

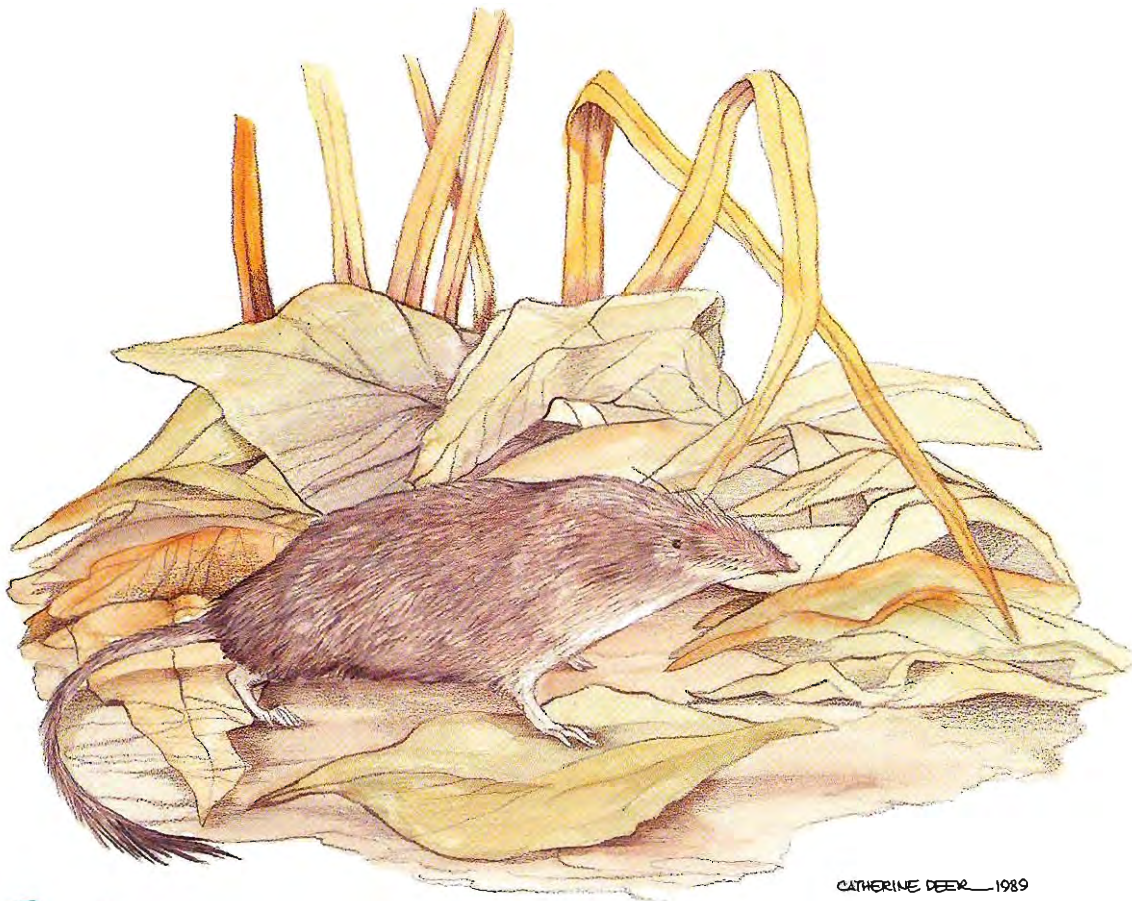
# Yukon Mammal Series



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# Shrews

### THE FAMILY: *Soricidae*

Portrayed in the idyllic summer season with its warm and dewy days, it would seem that the tiny masked shrew leads a blissful life. But "bliss" is likely to be an unfamiliar term to a shrew. With such a hectic hunt-and-eat pace, it seems a wonder that shrews survive in Arctic and sub-Arctic regions at all. These smallest of mammals (the pigmy shrew is the second smallest mammal in the world) are not well insulated and they can perish from exposure within a few short minutes. Yet in the Yukon alone there are five different species and all are thriving and active year-round.

### CHARACTERISTICS:

Worldwide, shrews are a very successful family. With a fifty

million year history and a wide distribution across North America, their lifestyle works. The key lies in living at a fast and furious pace.

A Yukon shrew, like all North American shrews, is active day and night in a near-constant game of hunt and eat. Being the size of a thumb or less, and weighing no more than a nickel, a shrew is like a tiny jet engine: it must consume relatively large amounts of fuel and quickly convert it into energy. A shrew's high rate of metabolism is characterized by a heartbeat of 1200 beats per minute — the same as that of a hovering hummingbird. To maintain that rate of living, a diet of easily digestible, high energy food, is essential.

One best source of such food is insect life. But how do shrews find insects in winter? Surprisingly, insect eggs, larvae, pupae and dormant adults are still present, often at ground level where the shrew hunts

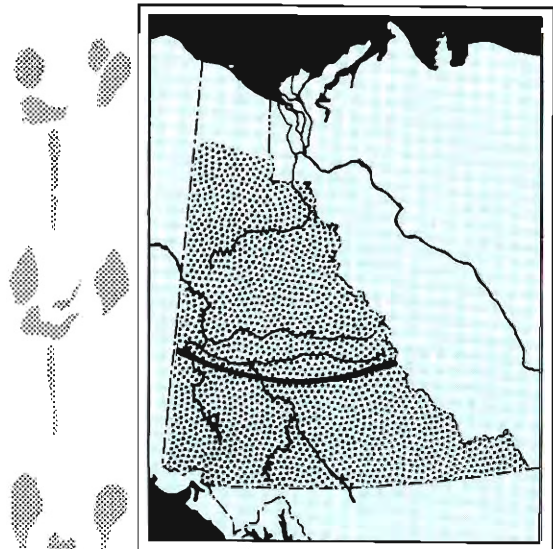
and in most circumstances, such insect food is more than ample for a shrew's needs.

"Ample" in a shrew's perspective means eating one's own weight in food each day. For a pregnant female, an adequate food supply can amount to three times her weight per day. