive to localized habitat and may greatly interfere with agricultural interests.

From 1973 to 1982 an average annual reported catch of 485 nutria in Washington was worth an average of approximately $6.67 per pelt. Northwest nutria are considered the best quality pelts in North America.



HARVESTING TERRESTRIAL FURBEARERS

Special Note: It is unlawful to trap for wild animals with body-gripping traps except by permit to abate an animal problem. Body-gripping traps include, but are not limited to padded foothold traps, unpadded foothold traps, all snares and conibear-type traps.

The trap recommendations in this section are NOT for general season trapping. References to traps in this section on trapping techniques is intended only for those individuals trapping under a special permit or in states which permit these tools.

BADGER

Recommended traps for badger are medium sized (220) body gripping traps coyote size snares, foothold traps in sizes 2, 3, and 4 and the larger cage traps. Metal trap stakes should be used when trapping badger to prevent them from chewing the stake in two. Trap stakes should be long and firmly anchored because badger are very strong animals that often dig up the entire area within reach.

When trapping a burrow or den, stake as far away from the opening as possible to prevent the trapped badger from wedging himself inside the burrow. At a burrow entrance, set foothold traps slightly off to one side of the opening.

The common dirt hole set described in the coyote section is often used for badger. This set is made by digging a trap bed, driving a long stake secured to the trap, and setting the trap in its bed. Cover the pan to prevent rocks or dirt from becoming lodged under the pan. Sift removed material over the trap. Place your bait or lure inside the burrow. The same set can be made using a body gripping trap such as number 220, or a snare. The trap is secured and positioned over the burrow entrance, within which the bait has been placed. Remember to support the trap so it does not tip or move when the badger tries to enter the burrow. If you find an active den you may not need bait.

Quite often badger are taken in fox and/or coyote sets. If they are taken early in the season, you may wish to release them because badger pelts prime up later.

When releasing a badger, a catch pole becomes a handy tool. Secure the animal, taking care to keep his head away from you. Release him from the trap. If a burrow is nearby, lead him to the opening and release him from the catch pole. If no burrows are available release the animal and get back a safe distance because badger may make false charges.

It is recommended that badgers be dispatched by a shot to the head with a .22.

WEASELS (Long-tailed and short-tailed)

Preferred traps for weasels is the number I 1/2 foothold traps. It is large enough the animal is caught around the body and dies rapidly. Number 110 body gripping traps can be used but weasels will usually avoid the trigger.

When making a weasel set, the traps should be placed so the animal steps between the jaws - not over them. This set is very efficient and results in a quick death.

Weasels are bold and are not trap shy, therefore traps can be left uncovered. Weasels normally investigate all crevices and holes along their travels. Sets should be made around outbuildings, fences, rock walls, log piles or hay stacks. Any place mice are abundant will make a good trapping area. Simple cubby sets are good bets to catch weasels. Remember to stake your traps well, and avoid making sets where cats or dogs can be caught.

To avoid cats and dogs, make your set inside cubbies or boxes with small openings two to three inches in diameter. A cubby set can be made by placing a large rock at the front of a hollow log, leaving a small opening for the weasel to enter. This set also will work where snowfall may affect your trapping.

For added attraction to a weasel cubby set, use a predator lure and/or fresh meat bait. The bait should be placed well back in the cubby to force the weasel to cross over the trap. The trap should be placed within a few inches of the bait. Using this set, the animal will almost always be dead when you arrive.

RACCOON

Raccoons can be trapped using land or water sets. Common traps are numbers 1, 11/2, I 3/4 and 2 foothold and number 220 body gripping traps. Cage traps are often used for raccoon, especially where dogs and cats are in the area. A foot hold trap known as an "egg trap" is often used in urban areas as it will only catch raccoon.

In raccoon trapping, site selection is as important as the bait. A feeder stream or drain tile coming into a larger stream is an ideal site for a trap. Sets along water should be made to drown the animal. One should be selective with baits and lures so as not to attract domestic animals. Sweet or fruity attractors are effective for raccoon yet attract few cats or dogs.

A set can be made with a foothold trap attached to a slide wire by a one way slide lock. Stake solidly on the shore end then again in deep water with the lock set to slide to deep water. Another version involves staking the trap in deep water with an extension on the chain. Place a second submerged tangle stake for the trap chain.

Overhanging bank sets and cubby sets as described in mink trapping are also good sets for raccoon. Raccoons are often caught in mink, muskrat and beaver sets. All sets should be staked firmly to hold stronger animals such as the raccoon.

When trapping for raccoon on dry land or where there is not enough water to drown animal, drags or strong stakes should be used. If using stakes, be sure there is nothing nearby that the raccoon can reach to pull himself free. When using a drag, make sure the material is solid and large so the raccoon cannot chew through or carry the drag any distance. A good drag consists of 4 to 5 feet of strong extension wire on a log or pole that is up to 6 feet long.

Because raccoons follow the same trails regularly, trail sets are reliable. Using a drag or stake, secure the trap with the set in the trail. Place a "step over" stick, log, or brush 10 to 12 inches above the trap to prevent dogs and deer from springing your set. Remember to leave an opening for the raccoon to travel through.

Cage traps should be used near residential areas. Receive permission to use the property, backyard, etc. Set the trap using a whole raw egg for bait, and stake or wire down your trap. Grapes or marshmallows can also be used as bait. Avoid meat baits, they will attract dogs and cats. The size 220 body gripping trap is excellent for raccoon and very humane, but it should not be used where dogs and cats are found.

Properly made drown sets will result in a dead raccoon. Live raccoon may be dispatched with a .22 short to the head.

BOBCAT

The most common foothold traps are numbers 2 and 3 for bobcat. Snares can be used in certain sets.

Traps should be staked solid or attached to a large, sturdy, heavy or bulky drag such as a pole eight feet long and three inches in diameter. An extra swivel or two will help prevent the loss of animal and traps. Drags should have five to six feet of chain attached. Bobcats may climb a tree when caught in a trap with a drag.

There are several sets used for cats, including the cubby, trail and dirt hole sets. The cubby set is made by placing the bait inside a cubby made of natural material. The cubby should be constructed large enough for the cat to enter and it should have only one entrance. Be sure the bait is well inside and not visible to flying raptors. Set the trap at the entrance and secure it to a stake or drag. Apply a lure if desired. When available, fresh meat should be used for bait. Attractors such as chicken feathers or tin foil can be hung nearby to bring cats closer to the set. Cats hunt predominately by sight rather than smell. Stepping sticks or stones may be added to direct the cat into the trap. Natural cubbies such as small caves or burrows are attractive to cats and may be used as natural cubbies for sets.

A trail set is made by placing the trap in a trail used by the cats. You can avoid some non-target species by using snares in this set. The bottom of the snare is set 10 inches above the trail. The diameter of the set snare is approximately eight inches.

A third set is the dirt hole set as described in the coyote trapping section. Larger dirt holes (four to six inches in diameter) should be used for cats. Set and cover the trap. Use a bait or lure in the back of the hole.

Bobcats are not overly shy and may occasionally be caught in traps set for other furbearers, especially coyotes. Cats which are caught in traps when their season is closed should be released as soon as possible. Releasing a live cat from a trap is a formidable job unless you have the right equipment. A catch pole, essentially a hollow pole with a sliding noose attached, can be used to secure the animal as well as keeping it at a safe distance from you while opening the traps to release the cat. A catch pole should be added to every trapper's equipment because it can be used to release a wide variety of furbearers and domestic animals from traps. If a bobcat or other nontarget animal cannot be safely released unharmed from a trap you should contact the Department of Fish and Wildlife.

Cats are easily dispatched by a shot to the head with a .22 short.

MARTEN

Marten are not trap shy and will step into uncovered traps readily. But one must work when trapping marten because of the high elevation habitat in which they are found. Access is difficult and deep snow is common.

Commonly used marten traps are the number 1 and 1 1/2 foothold and number 120 body gripping traps. Of these, the 120 body gripping trap is by far the best since it kills the animal very quickly. Sets should be made so they are protected from snow. Meat baits must be concealed from birds. Good locations are under dense evergreen boughs or in cubbies.

Cubby sets can be made on the ground or in trees. Cubbies built on the ground can be constructed of small branches and covered with natural material.

Secure the trap to a drag, a tree or stake. Place the lure or bait in the back of the cubby and set the trap in the front. There is no need to cover the trap. Body gripping traps can be used in this set as well. Another set involves digging a hole next to the base of a tree or dense ground cover. This hole should be no larger than the size of jaws on the body gripping trap. The bait is placed in the bottom of the hole and the trap is placed over the hole. The trigger is spread into a "V" shape and the trap is then covered with needles or dry grass.

The running pole set may be constructed using a cubby on a slanted pole. The pole is leaned against and secured to a standing tree. The set can then be made using a box secured on the pole, with a body gripping trap at the entrance. See illustration.

Remember to have all sets protected from heavy snow accumulation. Always mark your sets and trails to the sets because heavy snows can greatly change the looks of the surroundings.

Meat baits work well for marten. Most lures will also help to attract this curious animal. Lures with skunk essence as well as jellies and jams work very well in cold temperature.

To dispatch a marten strike it with a sharp blow to the head; however, using good trapping techniques, almost no marten will be found alive.

RED FOX

When trapping for fox use snares or numbers 1 1/2 or 2 long spring, 1 1/2, 13/4 or 2 coil springs. Because raccoons and coyotes may be caught in fox sets use the trap that fits your need. Remember to stake or secure your trap for the strongest possible animal you may catch. Most fox trappers prefer to stake solidly and use short, 8 to 12 inch chains with extra swivels.

If you prefer drags or grapples use four to five feet of chain with an added swivel. Use this set only in heavy brush (not open country) so the chain and grapple can become entangled before the animal travels far.

Dirt hole sets are good sets for taking foxes. Prepare as described under coyote trapping except that in fox trapping the trap is set closer to the bait hole. Use a short chain when staking solid.

Remember to bed the trap solidly and cover the pan area to prevent rocks or dirt build up under the pan which will prevent the trap from springing. Foxes have a keen sense of small so use clean traps.

Scent post sets will also take fox as described in coyote trapping. Another set that is good for fox is the mound set. This set relies on the fox's curiosity and his habit of wanting to look over the area from a vantage point. A bait is buried adjacent to the mound, bale of hay, ant hill or small knob. The trap is set at the high point. The fox will smell the bait, approach, then climb the mound to check things out. This set will prevent most non-target animals from being caught because they will go directly to the bait.

Snares are excellent for taking fox at trail sets; provided you follow the usual precautions such as not snaring where there are deer and livestock, etc.

Fox can be quickly dispatched with a .22 short to the head.

COYOTE

Coyotes are shy and elusive animals. In order to be effective, extra care should be taken by the trapper when making sets. Foothold traps and snares can both be used efficiently. The most common foothold traps are sizes 2, 3 and 4 long spring and 13/4 to 3 coil spring. Remember that size 3 and larger foothold traps must have a 3/16 inch gap in the jaws when closed.

When trapping coyotes, all sets should be well secured because coyotes are strong and active. In soft or sandy soil use either extra long stakes or extra long chain (four to six feet). Drags may be used as well. Short chains of 10 to 24 inches are recommended when traps are staked solidly.

Consider the following when preparing to set traps for coyotes or foxes. Note the predominant wind direction. Coyotes and foxes have an excellent sense of smell. Pick open areas so that the animals can see around them; canids are curious animals and will investigate fresh diggings or strange smells. Coyotes and foxes prefer to climb small knolls to observe the surrounding areas. Use clean traps and leave as little human scent as possible at your sets.

When making the set, dig a shallow hole for the trap and bed it firmly so there is no movement. Secure the trap chain to a solid stake. Cover the pan area with a pan cover such as wax paper, cloth, or plastic baggie. Sift the loose dirt taken from the trap bed over the trap until it is completely covered.

A common set for coyotes is the scent post set. A small clump of grass, rock, stick or cow chip can be used. Pour a small amount of urine or lure on the object. Make your set (as described above) about 7 to 14 inches in front of the scent post.

Another set is the dirt hole set. When making this set dig a small hole two inches in diameter at about a 45 degree angle. Place tainted meat or lure in the bottom of the hole and cover bait with leaves or a small amount of dirt. Proceed with setting the trap as described previously.

Another common set is the trail set. This set is quite often used when the carcass of a dead animal is present. The sets should be made on the trails but no closer than within 30 feet of the carcass. This distance will reduce the number of non-target animals caught - especially birds of prey. Snares are excellent in this type of set since they don't catch birds. The new ram-powered, or killing snares are useful where there are no dogs around.

Remember that dogs are attracted to the scents and lures used for coyotes and foxes. Tainted meat is more selective for coyotes. Do not use exposed meat baits because you will attract hawks and eagles.

Coyotes are easily dispatched with a .22 short to the head.

OPOSSUM

Opossum are easily caught in either live or foothold traps. The smaller traps (number 1 or 11/2) are recommended. Opossum are often caught in sets made for other furbearers. They have a good sense of smell and are attracted to anything that smells like food.

To trap opossum in residential areas use a cage trap. To prevent taking dogs and cats you can use cage traps with selective baits or lures such as eggs, fruits or marshmallows.

When making sets for opossum it is not necessary to cover the trap. Secure the trap to a drag or stake it solidly in case it catches a stronger furbearer such as a raccoon. Place the bait under a log, in a tin can or in a hollow log do not leave it exposed and visible to birds. The opossum will find the bait by smell.

As with most small furbearers, opossum can be quickly dispatched with a .22 short fired into the head. Because the opossum's brain is small and well protected, some trappers prefer to dispatch opossum by breaking the neck.

SKUNK (Western Spotted and Striped)

Neither the striped nor spotted skunk is trap shy and may be taken in a variety of trap types. Most often, trappers use number 1 or I 1/2 foothold, number 120 or 220 body gripping, or cage traps. All of these traps will work but each has a specific application.

If you are trapping around farms do not use the body gripping and foothold traps unless you can place them where cats and dogs will not get in them. Set the traps under old buildings and inside cubbies, but not out in the open. Tainted baits will reduce the chance of taking domestic animals. Use a special skunk cage trap if possible.

There are skunk cage traps on the market or you can build your own. To build one construct a box with a sliding door on one end. The dimensions can vary, but 12 inches high, 10 inches wide and 24 inches long is sufficient. The sliding door on one end can be supported by a pin connected to the bait by a lever. When the skunk enters the trap and pulls back on the bait the top of the lever pulls the pin and the door drops.

When trapping with a cage trap, check your catch by standing the trap on the back end. Open the door an inch or two and look in. If you have a non-target species release it. If you have a skunk you can transport it to deep water and drown the animal.

Another set for skunks is the simple cubby set. Remember to stake securely and avoid areas with pets. Place the bait in the back of the cubby and secure it well. Set your trap and cover it lightly with grass or leaves or leave it exposed. Use either a foothold or body gripping trap for this set.

Skunks are often taken in dirt hole sets as well. Skunks investigate many food odors. Therefore, most sets are capable of taking skunks.

To avoid taking domestic animals select baits that are most attractive to skunks. Eggs make excellent baits. Make sets where cats and dogs cannot get into them.

To dispatch a skunk shoot it with .22 short in the heart or head.

Trappers can either leave the dead skunk for a day or remove it wearing gloves and leave it outside to be skinned the next day.

HARVESTING AQUATIC FURBEARERS

Special Note: It is unlawful to trap for wild animals with body-gripping traps except by permit to abate an animal problem. Body-gripping traps include, but are not limited to padded foothold traps, unpadded foothold traps, all snares and conibear-type traps.

The trap recommendations in this section are NOT for general season trapping. References to traps in this section on trapping techniques is intended only for those individuals trapping under a special permit

RIVER OTTER

When trapping for otter use mid- and large-sized body gripping traps, the number 220 Magnum or Conibear type works best, and strong foothold traps such as a number 4. Foothold traps should only be used in drown sets with a slide wire and a sliding lock. Many of the same sets can be used for either beaver or otter by changing the lure. Because otter damage their pelts by rolling and twisting when caught, be especially careful to use body gripping traps on land and drowning sets in water.

A common set for otter is the blind set with a body gripping trap. This set can be most effective when placed in narrowed areas of streams which link lakes or beaver pond systems. The body gripping trap is submerged and supported just off the bottom. Sticks and limbs used in this set should be put in place well before the trapping season so the animal becomes familiar with everything. Do not use green sticks to support the trap because beaver may feed on them. A cross stick is placed from bank to bank at the water level causing the otter to dive into the trap. Dead branches should be used to block the sides of the channel next to the trap. Secure the trap well because otter are strong animals.

Another set uses a foothold trap with a slide wire and a one way lock. This set is used where otter sign indicates a slide or feed area. See also the section on beaver. The trap is placed in shallow water where the trapper expects an otter to enter or leave the water. Otter lure or beaver castor placed on a small mound nearby will improve the chances of a catch. Otters have favorite feed logs and can be trapped at these sites with the drown set mentioned above. The trap can be set and stabilized on the log by chopping out a flat spot. Site selection and preparation should be done before the trapping season.

All sets should be made to drown or quickly kill the otter. If the animal is still alive dispatch it with a .22 short to the head.

BEAVER

Beaver should be trapped using number 3 or 4 foothold or number 220 or 330 body gripping traps. Foothold traps should only be used in drown sets with a slide wire and sliding lock. The slide wire is made of 12 gauge or heavier wire. The slide lock can be made from angle iron with two holes drilled in it, one on each arm. The wire is placed through one of the holes. The other hole is used to attach the slide lock to the trap chain. The slide lock should slide freely down the wire toward deep water but not return up the wire. Test the attachment of slide lock to slide wire each time to assure you have not put it on backwards.

The slide lock allows the trapped beaver to follow the drowning wire into deep water but prevents the beaver from coming back up.

Drown sets using the slide wire and lock are most commonly used at scent mounds, dam crossovers or trails entering the water. In all three sets a trap bed is prepared in four to six inches of water, the trap is attached to the slide wire by the lock and the weight (at least 30 pounds) is attached to the other end of the slide wire. The land end of the slide wire is attached to a stake. The weight should be placed in deep water (three feet or more), the wire should be pulled tight and the bank stake should be well secured.

The trap is set and bedded with the chain and lock as far down the wire as possible. With the trail and dam sets no lure is necessary but picked food sticks can be placed against the bank beyond the trap. With the scent mound set, use lure made from beaver castors and oil glands. Place the lure on a mound of mud and grass located on the bank just beyond the trap.

Another foothold set for beaver is the food station set under ice. In this set a dead log is placed through the ice at 45 degrees with a notch cut in the log to hold the trap. The trap should be secured to the log as far down as possible (at least two feet below the trap). Bait sticks such as birch, willow, aspen or cottonwood arc secured to the log above the trap. The log is firmly secured in the mud bottom.

A similar set can be made under ice by using a body gripping traps. A dead limb should run through two springs with one end firmly embedded in the pond bottom end, the other end poking out through the hole in the ice. Be sure to wire the trap to a support above the ice in case the pole snaps. The bait, fresh aspen, and cottonwood, is wired in place between the jaws of the trap closest to the limb. Be sure bait placement and wiring does not interfere with the trap operation.

Another use of body gripping traps for beaver is in narrow channels on creeks. These sets consist of making a narrow passage to force the beaver through the trap. The channel or passage is narrowed using dead sticks and natural material. The trap is set and secured in the center of the channel. A log or large pole is laid over the channel at the water level forcing the beaver to dive through the trap..

Number 220 body grippers are more effective and avoid many non-target animals when they are set beneath the surface. When using body grippers on this kind of set, always set the triggers straight down in the middle of the trap, with both wires together. This will result in the beaver being hit just behind the head and will result in a quick kill. Use the newer Conibears, or BMI Magnum type traps as these have very strong springs, resulting in a quick kill.

Beaver are strong animals so all sets must be made accordingly. Use dry poles where poles are part of the set. Use at least 30 pound drown weights, when using foot hold traps. Test all slide wire sets to make sure they work properly. Prevent non-target catches by proper placement of traps and the use of guide sticks.

If drown sets and body gripping traps are properly placed a captured beaver should be quickly killed by the set. Live beaver may be dispatched with a .22 short to the head.

MUSKRAT

Muskrats are easily caught using a number 1 and 1 1/2 foothold traps or number 110 body gripping traps. When using foothold traps for muskrats, care should be taken to ensure that the animal will be able to get to deep water where it will drown after being caught. The weight of the size 1 1/2 trap is usually sufficient to drown the muskrat. Size one traps should have additional weight attached to the chain.

If deep water is not available then you should use either body gripping or Stop loss traps.

The Stoploss was designed to prevent ring-offs with muskrats which have fragile front foot joints. If the animals do not reach deep water they can easily twist their foot off at the joint. Therefore, use the appropriate trap for the area you are trapping. Use stop-loss or body gripping traps where sufficient drowning water is not present. Use body gripping traps in channel sets or under ice. Use foothold traps where sufficient water is present for drowning sets.

Use body gripping traps in channels and den entrances. Body gripping traps are also a good choice when trapping under ice. Secure the trap to a pole and bait the trigger with carrots or other material that will not dissolve underwater. Nails or a trap holder will hold the trap in position against the pole. Place this set just below the ice (approximately eight inches). This set should be made near the den or along one of the runs. A foothold trap can be used in the same way. Secure the trap to a pole, set the trap on a cross member that has been nailed to the pole, and place the bait on the pole. This set will work under the ice but it is more successful if set in open water with the bait above the water. Remember to use a wire guard to prevent the taking of non-target animals when setting in open water.

Foothold traps on floats are effective for taking muskrats but they are also very visible and not recommended where there is heavy traffic by the non-trapping public. If you trap along a body of water with fluctuating water levels floats are necessary. They will keep your traps working most of the time.

Construct the float of natural material when possible, but boards may be used if natural material is not available. When using logs, notch the logs deeply so the top of the trap is even with the top of the log when the trap is placed in the notch. Make the float stable by adding a cross member, so the log does not roll over in rough water or when an animal crawls onto it. Attach the traps far enough apart to prevent the same animal from springing more than one set. If number I traps are used, either add extra weight to them or extend the chain by using two feet of wire attached to the ring on the chain. This prevents the muskrat from climbing the chain and not drowning.

Use baits not attractive to waterfowl such as carrots, apples or parsnips or lures made from the scent glands of male muskrats.

When placing muskrat sets on floats one should use added caution because waterfowl will use the same floats. To avoid catching waterfowl on floats, use wire guards just above the water and over the trap area. Also use baits that are least desired as food by waterfowl when trapping in waterfowl concentration areas. For example, use carrots instead of apples unless the bait is hidden from sight.

Use a submarine or funnel trap to take muskrats in their runs or channels. This trap consists of a cage trap with a funnel opening or one way doors. The muskrat swims in through the opening but cannot find its way out and he drowns in a very short time. Be sure that the trap is completely submerged. Block the channel on each side of the trap to make it successful.

Another set using the foothold trap along with a bait or lure is the bank set. This set is made adjacent to the bank in a few inches of water. To prevent wring offs with this type of set, the Stoploss trap is recommended. The trap secured in deep water with a stake and a second wraparound stake is placed a little farther out. There must be at least two feet of water to drown the muskrat. Block other possible routes to the bait with sticks and natural materials.

The Stoploss trap is essential where shallow water areas are trapped. Remember to protect this set from non-target animals and birds by the use of sticks and overhanging material.

Dispatch with a sharp blow to the head then hold under water until dead.

MINK

The traps and some of the sets used to catch muskrats may also be used to catch mink. Traps commonly used are number 1, 11/2 and 2 foothold traps and 110 or 120 body gripping traps.

The sets should be made to kill the animal quickly through the use of drown sets or body gripping traps.

Mink are very curious and investigate logs, rock piles, drain tiles, other animal den openings and holes in root wads as they travel. They also are animals of habit which travel the same trails from year to year. Curiosity makes the mink somewhat easy to trap.

The most common set for mink is the cubby set. Use either a natural opening such as a hollow log and muskrat den. You can make your own cubby by placing a small wooden box covered with natural material (grass or leaves) along the water's edge. Use scent or fresh meat bait as a lure in the back of the cubby. Either body-gripping or foot hold traps can be set at the entrance.

Blind sets do not use bait or scent as an attractor. The trap is usually placed in a normal travel route along the water's edge. The set is made under an overhanging bank or near natural obstructions such as tree roots or brush. This set uses a foothold trap on a slide wire secured in deep water for drowning the animal, or a 120 body gripping trap. Remember to secure the wire for the largest possible animal to be caught because this set may also attract raccoons.

Another use of the body gripping trap is the dry runway set. This set takes advantage of a mink's normal and predictable path of travel. In this set one places a body gripping trap in a natural opening between two logs or large rocks. Be careful to block all the sides of the runway and to camouflage the trap with natural vegetation. The trigger should be at the bottom of the trap. Be sure to anchor the trap with a stick driven in at an angle on either side of the trap. Also be sure to secure the trap chain to a drag or to a solid stake.

Dry land sets normally are not as productive as water sets for mink. In addition, caution should be used with this set because domestic dogs and cats can easily be caught. The mink sets described above were either drowning sets or instant kill sets. Therefore the animal should be dead when you arrive at your set. If the animal is not dead, it should be dispatched quickly by a sharp blow to the head.

NUTRIA

Nutria are easily trapped animals because they show very little evidence of being trap shy. Common traps used for nutria are 1 1/2 long spring or Stop loss traps, number 2 long springs or number 220 body gripping traps. Drowning sets should always be used with foothold sets. Stop loss traps are preferred because muskrats travel the same routes and are often caught in nutria sets.

Nutria sets may be placed either at feed stations or in well used runways. Traps should be securely staked because nutria are strong animals.

No lures or baits are necessary for trapping nutria in their runways or at feed stations.

Nutria may be dispatched with a sharp blow to the top of the head or with a .22 short to the head.

MARKETING OF FUR

Not all furbearers taken in Washington are sold for profit. Each year many of them are used for wall-mounts, full mounts, or are tanned and made into fur garments. All fur used for these purposes should be professionally tanned. Contact your local taxidermist or tannery for instructions on how they want the raw fur handled. Some prefer the animals brought into them whole, while others like them to be fleshed and salted down.

Many trappers sell animals to taxidermists, either locally or by mail. Taxidermists require that animals be skinned differently than for the fur trade. However, you should always call the taxidermist you are selling to as each may have specific instruction.

Most fur is sold for use in the garment industry worldwide. It may be used for coats, trim or linings. Demand for fur differs from year to year depending upon uses and fashion trends. Europe has been the largest buyer of many types of American fur but in the last few years China and Russia have become increasingly important in the fur market, with strong competition from USA and Canadian buyers. China and Russia have lower tanning and manufacturing costs and are producing an increased quality of finished goods. The weaker U.S. dollar has also helped drive prices higher almost every year. U.S. consumption of fur has increased 20% per year for the last several years. Changing fashions, emphasis on long or short-haired fur, length of coats, etc.also influences the price of fur. A quick look at the fur harvest and pelt price chart will show you fairly quickly that some furs are worth far more than they used to be while others are worth a lot less.

SELECTED HARVEST DATA AND PELT PRICES

Furbearer	*Data By Year, Harvest And Pelt Price*		
	1945	1973	1982
Badger	65 $2.60	49 $3.62	120 $34.59
Beaver	N.A.	5,936 $16.11	6,743 $16.18
Fox (Red)	195 $4.50	111 $35.43	103 $36.76
Marten	1,443 $36.00	15 $15.01	221 $26.50
Mink	10,688 $28.00	860 $8.24	1,134 $16.50
Muskrat	51,533 $2.28	21,637 $2.56	32,433 $2.72
Nutria	84 $2.25	537 $4.43	412 $5.99
Raccoon	5,394 $2.50	1,776 $12.27	3,098 $18.05
River otter	512 $34.00	365 $42.84	637 $30.65
Skunks	3,285 $1.50	236 $2.69	439 $2.00
Weasel	1,544 $1.85	69 $4.43	149 $1.00

PELT SIZE CHART

(ALL MEASUREMENTS IN INCHES)

BEAVER (length plus width)

XXXL (super blanket)	Over 68"
XXL (blanket)	64" - 68"
XL	60" - 64"
L	55" - 60"
LM	50" - 55"
M	45" - 50"
S	40" - 45"
Kits	Under 40"

BOBCATS (nose to base of tail)

XL	Over 36"
L	32" - 36"
M	28" - 32"
S	24" - 28"
Kittens	Under 25"

9" across butt

COYOTES (nose to base of tail)

XL	Over 41"
L	36" - 41"
M	32" - 36"
S	28" - 32"
Pups	Under 28"

10" + across butt

FOXES (nose to base of tail)

XL	Over 35"
L	32" - 35"
M	27" - 31"
S	Under 27"

9" across butt

MINK (length plus base width)

XXL	Over 34"
XL	29" - 34"
L	25" - 29"
M	22" - 25"
S	Under 22"

4" across butt

MUSKRAT (nose to lowest point on sides)

XXL	Over 17½"
XL	16" - 17½"
L	14½" - 16"
LM	13" - 14½"
M	11½" - 13"
S	10" - 11½"
Kits	Under 10"

6" across butt

NUTRIA

XL	Over 30"
L	26" - 30"
M	23" - 26"
S	20" - 23"
Kits	Under 20"

RACCOON (nose to base of tail)

XXXL	Over 32"
XXL	30" - 32"
XL	28" - 32"
L	26" - 28"
LM	24" - 26"
M	22" - 24"
S	Under 22"

About 8" across butt

There are several choices when it comes to selling your catch. The first is a local buyer. He often is or has been a local trapper and knows the fur in your area fairly well. Local buyers usually will buy whole animals, green (skinned but not fleshed or stretched) skins, or finished hides.

Local Sales

Advantages of local selling are:

- The local buyer will purchase the entire lot of fur and you receive immediate payment.
- You pay no commissions or shipping costs.
- There is no need to skin and stretch animals. You do not need a pelting room. It is not necessary to properly take care of hides in order to trap.
- You can sell whenever you want.
- You get to know the buyer personally and he gets to know you.

Disadvantages of local selling are:

- You should expect lower prices. Country buyers are the middle men in the fur business. They often speculate on what they will be getting for your goods. Often they are buying low and selling high, something they must do in order to make a profit and stay in business.
- Some buyers are not good at grading fur or do not know what price they will receive when they resell your fur. Fur prices often fluctuate in a season, making firm prices impossible to maintain.

Traveling buyers are similar to local buyers. Often they buy for larger companies and either arrive on fixed dates throughout the collecting season or will visit you by appointment when they are in the area. Often they will have firm orders for some varieties of fur so they know how much they will get when they are buying from you. They often buy from local buyers on the same trips. Usually, they are buying from you at the price you will sell, not at the price the fur is worth, so you may not receive as much for your fur as you would like. But they do come to you and make selling more convenient than selling by the methods which follow.

Many trappers sell by mail. Licensed trappers will get a number of price lists and shipping tags from fur houses. Trapping periodicals carry many ads of fur buyers who claim they will pay the highest possible prices with honest grading.

Selling By Mail

The advantages of selling by mail are:

- The trapper can sell whenever he wants without driving long distances.
- The fur buyer will usually buy your whole catch and your will get payment in a few days.
- There are no commissions taken out and some buyers will pay postage.
- Most mail buyers will "hold separate" for 10 days or so and will return your furs to you if you are not satisfied with the price. You should always check to make sure they will do this if you have not dealt with the buyer regularly.

Disadvantages of selling by mail are:

- Price lists can be very deceiving with some buyers quoting higher prices than what they will really pay. At other times changes in the market can make the lists obsolete. you may feel he is cheating you if he quotes a higher price but now has to pay less.
- Buyers may raise the price for one or two furs but then downgrade the rest of your catch to lower the real price that they are paying you.
- Any time that you are dealing with one buyer, you have the disadvantage of not having competitive bidding to determine what the market value of your catch is at the time you sell.

Auction Sales

Auction selling is available in Washington to those trappers who want to have their furs priced by several buyers at the same time. Several possibilities for auctions exist. One is the Washington State Trappers Association auctions. They are held in western Washington near Olympia, and sometimes in Spokane or Idaho. Three or four sales are available during the fur harvesting seasons and all of your catch can be sold on the same day. You can put a minimum price on your fur and not sell if the bids do not reach that price. There are usually three to twelve buyers bidding against each other for your fur. The commission rates run around 2 to 4 percent. The commission money is used to support the sale and activities of the trappers association. It is also a good chance to get together and exchange ideas with other trappers from your area and from around the state.

The main disadvantage is that, at some sales, there is not a lot of competition and, at those sales, your fur may not bring a very good price. Commissions are charged on fur that is withdrawn from the sale without being sold. Also, it often takes all day to get the fur sold.

The other possibility is to participate in major regional auctions such as the Fur Harvesters and North American Fur Auctions. These are large, international auctions with wide attendance. Often there will be more than 100 buyers at a sale. They usually offer four to five auctions a year with the quantities of fur being sold advertised through trade publications around the world. Your fur, unless in large lots, is sorted with other fur of the same species and quality into lots of a size found most desirable to buyers. A buyer can buy exactly what he needs for a particular order.

The advantages of auction selling include the fact that your fur will bring the market price due to the heavy competitive bidding. Grading is done by an experienced staff to assure that fur is placed in the right lots. Auctioneers get more for your fur because higher prices increase their commissions.

Auction selling is not without some problems. One is that the fur sales are held one to three months apart so you may wait some time before you can sell. Fur that does not meet the minimum required price set by the auction house is held over until the next sale, so it may not sell for several sales. Auctions charge around 11 percent commission on sales, which can amount to a fair amount of money. Also, market conditions can change between the time you catch your fur and the time it actually sells, so you may make more or less than you would if you had sold it right after catching it. There have been some complaints of auction personnel not grading correctly. Fur sold at auctions sometimes bring prices that are 10-50 per cent more or less within a month when the markets are not stable.

Basically, individual trappers will have to pick a method or combination of methods of selling fur that best suits their particular interests and needs. All methods have some advantages and some disadvantages. Selling fur is little different than playing the stock market; sometimes you come out ahead and sometimes you do not. New trappers are encouraged to contact other trappers, trapper associations or trapping publications for possible sources of buyers and for marketing advice before selling. A trapper who is up to date on marketing information and understands at least some of the complexities of grading fur is more likely to sell his catch for what it is worth.

PELT PREPARATION

Three things determine the value of a pelt: the current market, the quality of the fur on the particular hide and the way it has been handled. Since handling is the only factor you can influence, particular attention should be paid to this part. A good trapper takes pride in producing fur that is clean, well-handled and uniform in appearance. Well handled fur commands the best possible price because it is easy to grade, handle and resell. There are certain ways that each kind of animal should be handled to result in the best pelt.

Most animals (except beaver) should be skinned by a method called case skinning. First the animal should be dried, if it has been in water, and any burrs or lumps of dirt combed out of the fur. Most animals are dried either by hanging them up or placing them on several thicknesses of newspaper and turning periodically. After the animal is dried, a single cut is made from one hind foot pad to the corresponding pad on the other foot, cutting just in back of the vent. Another cut is made from the first cut, near the vent, to the end of the tail.

On muskrat, nutria and opossum, since there is no fur on the tail or feet, the cut ends at the fur line. After these cuts are made, the entire pelt is removed either by using a sharp knife to carefully separate it from the carcass or by simply pulling the skin down over the carcass. On larger animals like coyote, bobcat and raccoon, it is usually easier to accomplish this by hanging the animal up after doing the initial cuts and loosening the skin from the back legs and tail. The tailbone is removed by skinning it down a few inches and then pulling the bone out using a tail bone puller. The tail should still be split to the end to facilitate drying and to eliminate the possibility of the tail becoming rotten so the hair falls out.

When the skin is pulled down to the front legs, each leg should be skinned out to the elbow. You can then work your thumb between the leg and the body and pull the skin down the leg to the desired location. The elbow is usually the best spot to cut, although muskrat, mink and smaller animals are easily pulled to the wrist. Bobcats have desirable fur to the wrist. With other furbearers there is no reason to skin out the feet and claws unless the animal is going to be made into a rug or mount.

After the front legs are skinned, continue pulling the pelt down to and over the head. The ears should be cut off close to the skull and the eyes handled the same way. This allows you to work the skin down to the mouth and nose, both of which should be cut to remain on the pelt. You now have a long, inverted tube of fur, separated from the carcass that will have no fur left on it except for the feet.

BADGER

After skinning them cased, the pelt should be put on a fleshing beam and all flesh and fat removed. They are often pretty fat. When fleshing is done, take a sharp knife and cut directly up the belly to the lower lip. The badger can now be stretched on a piece of plywood by tacking it down in a somewhat rectangular shape. If you don't wish to stretch it open, you may leave in a tube and stretch in on a coyote stretcher, only a little wider.

Badger differ a lot in quality. Most badger are flat, with little underfur. These are known as hair badger and have little value. Others with a heavy fur and a good silver color command good prices.

WEASELS

Weasels are very thin skinned. When skinned and stretched cased with the fur inside they will often be dry by the end of the night. They can be turned or left with the fur inside. In the northern part of the state they turn white in the winter while in the southern part of the state they remain brown on the back. The white ones have more value but there is still little money in weasel and ermine fur. They are more of a curiosity in the fur pile than anything else.

RACCOON

Raccoon should be stretched cased with the fur inside and sold this way. They may be stretched on either wire or wood stretchers (keeping in mind to check for rusty spots on wire stretchers). It is important to stretch raccoon fairly narrow (about 8

inches across) and long for the best price. A fleshing board is almost a necessity to get all the fat and grease off a pelt. This must be done to prevent grease burn which will greatly downgrade the pelt. Of course, after drying, be sure to wipe the pelts with a clean cloth to remove any remaining oil.

Western Washington raccoon are superior to those from eastern Washington which are yellowish in color and have a coarser fur. Washington has a slightly better than average raccoon for North America.

BOBCAT

In the fur trade, bobcat pelts from western Washington are called bobcat. They tend to be red in color and have narrow white bellies. Eastern Washington bobcat pelts are usually called lynx cat. They are a pale yellow color with wider white bellies and heavier spotting pattern and fur.

They are stretched with the fur inside but then turned with the fur outside before completely drying. The western Washington bobcats vary a great deal in quality depending on the area. Lynx cats vary also. A few of the cats taken near the Cascades go in the fur trade as good quality bobcats while most of the rest are good to excellent quality lynx cats. Montana and Utah are noted for the best quality lynx cats, but many of our cats are nearly as good in quality. In years of good bobcat price, buyers from all over the world come here to bid on our bobcats and lynx cats.

MARTEN

Marten are easily handled like a big weasel. Usually they can be fleshed easily on a one piece stretcher and stretched on a one or two-piece stretcher. They are ready to turn the next day and need only one or two more days to dry. Remove pelts when the nose is hard and let them hang an additional day before storing them. Brush the fur out and they are ready for sale.

Cascade marten tend to be orange and wooly while marten from northeast Washington are darker, with less of a throat patch. The northeast marten sell better than the Cascade marten. Currently there is a good demand for marten pelts.

RED FOX

These are handled like coyotes; ending up with the fur out.

There are not many foxes taken in Washington but they have good fur and usually find a ready market.

COYOTE

Coyotes, and all the animals to follow, are handled fur in during fleshing and stretching but are all turned fur out after partly dried. It is important to let the skin partly dry before turning. If allowed to dry completely, the hide will be hard to turn and may rip while turning. If allowed to get too dry, it may be softened by placing a damp cloth over the shoulders for a few minutes. When you have turned the hide, it is not necessary to turn the front legs fur out, just be sure that the legs have dried. If they are still damp, it is better to salt them to prevent fur slipping. As with raccoon do not stretch coyotes too wide. They should be about 10 inches across. Coyotes are best handled on a two-piece fur stretcher, this lets air in to help with the drying process. All long-haired furs that are handled with the fur out in the final stage should be combed or brushed before going to market. This shows the fur in the best possible way and shows the fur quality better.

Coyotes that have been shot, or in some other way developed holes in the fur, should be sewn up. A regular needle and thread will do this quite well after the fur has been put on the stretcher. There is nothing sneaky about doing this; sewing the hole up tells the fur buyer whether or not there has been any fur lost with the injury or not.

When trapping coyotes, or other furbearers, pelt care begins in the field. It is important not to pile up warm coyotes or other animals as the heat will build up, causing the hair to slip. Clean any dirt or blood from the fur in the field, if possible. Check snares often as dead coyotes taint quickly. Always pelt the animals you catch quickly as they will spoil, particularly in warm weather.

Eastern Washington coyotes are better than those from western Washington. Western Washington furs are dark in color with coarse fur, while the east side furs have lighter colors, with some silky fur and white bellies. Some of these go in with the Alberta and Montana types which are considered the best coyotes in North America. Many others from the east side go as Northwestern types which is a very good grade. Coyotes from the Columbia basin and Yakima area tend to be reddish and have coarser fur which makes them worth less.

The market for coyotes has taken some real ups and downs in the past 10 years. But good mid-winter coyotes are still saleable.

OPOSSUM

These are handled like muskrat or raccoon; fur side in. They tend to be fatty and must be fleshed like a raccoon. While we have an average quality in Washington, there has not been much demand for them, only the larger sizes have ready buyers.

STRIPED SKUNK AND WESTERN SPOTTED SKUNK *(Civet Cat)*

Both may take some time to flesh to remove all fat on them. They are then stretched with the fur inside.

There is presently little market for pelts for either, even though in the 1930's and 1940's skunk was the mainstay of the fur trade.

RIVER OTTER

These beautiful animals are handled like mink but are harder to flesh. Since they have a long tail, particular care should be taken to flesh it well and tack it out to dry. Most buyers now want otter left fur in when sold. Always hang it for another day or so after removing from the stretcher to be sure it is completely dry. It is a good idea to check with your buyer to see how he prefers it. Otter have fur that singes easily and should be handled no more than necessary.

River otter should always be handled wet (i.e., keep the pelt wet when you skin, flesh and stretch the skin as this will reduce the amount of singe).

Washington otter have the best quality pelts in the lower 48 states and are in the top 10 percent of North America.

BEAVER

Beaver are skinned open by the following method. The animal is placed on its back and a cut is made completely around the tail at the fur line. Then a single, straight cut is made from the mid-point of the tail, around both sides of the vent, to between the bottom two incisor teeth and the lower jaw. Next the feet should be removed. This is done by a technique called knuckling. Cutting through the foot at about the hair line exposes a joint in the bones. After severing a few tendons, the foot can be twisted slightly and the foot will pop off at the joint. This will make skinning around the legs much easier later. After removing the feet, it takes careful skinning with a sharp knife to separate the skin from the carcass. A knife with a rounded end is useful to prevent cutting holes in the skin. Some trappers pull the skin off the back of a beaver. This leaves a thick layer of muscle which must be removed by fleshing later. Other trappers skin very close to the hide, which leaves almost nothing to flesh later. Either way, you should end up with a large, oval pelt, with four leg holes plus the eye and ear holes, and the nose still on the pelt.

Washington beaver should be stretched oval. This is done by sewing it on a hoop that is oval, or a round hoop, leaving the sides wider than the nose and head when sewing. You can also stretch them on a plywood board that you have drawn oval rings on. Beaver are sold using the length and width added together to determine size. Beaver lose about 2" during the drying process. You should keep a list of the sizes in your skinning room and stretch beaver so that they will stretch to the upper end of the size BELOW what it will stretch tight to. This will keep you from overstretching the beaver, result in thicker fur, and often bump your beaver into the shearable grades, which will mean more money. Do not overstretch beaver in the hope of getting more money. Overstretched beaver will always bring less as the fur is thinner.

Beaver can be fleshed using a fleshing beam and a two handled fleshing knife for most of the pelt and a sharp knife to remove

the flesh around the head and tail. They can also be fleshed on the hoop stretcher by putting a curved piece of wood under the hoop.

When the hide is being stretched, the leg holes should be sewn or nailed shut and the nose trimmed off.

After stretching, beaver pelts should be washed with a scrub brush and cold water on the flesh side. This helps remove excess oil. The pelts should have air circulation and cool (55 to 60 degrees Fahrenheit) temperatures for several days to dry properly. They should be removed from stretchers when drying is complete. If left on stretchers, they tend to break around edge of the pelt.

Always check drying pelts daily and use a clean cloth to wipe off any oil that appears. When removed from the stretchers, pelts should be brushed well and stored flat, fur against fur, leather against the leather, to avoid getting grease on the fur. Check stacked pelts frequently to be sure they do not start to mildew. If they begin to curl, place a piece of plywood on top.

Washington beaver are excellent quality, exceeded in western North America only by Alaskan beaver. Western Washington beaver are usually darker than those in eastern Washington but the quality of the fur is about the same.

When skinning beaver, you will notice two sets of glands near the vent. The larger glands, with the convoluted appearance and containing a yellowish solid, are the castor glands. The small glands are the oil sacs which contain a smelly oil. The oil is used by the beaver to preen and waterproof its fur. The secretions from the castor glands are used as a territorial marker when placed on a mud pie pushed up along the shoreline.

Mixed, these glands are an excellent attractor for other beaver. The castor glands are also sold commercially by the pound. Most places that buy fur will also buy castor.

Beaver Castors

Beaver castors are a very saleable by-product of the beaver and should always be saved and sold. Unfortunately, most trappers and many buyers don't know how to handle beaver castors to get the most money out of them.

The castor (and oil sacs) are located on each side and just above the vent. When skinning a beaver, they become visible as soon as the skin is peeled away. They are not a sexual gland, but are used to make a territorial odor. Both sets of glands are encased in a red fleshy sac which needs to be removed. Separate the two sets of glands and cut the oil sacs and remove the brown or yellow oil that is found in them. This should be kept in a plastic or glass container and is a good scent for other beaver as well as coyotes and other animals. The pair of castors should have all flesh removed from them. Use your hand and not a knife to remove most of the flesh and be somewhat careful as the castor glands will rip, which reduces their value.

Leave the glands connected and dry them by placing them on a rack (such as an old refrigerator rack) to allow them to dry. Don't let the glands touch each other as this will cause them to taint. Turn the glands each day so that every part of the outside will dry. The biggest mistake trappers make is to allow them to dry for weeks or months. This causes them to overdry and reduces the weight and thus the price you will get for them. Usually after 3 – 5 days the outside will be dry and you can feel that the inside is still soft and pliable. At this time remove them from the drying racks and freeze them until you are ready to sell them. Large beaver have the heaviest and best glands while small beaver have glands that contain almost nothing and are sold as shells, at a greatly reduced price.

Perfume makers and lure manufacturers buy most of the castors produced and the price varies considerably from year-to-year, but they are certainly worth the time it takes to care for them.

MUSKRAT

The fur on muskrat pelts should be dry before you stretch them. On these and all other animals, check for burrs and clumps of dirt because these will cause holes in the hide when the animal is being fleshed. Most muskrat pelts are handled on wire

stretchers. This gives a uniform appearance and is an excellent way to handle them. Always check wire stretchers to be sure they are not rusting. Rust causes stains on fur that will not come off. Most wire stretchers have two arms. Use one of these to attach to the bottom of the flap on the back of the muskrat. Pull the pelt down snugly but do not try to overstretch because this flap of fur is used to determine the color and thickness of the fur. If you wish to use the other arm to pull down the belly you may, but it is not necessary. Be sure the muskrat is centered on the stretcher, with the back on one side and the belly on the other.

Fleshing is easily done on the stretcher with a sharp knife. Remove only the fat and the larger pieces of flesh that are found under the arms and on the shoulders. Do not try to remove the thin muscle layer found on the back. A dull draw knife can be used to flesh muskrats if they are put on a small fleshing beam.

Muskrat pelts will dry in two or three days and, after wiping off any excess grease, can be stored by hanging in small groups of five to 10 pelts by stringing through the eye-holes. Muskrats are sold skin side out.

We have a good quality muskrat in Washington. It is not as good as in the northeast U.S. or North Central Minnesota and Wisconsin but one that is still quite desirable. Eastern Washington muskrats tend to be reddish while western Washington muskrats are, on the average, darker.

MINK

Mink should be stretched on a wooden stretcher. The fur handler should have boards in two sizes because female mink are much smaller than males. See the template included in this book.

Handling Wild Mink Pelts

Many wild mink are improperly handled by trappers resulting in a loss of money and less than desirable skins. There are several things to keep in mind when removing a trapped mink, including:

(1) Make sure there is no damage when removing a mink from the trap. If a mink is frozen to a trap, bring it inside and allow to thaw. Be sure there is no rust mark from traps on the pelt.
(2) If the mink is dirty when you remove it from the trap, rinse it out well so all dirt and sand is flushed from the pelt.
(3) Always dry the fur side of the mink before skinning it, being careful not to dry it in too hot an area as it may singe. It is best to dry it between 40 – 60 F on paper or hanging, using a fan to remove the moisture. Don't take too long to dry the animal as the skin may taint and hair fall out.

Pelting

Mink are skinned cased. Make your cut directly between the hind legs (and below the anus). Then make a triangle cut on each side of the anus and skin up the tail at least part way so the tail bone can be removed. The animal is skinned like a fox, coyote, or morten and feet are not left on the pelt (unless the pelt will be used for taxidermy). The head is skinned all the way out, including the small ear holes, lips and nose. The animal is now ready for fleshing.

Fleshing

The pelt may be fleshed on a solid wood stretcher but great care should be used to be sure that grease and oil do not get on the fur. Using fine saw dust is the best way to absorb this extra grease. Mink have a saddle of flesh with usually a layer of fat under this. You may either remove the whole saddle and all the fat, or you may leave the saddle on but squeeze out all the grease under it with a dull knife, spoon or other tool. Use only a dull tool for either of these processes as mink pelts cut or tear fairly easily. Again, take care not to get oil on the fur at the bottom of the mink skin.

Boarding

Always use a solid board for mink. Have a size for males and a smaller size for females. You can buy used ranch mink boards at most trapper supply houses and these are the correct sizes. Don't make your own as you will usually be too narrow or too

wide with your pattern. Always stretch wild mink fur in (leather out) and do not turn them. When putting the pelt on the board, center the head on one side of the board and stroke gently down the board from the head to make sure the pelt is on straight.

Do NOT pull on the tail to try and increase the length of the mink. Be sure the tail is split all the way to the end so there will not be taint or fluid build-up at the end of the tail. Put one tack in the middle of the tail at the butt end. Bring both legs around to the back side of the board and spread them out and tack them next to the tail. Make no effort to lengthen the tail or the legs as this will weaken the fur in the inspection area which you will see later.

Leave any excess skin in "pleats" between the tacks as this helps increase the density of fur. After tacking the legs down, spread out the tail from the butt to the bottom and at the same time push the tail up to make it as short and wide as possible. Use a small (3" – 4" square) piece of hardware cloth to hold the tail open and put in two or three tacks to hold it in place. Insert a narrow belly board up the belly side of the pelt to make removal easier after it has dried. Dry the pelt in a cool room (40 – 60 F) with good air circulation and wipe the pelts down each day as some oil will appear on the skin. You may remove the pelts at three or four days and hang them up in a cooler room until you are ready to sell them. When you remove the skin you will notice that there is a nice inspection area created that makes inspection of the fur color and density much easier for a buyer.

The huge number of ranch mink offered for sale worldwide controls the market and most wild mink is used for trim. Washington mink are not strong in color (except for a few sections) and tend to be flat. Still they are worth catching and, in some years, bring a good price.

NUTRIA

Nutria are stretched and handled just like muskrat. Since only the large sizes have a value, small nutria that are not seriously hurt should be released. The belly fur is more important than the back, unlike most other furbearers. Also the skin is a very dark color, even on the fully prime nutria. Washington and Oregon have the best nutria in North America and, when there is a good market for nutria worldwide, ours command top dollar.

RCW 77.15.194

Unlawful traps -- Penalty.
(1) It is unlawful to use or authorize the use of any steel-jawed leghold trap, neck snare, or other body-gripping trap to capture any mammal for recreation or commerce in fur.

(2) It is unlawful to knowingly buy, sell, barter, or otherwise exchange, or offer to buy, sell, barter, or otherwise exchange the raw fur of a mammal or a mammal that has been trapped in this state with a steel-jawed leghold trap or any other body-gripping trap, whether or not pursuant to permit.
(For the complete text of this and other laws, please refer to p.107)

Grading Of Mink Pelts

All fur that is sold is graded sooner or later into lots of comparable quality so that manufacturers have similar pelts to use in making coats, hats and other fur products. We will use mink as an example but all wild fur has somewhat of a similar system.

Mink are graded first by primeness. Mink pelts should be a creamy white color on the leather side. Only those pelts will go into the number one and then only if there is no damage to the fur. Number two mink are a slate or very light blue color. These are mink that are taken only a week or so before they are fully prime. Number three mink are very blue on the leather side and have very short fur all over, or they may be number one or number two pelts that have some damage (holes in the skin, damage to the fur caused by a trap chain, etc.) so were dropped a grade or two. Some late-caught mink (from later January or February) or mink with singe will fall into this grade. There is a number four grade which is black on the leather side, or very badly damaged in some way or other and these are virtually without value.

After the grade is decided, the mink are further divided based on fur quality and color. The color classes for wild mink are Dark, Brown and Pale. Usually darks are worth the most money and Pales the least, although this varies some years. Most mink will be Browns and Pales, with most areas in Washington State producing a small percentage of Darks.

When color is determined, the final grade determination is based on size. Most males will grade Large or Extra Large, and most females will grade Medium and Small. However, small males will be graded Mediums, along with the large females..

While this process may seem rather complex, it is actually fairly well simplified when selling to a country buyer, who usually only buts on a basis of Male, Female and off-grade skins or animals. But when this buyer resells them, or if you sell through one of the major auctions, you will see that many times each one of your mink goes into a different grade.

Freezing Fur

Many trappers will freeze up animals, skins or dried skins, either to hold them until they can work them up or sell them, or to hold them from one season to the next in hopes that fur prices will increase. There are some problems doing this which should be addressed so that the trapper doesn't end up with a skin that has no value.

First, animals can be frozen whole if you have a lot of freezer space but it shouldn't be done longer than two or three months as the nose and ears will start to freezer burn. Freezer burning is a process which actually dries out spots or pieces of skin completely, creating an area that will not tan later.

Often animals are skinned and the pelts thrown into a freezer, to be finished up later. This is okay if done correctly, but there are several rules to follow. First, do not flesh the hide first as the fat layer helps against freezer burn. They can be held for quite a while using one of two methods. One is to squeeze out all the air, roll them with the fur out, and push them into heavy (3mil) plastic bags before freezing them, being careful not to stack them up so the cold can get to all pelts and freeze them faster. The second way is to wet the pelt down and put it in a gallon milk carton and then fill the carton with water and freeze that. This method keeps the hide from freezer burning for a longer period of time.

The most successful way to keep dried fur until next year is by freezing. Often, if you just hang pelts up in a cool room, fur eating insects will be attracted to it and the fur will be ruined before the next year. Putting dried skins into plastic bags and freezing them will work. However, usually skins kept that way will stall have tell-tale yellow color to the fat deposits and buyers will still downgrade this fur to stale, making it worth half what fresh skins are worth. Is the dealer cheating you? No, the longer a skin is held the less likely it is to tan; so stale skins, skins with freezer burn, or other skins that haven't been handled correctly are worth less all the way to the manufacturer.

Turning Coyote And Other Skins

A number of animals such as coyote, bobcat, fox and marten should be turned fur side out during the drying process. This is done quite easily if you turn them at the right time. If you do it too early in the process you will see that the hide taints or spoils and becomes worthless. If you turn the skin too late you will find it will be almost impossible to turn or will rip when you attempt it.

All of these animals should be stretched on wood stretchers fur side in after they have had the excess fat and flesh removed. They should be dried at 60-70 degrees in a room with good air circulation. The drying time will very with the species and the temperature it is dried at.

Marten may be ready for turning after a few hours while coyote pelts may require 10 – 14 hours. Check the sides and neck of the animal to be sure that the skin feels nearly dry (but not completely). Remove the animal form the stretcher and hold it by the head in. Push the nose in through the mouth and invert the entire pelt this way until you can see the nose coming out through the bottom of the pelt. You can usually grab the nose and pull it through. Now the entire skin is inverted and the fur is on the outside.

Place it back on the stretcher and pull it down snugly. Always comb the fur well to remove any dirt and to give the buyer a good view of fur quality. Replace a few of the pins that hold the feet on and allow it to dry one or two more days on the stretcher. Then remove it and allow the pelt to hang another day in the drying area to remove any damp spots where it touched the stretching board. You should then store the pelts by hanging in a cool room until shipping or selling them.

FUR DAMAGE TERMS

Badly Shot	peppered by shotgun or large rifle; bad bites are often listed in this class
Badly Sewn	where legholes and cuts are poorly sewn, or where bad damage has caused much sewing
Bitten	usually found in beaver and muskrats and caused by late spring trapping; sometimes may be from poor food or overpopulation
Burnt	pelt cracked by fast drying beside a stove or in hot wind or sun; also caused by grease left on pelt
Coarse	pelt hard to the touch; late caught
Complete	fully covered with guard hairs, usually found in unprimed pelts
Flat	guard hair lying flat due to lack of underfur, found mostly in early, unprimed pelts
Immature	skin taken too early with less than usual growth of guard hair and underfur, generally shows weak guard hair short in development
Loose	top hair coming out because of roots exposed in early-caught skin or because of too-deep scraping
Low	not fully developed guard hair or underfur, generally found in early unprimed pelts
Overgrown/Springy	usually found in late-caught skins when the underfur begins to fall out or has fallen out
Overstretch	stretching the pelt beyond normal size; thins the leather and gives a flat, weak appearance
Rough	heavy rubbed skins, late caught
Rubbed	guard hair rubbed off, open and weak, late-caught
Scored	path of bullet or knife through fur leaving along bald, blood-stained marks
Singed	guard hair bent or hooked; most common in mink and otter when pelt is affected by warm weather and bright sunlight; sometimes caused by excessive handling of the pelt and by heat drying
Snared	fur rubbed off pelt by snare wire
Speared or Clipped	guard hair or underfur is missing or fur is eaten by mice before the pelt is prepared
Tainted	hair-slip of guard hair and underfur, one of the worst kinds of damage; it is caused by the rotting of the pelt before dressing
Understretch	stretching smaller than normal size, causing wrinkle sand sloppy appearance

GLOSSARY

Altricial Pertaining to newborn animals that are completely dependent upon the parents' care for survival; altricial young are usually born naked and blind

Amphibians A class of vertebrates that begins life in the water, breathing with gills and later developing lungs

Anal glands Specialized cells or organs, located near the anus, that produce and excrete a substance used to mark territorial boundaries

Bacteria Common one-celled micro-organisms; some cause disease while others assist in the breakdown of plant and animal matter

Blastocyst An early state of an animal before it is born, consisting of one or more layers of cells around a hollow core

Body gripping trap Unlawful for use in Washington State without a special permit issued by WDFW; a trap which catches and holds an animal by the body; usually designed to kill the captured animal

Boreal An area of plant and animal life in the northern part of the continent, just south of the tundra

Breeding season The time of year when an animal mates and bears young

Blue pelt An unprimed pelt which when dried is a dark blue or black on the skin side

Cache Food stored for use at a later time

Cage trap A trap designed to enclose an animal and usually to hold it alive

Canids Members of the dog family (wolf)

Canines Sharp, pointed teeth found on both sides of the upper and lower jaw

Carcass The part of an animal which remains after the pelt has been removed by skinning

Carnivore An animal that primarily eats other animals

Carrion Dead animals available as food for other animals

Carrying capacity A term referring to the number of animals that a given area of habitat can support

Cased pelt A pelt that has been skinned by cutting across the hind legs and pulling it down over the body

Castor An odorous substance produced by paired glands in the beaver; widely used in lures and the perfume industry

Catchpole A slip-noose on a rigid handle used to aid in releasing accidental captures or too-small animals

Clear pelt In mink and otter this term indicates an even change in fur color from underfur to guard hairs

Coniferous Types of trees that have needles and cones; coniferous trees usually stay green all year

Cotton mink A mink pelt with white underfur

Crepuscular Animals which have major activity periods near dawn or dusk

Cubby A small enclosure, either natural or man made, that prevents an animal from getting to the trap bait except from one direction

Delayed implantation In animal reproduction, refers to the fertilize egg not implanting and beginning development for some time after mating
Occurs

Dispersal The one-way movement of animals from their place of birth or home range, often coincides with sexual maturity

Diurnal Active during the day

Echinococcus A tapework parasite that can form cysts in humans and other animals

Ecological succession The progressive changing of types of plants which occurs over time (e.g., following a fire)

Ermine The white color phase of the weasel

Ethics A personal code of behavior

Fleshing The act of removing excess fat and meat from a pelt

Fleshing beam A large wooden or fiberglass form designed to hold and support the pelt while fleshing

Foothold trap Unlawful for use in Washington State without a special permit issued by WDFW; a trap which catches and holds an animal by foot to either hold it alive or drown it

Foot snare A trap designed to catch long-legged animals by holding the foot in a wire noose

Fossorial An animal adapted for burrowing or digging

Frostbite A serious health hazard involving the freezing of the skin or other body tissues

Fur dressing The tanning process

Fur stretcher A frame for allowing the fur to dry in a standard shape; does not actually "stretch" the pelt

Gait The way an animal moves its feet when it walks

or runs

Gambrel A frame or device for hanging an animal by the hind legs for skinning

Gestation period Length of pregnancy

Grapple A hook-like device attached to the trap which allows an animal to move from the trap site before becoming entangled

Green pelt A pelt which has not been stretched and dried

Guarded trap A trap with an extra spring device to pin the animal and prevent it from twisting or pulling free

Guard hairs The long, glossy hairs that overlay and protect the softer, denser underfur

Habitat The place where an animal lives; principal components are food, water, and shelter

Hair follicle The part of the skin that produces and holds the hair or fur

Herbivore An animal that primarily eats plants

Hibernation A state of inactivity that some animals enter in winter

Home range The area over which an animal travels in its day-to-day activities

Hybrids The offspring of two animals of different species or races

Hudson Bay Co. An early British fur trading company that continues to this day

Hypothermia A serious health risk involving loss of body heat resulting in loss of coordination and possibly death

Incisors Front teeth between the canines on the upper and lower jaws

Juvenile Young born during the current year

Lap-link A metal ring attaching the trap to the stake so that the chain can rotate

Litter A group of young born to a female at a specific time

Lure A substance or device used to attract an animal to a trap

Lyme disease A potentially serious disease transmitted by the deer or bear tick

Malnutrition The result of poor or inadequate diet

Mammae Female glands that produce milk for young

Molt To shed the outer hairs or feathers

Mortality Death rate; the number or proportion of a species that dies annually

Musk An oily secretion, usually foul smelling, from anal glands of some animals

Mustelids Members of the weasel family (e.g., mink, etc.)

Natal Connected with birth (natality = birthrate)

Nictitating membrane A transparent, inner eyelid that keeps the eye e moist and clean

Nocturnal Active at night

Non-target animal Species for which a trap was not intended (e.g., protected wildlife, closed season furbearers)

Omnivore An animal that includes both animal and plant material in its normal diet

Open pelt A pelt skinned by cutting down the midline of the belly

Opportunist An animal that takes advantage of the most abundant or easily obtainable source of food

Pan cover A piece of canvas, cloth, plastic, window screen or other material placed over the trap pan to prevent the soil from getting under it

Parasite A plant or animal that lives on or in another species without benefiting the host

Pelage The hair or fur of an animal plus the skin

Photoperiod The length or amount of daylight; helps regulate fur priming, breeding, etc.

Polygamous Having more than one mate

Predator An animal that kills and feeds on other animals

Prey An animal that is killed and fed upon by another animal

Prime pelt Normally refers to a pelt in which the winter fur is completely grown in and the hair follicles completely mature

Promiscuous Breeding with many members of the opposite sex

Rabies A serious viral disease of warm-blooded animals transmitted primarily in the saliva of infected animals

Raptor Bird of prey (e.g., hawk, owl, etc.)

Raw fur A pelt that has not been salted or tanned (may be stretched and dried)

Regurgitate Throwing up partially digested food from the stomach

Renewable resource A naturally reproducing resource that generates a surplus which can be harvested

Reproductive potential The total number of young which individuals of a species annually gives birth to, assuming no mortality

Retractable claws Claws that can be withdrawn back into the animal's toes

Riparian Vegetation resulting from an area being more moist or wet than surrounding areas (e.g., shrubs and trees along a creek or lake edge)

S-hook A device for attaching the trap chain to the stake to allow the trap to rotate around the stake

Samson pelt A pelt lacking or nearly lacking in guard hairs

Sarcoptic mange An infection caused by mites which burrow under the skin

Scats The droppings or feces of animals

Scavenger An animal that feeds primarily on carrion (dead animals) rather than killing its own food

Sexual maturity Age at which an individual can successfully breed and reproduce young

Snare A cable noose, usually with a locking device, designed to capture an animal by the neck or body

Swivel A device planted at either or both ends of the trap chain and sometimes in the middle of the chain to allow the trap to move freely around the animal's foot and reduce injury caused by twisting

Tanning The process of preserving a hide by treating it to make leather

Territory The portion of an animal's home range that is defended against trespass by other animals of the same species

Toxins Poisons produced by bacteria and other micro-organisms

Trap bed The hole dug in the ground in which traps are placed

Trap hook A pole with a hook at one end to help find and recover traps from the water; also used as a wading staff

Tularemia A bacterial disease of rabbits and rodents that can be transmitted to humans through cuts or scratches while skinning infected animals

Underfur The soft, dense fibers underlying the guard hairs that provide the primary insulation for the animal

WAC Abbreviation, Washington Administrative Code

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ORGANIZATIONS

Washington State Trapper's Association, P.O. Box 7472, Olympia, WA, 98507

RCW 77.15.190
Unlawful trapping -- Penalty.

(1) A person is guilty of unlawful trapping if the person:

(a) Sets out traps that are capable of taking wild animals, game animals, or furbearing mammals and does not possess all licenses, tags, or permits required under this title;

(b) Violates any rule of the commission or director regarding seasons, bag or possession limits, closed areas including game reserves, closed times, or any other rule governing the trapping of wild animals; or

(c) Fails to identify the owner of the traps or devices by neither (i) attaching a metal tag with the owner's department-assigned identification number or the name and address of the trapper legibly written in numbers or letters not less than one-eighth inch in height nor (ii) inscribing into the metal of the trap such number or name and address.

(2) Unlawful trapping is a misdemeanor.

RCW 77.15.191
Revocation of trapper's license -- Placement of unauthorized traps.

The director may revoke the trapper's license of a person placing unauthorized traps on private property and may remove those traps.

RCW 77.15.194
Unlawful traps -- Penalty.

(1) It is unlawful to use or authorize the use of any steel-jawed leghold trap, neck snare, or other body-gripping trap to capture any mammal for recreation or commerce in fur.

(2) It is unlawful to knowingly buy, sell, barter, or otherwise exchange, or offer to buy, sell, barter, or otherwise exchange the raw fur of a mammal or a mammal that has been trapped in this state with a steel-jawed leghold trap or any other body-gripping trap, whether or not pursuant to permit.

(3) It is unlawful to use or authorize the use of any steel-jawed leghold trap or any other body-gripping trap to capture any animal, except as provided in subsections (4) and (5) of this section.

(4) Nothing in this section prohibits the use of a Conibear trap in water, a padded leghold trap, or a nonstrangling type foot snare with a special permit granted by the director under (a) through (d) of this subsection. Issuance of the special permits shall be governed by rules adopted by the department and in accordance with the requirements of this section. Every person granted a special permit to use a trap or device listed in this subsection shall check the trap or device at least every twenty-four hours.

(a) Nothing in this section prohibits the director, in consultation with the department of social and health services or the United States department of health and human services from granting a permit to use traps listed in this subsection for the purpose of protecting people from threats to their health and safety.

(b) Nothing in this section prohibits the director from granting a special permit to use traps listed in this subsection to a person who applies for such a permit in writing, and who establishes that there exists on a property an animal problem that has not been and cannot be reasonably abated by the use of nonlethal control tools, including but not limited to guard animals, electric fencing, or box and cage traps, or if such nonlethal means cannot be reasonably applied. Upon making a finding in writing that the animal problem has not been and cannot be reasonably abated by nonlethal control tools or if the tools cannot be reasonably applied, the director may authorize the use, setting, placing, or maintenance of the traps for a period not to exceed thirty days.

(c) Nothing in this section prohibits the director from granting a special permit to department employees or agents to use traps listed in this subsection where the use of the traps is the only practical means of protecting threatened or endangered species as designated under RCW 77.08.010.

(d) Nothing in this section prohibits the director from issuing a permit to use traps listed in this subsection, excluding Conibear traps, for the conduct of legitimate wildlife research.

(5) Nothing in this section prohibits the United States fish and wildlife service, its employees or agents, from using a trap listed in subsection (4) of this section where the fish and wildlife service determines, in consultation with the director, that the use of such traps is necessary to protect species listed as threatened or endangered under the federal endangered species act (16 U.S.C. Sec. 1531 et seq.).

(6) A person violating this section is guilty of a gross misdemeanor.

RCW 77.65.450
Trapper's license.

A state trapping license allows the holder to trap fur-bearing animals throughout the state; however, a trapper may not place traps on private property without permission of the owner, lessee, or tenant where the land is improved and apparently used, or where the land is fenced or enclosed in a manner designed to exclude intruders or to indicate a property boundary line, or where notice is given by posting in a conspicuous manner. A state trapping license is void on April 1st following the date of issuance. The fee for this license is thirty-six dollars for residents sixteen years of age or older, fifteen dollars for residents under sixteen years of age, and one hundred eighty dollars for nonresidents.

RCW 77.65.460
Trapper's license -- Training program or examination requisite for issuance to initial licensee.

Persons purchasing a state trapping license for the first time shall present certification of completion of a course of instruction in safe, humane, and proper trapping techniques or pass an examination to establish that the applicant has the requisite knowledge.

The director shall establish a program for training persons in trapping techniques and responsibilities, including the use of trapping devices designed to painlessly capture or instantly kill. The director shall cooperate with national and state animal, humane, hunter

education, and trapping organizations in the development of a curriculum. Upon successful completion of the course, trainees shall receive a trapper's training certificate signed by an authorized instructor. This certificate is evidence of compliance with this section.

WAC 232-12-024 Requirements for sealing of pelts and collection of biological information for river otter, cougar, lynx, and bobcat. (1) It is unlawful to possess river otter, cougar, lynx, or bobcat taken in Washington without a department identification seal which has been attached to the raw pelt, on or off the carcass, prior to the pelt sealing deadline.

(2) Any river otter, cougar, or bobcat raw pelt must be presented by the person harvesting the animal, in such a manner that teeth and biological samples can be extracted, to an authorized department employee for sealing.

(3) The raw pelt of a bobcat or river otter must be sealed by an authorized department employee within 20 days after the close of the appropriate hunting or trapping season in which it was killed.

(4) Any person who takes a cougar must notify the department within 72 hours of kill (excluding legal state holidays) and provide the hunter's name, date and location of kill, and sex of animal. The raw pelt of a cougar must be sealed by an authorized department employee within five days of the notification of kill.

Any person who takes a cougar must present the cougar skull, in such a manner that teeth and biological samples can be extracted, to an authorized department employee at the time of sealing.

(5) It is unlawful to transport or cause the transport out of Washington a raw pelt of river otter, cougar, lynx, or bobcat taken in Washington without a department seal attached to the pelt.

(6) The raw pelt of a river otter, cougar, lynx, or bobcat taken outside Washington and imported into the state must be identified by a tag and/or seal from the state or country of origin and be accompanied by an invoice or declaration specifying the number of pelts in the shipment.

(7) It is unlawful to possess an unlocked, broken, or otherwise open department seal for river otter, cougar, lynx, or bobcat unless the seal wire or band has been cut through and removed from a pelt that has been received and invoiced by a licensed taxidermist or fur dealer for processing or removed from a pelt that has been processed.

WAC 232-12-134 Report required of licensed trappers. It is unlawful for any licensed trapper to fail to complete and submit to the department, a trapper's report of catch postmarked on or before April 10. The report must be submitted regardless of success. Trappers who fail to submit an accurate trapper's report of catch must wait a year before purchasing another trapping license. False reports will be considered the same as failure to report. It is the responsibility of each licensed trapper to obtain and submit a trapper's report of catch.

WAC 232-12-141 Wild animal trapping. (1) The trapping season authorizes the taking of furbearing animals for their hides and pelts only. Furbearers may not be taken from the wild and held alive for sale or personal use without a special permit pursuant to WAC 232-12-064.

(2) Any wildlife trapped for which the season is not open shall be released unharmed. Any wildlife that cannot be released unharmed must be left in the trap, and the department of fish and wildlife must be notified immediately.

(3) Lawfully trapped wild animals must be lethally dispatched or immediately released. A firearm may be used to dispatch trapped animals.

(4) It is unlawful to trap for wild animals:

(a) With body-gripping traps, EXCEPT as provided for in subsection (b).

(b) Conibear-type traps in water, nonstrangling foot snares, and padded foot-hold traps may be used for the following purposes with a permit issued by the director:

(i) To protect public health and safety, in consultation with the department of social and health services or the United States Department of Health and Human Services.

(ii) To abate damages caused to private property, domestic animals, livestock or timber, that cannot be reasonably abated by nonlethal control tools. Any person requesting a damage control permit must apply in writing, stating the threat or damages, the nonlethal control methods attempted or why they cannot be applied, and agree to use the above traps for no more than thirty days under the permit granted.

(iii) To protect threatened or endangered species, if such traps are used by department employees or agents.

(iv) To conduct wildlife research, EXCEPT that Conibear-type traps are prohibited for this purpose.

(c) Unless kill traps are checked and animals removed within seventy-two hours.

(d) Unless animals captured in restraining traps (any nonkilling set) are removed within twenty-four hours of capture.

(e) Using game birds, game fish or game animals for bait, except nonedible parts of game birds, game fish or game animals may be used as bait.

(f) Within thirty feet of any exposed meat bait or nonedible game parts which are visible to flying raptors.

(5) Game bird feathers may be used as an attractor.

WAC 232-12-142 Special trapping permit -- Use of body-gripping traps. (1) As used in this section, unless the context clearly requires otherwise, the following definitions apply:

(a) "Animal" means any nonhuman vertebrate.

(b) "Animal problem" means any animal that threatens or damages timber or private property or threatens or injures livestock or any other domestic animal.

(c) "Body-gripping trap" means a trap that grips an animal's body or body part. Body-gripping trap includes, but is not limited to, unpadded foot-hold traps, padded foot-hold traps, Conibear traps, neck snares, and nonstrangling foot snares. Cage and box traps,

suitcase-type live beaver traps, and common rat and mouse traps are not considered body-gripping traps.

(d) "Conibear or Conibear-type trap" means any trap of various manufacturers having design and operational characteristics essentially the same as or like that developed by Frank Conibear and designed and set to grip and hold an animal's body across its main axis.

(e) "In water" means beneath the water surface so that the trap is completely submerged.

(f) "Nonstrangling-type foot snare" means a cable or wire designed and set to encircle and hold an animal's foot or limb.

(g) "Padded foot-hold trap" means a trap designed and set to grip the foot of an animal, both jaws of which are covered with rubber pads having a minimum thickness of one-eighth inch.

(h) "Permit" means a special trapping permit issued to a person under the authority of RCW 77.15.194 and the provisions of this section to use certain body-gripping traps to abate an animal problem for thirty days.

(i) "Permittee" means the person to whom a permit is granted.

(j) "Raw fur" means a pelt that has not been processed for purposes of retail sale.

(2) It is unlawful to trap animals using body-gripping traps without a permit issued by the department.

(3) It is unlawful to fail to comply with any conditions of a permit to trap.

(4) It is unlawful for any person issued a permit to fail to complete and submit to the department a report of animals taken under the permit. This report is due within ten days of the expiration date of the permit.

(5) It is unlawful to knowingly offer to sell, barter, or otherwise exchange the raw fur or carcass of a mammal that has been trapped pursuant to a permit.

(6) A person seeking a special trapping permit shall submit a complete application to the department. The applicant shall provide the following information:

(a) Applicant's name, address, and telephone number.

(b) Location(s) of animal problem (physical address or legal description including township, range, and section number).

(c) Description of the animal problem:

(i) Duration of the animal problem.

(ii) Description of the damage or potential damage being caused (i.e., crop, timber, property, livestock, or pet animals, etc.).

(iii) Any threat or potential threat to the health and/or safety of people.

(d) Species of animal causing the problem and, if known, the number of animals involved.

(e) Description of the measures taken to prevent or alleviate the problem or damage.

(f) Explanation of why the measures taken were ineffective to abate the problem or why such measures could not reasonably or effectively be used to abate the animal problem.

(g) Whether Conibear-type traps in water, padded foot-hold traps or nonstrangling-type foot snares will be used.

(h) Species and number of animals to be removed.

(7) For wildlife research, the applicant shall provide the following information:

(a) Applicant's name, address, and telephone number.

(b) Location(s) where wildlife trapping will occur (physical address or legal description including township, range, and section number).

(c) Whether padded foot-hold traps or nonstrangling-type foot snares will be used.

(d) Species and number of animals to be captured.

(e) Research objective or proposal.

(f) A copy of a valid department scientific collection permit.

(8) A completed report of animals taken pursuant to a special trapping permit shall include the following information:

(a) Permittee's name, address, and telephone number.

(b) The number of the permit for which the report is being submitted.

(c) The common name of the animal(s) taken, the number of animals taken, and the disposition.

(d) For any nontargeted animals taken, the common name of the animal, the number of animals, and the disposition.

(9) Successive permits for the same animal problem may be requested by completing the justification and applicant certification on the report of animals taken.

(10) The conditions of a special trapping permit shall include:

(a) The term of the permit is thirty days.

(b) Any body-gripping trap authorized under a permit shall be checked at least every twenty-four hours.

(c) Each body-gripping trap authorized under a permit shall have attached to its chain or to the trap a legible metal tag with either the department identification number of the trapper or the name and address of the trapper in English letters not less than one-eighth inch in height.

(d) Nontargeted species shall be released unharmed if possible.

(e) Any mammal trapped pursuant to a permit must be lethally

dispatched or released as soon as possible, unless taken for scientific research, in which case the animal may be retained alive if so provided in the permit.

(f) The carcass of any mammal taken under a permit must be properly disposed of in a lawful manner.

(g) A copy of the permit shall be in the immediate possession of the person authorized to trap pursuant to a permit.

(11) A special trapping permit may be denied when, in the judgment of the department:

(a) Other appropriate nonlethal methods have not been utilized;

(b) The alleged animal problem either does not exist or the extent is insufficient to justify lethal removal;

(c) The use of the requested body-gripping trap(s) would result in direct or indirect harm to people or domestic animals;

(d) The use of the requested body-gripping trap(s) would conflict with federal or state law, local ordinance or department rule; or

(e) The application is not complete.

(12) A special trapping permit may be revoked when, in the judgment of the department:

(a) Information contained in the application was inaccurate or false;

(b) The permittee or person trapping under the permit fails to comply with any of the permit conditions; or

(c) The permittee or person trapping under the permit exceeds the number of animals authorized.

(13) If the permit is denied or revoked, the department shall provide the applicant, in writing, a statement of the specific reason(s) for the denial or revocation. The applicant may request an appeal in accordance with chapter 34.05 RCW. Appeal requests shall be filed in writing and returned within twenty days from the mailing date of the denial and be addressed to WDFW Legal Services Office, 600 Capitol Way North, Olympia, Washington 98501-1091.

Details About Trapping BMPs

Since 1997

- 32 U.S. states have participated in trap testing
- More than 60 types of traps* have been evaluated, including both commonly used and new models
  - **Coil-spring and long-spring models**
  - **Modified traps — laminated, offset, padded, double jaw**
  - **Specialty models — Duffer's™, Egg™, and Lil' Grizz Get'rz™**
  - **Cage traps**
  - **Cable restraints**
  - **Body-gripping (Conibear™-style) traps**
  - **Swiveled chaining systems (long and short) with stakes and drags**
- More than 150 trapper/technician teams have participated in field tests
- Full-body necropsies conducted by wildlife veterinarians were used to assess different types of injuries
- Data collection has been consistent with international standards
- Database now includes over 350,000 records on trapping systems

TELL ANOTHER

TRAPPER about BMPs!

***Traps tested to date:**

- Tomahawk™ cage trap
- Egg™ trap
- Duffer's™ raccoon trap
- Hancock™ cage trap
- Breathe Easy™ cage trap
- Black Hole™ trap
- Lil' Grizz Get'rz™
- Humane Hold™ pads
- 1½ coil-spring trap (tested with two chain types)
- 1½ coil-spring, padded trap (tested with both standard and stronger springs)
- 1½ coil-spring, padded, four-coiled trap
- 1½ coil-spring, double jaw trap (both standard springs, staked and light springs with two chain types)
- 1½ coil-spring, laminated trap
- 1½ coil-spring trap with wide-faced, offset jaws
- 1.65 coil-spring trap with offset, laminated jaws
- 1 coil-spring (tested with two chain types)
- 1 coil-spring, padded trap
- 1 coil-spring, laminated trap
- 1.75 coil-spring trap
- 1.75 coil-spring, laminated trap
- 1¾ coil-spring trap with wide-faced, offset jaws
- 2 coil-spring trap
- 2 coil-spring, padded trap
- 2 coil-spring, padded, four-coiled trap
- 2 coil-spring, offset, laminated, four-coiled trap
- 3 coil-spring trap
- 3 coil-spring, offset trap
- 3 coil-spring, offset, laminated, four-coiled trap
- 3 coil-spring, padded, four-coiled trap
- 3 coil-spring trap, four-coiled, with #33 Coyote Cuff™ jaws
- 22 Coyote Cuff™ coil-spring trap
- MB 650 coil-spring trap
- MJ 600 coil-spring trap
- Belisle™ foot snare (for coyote and fox)
- Cable restraints for beaver (two cable diameters)
- 1 long-spring trap
- 2 long-spring trap
- 3 long-spring trap
- 11 long-spring trap
- 11 long-spring, double jaw trap (tested with two chain types)
- 11 long-spring, double jaw, offset trap
- 110 body-gripping trap
- 160 body-gripping trap
- 220 body-gripping trap
- 330 body-gripping trap

Trapping BMPs

Supporting You.
Sustaining the Future of Trapping.

Trapping BMPs (Best Management Practices) are not laws. Instead, they are recommendations based on sound scientific research. BMPs address the welfare of captured animals and identify the most efficient, practical and safe trapping techniques and equipment.

Since 1997:

- 32 U.S. states have actively participated in trap testing
- Over 50 types of traps were evaluated, including both commonly used and new models:
  - **"Plain" coil-spring and long-spring models**
  - **Modified traps — laminated, offset, padded, double-jaw**
  - **Specialty models — Duffer™, Egg™, and Li'l Grizz Get'rz™**
  - **Cage traps**
  - **Cable restraints**
  - **Body-gripping (conibear-style) traps**
  - **Swiveled chaining systems (long and short) with stakes and drags**
- Over 150 trapper/technician teams participated in field tests
- Full-body necropsies by wildlife veterinarians were used to assess different types of injuries

TELL ANOTHER

TRAPPER about BMPs!

DID YOU KNOW?

- Trapping BMPs are being published and made available to state wildlife agencies. Any trapper organization and any other interested party may receive a copy of BMPs as they become available. Currently, BMPs for trapping coyotes in the eastern United States are available on our Web site: www.furbearermgmt.org.

- Each state will decide how BMPs will be incorporated into their trapper education and furbearer management programs. In some states, BMPs may even help to broaden the trap and set types currently allowed.

- Research and results for BMPs are coordinated by the International Association of Fish and Wildlife Agencies (IAFWA), an organization comprised of our nation's 50 state fish and wildlife agencies. The IAFWA has no regulatory or enforcement authority.

- Research and development for BMPs has been funded through a cooperative agreement with the USDA—Wildlife Services.

I. A. F. W. A.

Nuisance Wildlife Control Program:

The Washington Department of Fish and Wildlife (WDFW) is legislatively mandated to preserve, protect and perpetuate Washington=s wildlife. WDFW also has the responsibility to assure that individual animals do not pose a threat to human safety or create unreasonable damage to crops, livestock or other property. The expanding Washington State human population and the accompanying habitat alteration or loss is resulting in a progressive increase in the frequency of wildlife/human conflicts. Although regulated sport hunting and trapping seasons are used to manage game animals and furbearer populations, they fail to address nuisance wildlife situations under the following conditions:

- Problems occur in areas where conventional hunting and trapping are not allowed (e.g. within city limits).
- Problems occur during the closed season period for hunting or trapping.
- Problem is caused by a species that is not normally hunted or trapped.
- Problem is caused by an individual animal rather than the result of overpopulation.

Although the state law (RCW 77.36.030) gives landowners substantive latitude to deal with wildlife problems on their land, many landowners are either unwilling or unable to handle human/wildlife conflicts.

The Nuisance Wildlife Control Program incorporates private citizens who have special skills and training in the efficient and humane capture and handling of many wildlife species, which commonly generate wildlife complaints. Although permitted and regulated by WDFW, Nuisance Wildlife Control Operators (NWCOs) are not state employees, but operate as private enterprises and normally charge a fee for their services. Under the authority of their NWCO permit issued by WDFW, NWCOs are authorized to trap and/or remove designated species of wildlife causing nuisance or damage problems for citizens and landowners in Washington State at any time of the year. WDFW continues to provide technical advice and/or informational pamphlets on request to citizens who are experiencing nuisance wildlife problems. The NWCO program, however, provides direct assistance to citizens who are willing to pay for the cost of an individual resolving their wildlife problem.

NWCO requirements WAC 232-12-086:

- At least 18 years of age.
- Be licensed as a trapper in the state.
- Have completed the NWCO certification course.
- Have the equipment, knowledge, and ability to control problem wildlife.
- Not be legally ineligible to possess a firearm (including no felony or domestic violence conviction unless firearm possession rights have been restored).
- Not have a gross misdemeanor fish and wildlife conviction within the last five years.

It is unlawful to trap nuisance wildlife on the property of another for a fee or other consideration without a nuisance wildlife control certification.

Nuisance wildlife control operators must use live traps to take any animal causing an animal problem as that term is defined in RCW 77.15.192, but may only use body gripping traps after receiving a special trapping permit and only under conditions set forth in RCW 77.15.194.

Additionally, Nuisance Wildlife Control Operators must submit a complete quarterly report of all trapping activity, on the form supplied by the department. The quarterly report is due by the fifteenth day of the month after the end of the quarter.

Certification/Fees:

The fee for a trapper's license is $36 for a resident, $180 for a non-resident. Licenses are valid beginning April 1 through March 31 of the following year. There is no fee charged for a NWCO permit. Permits are valid for 3 years. However, there may be fees associated to operating at the county/city level (e.g. business license) if you are charging a fee.

If you are interested in becoming a Nuisance Wildlife Control Operator, certification classes are offered on a limited basis (depending on interest). Please call WDFW, Enforcement Program to be placed on a list for the next available class at 360-902-2936.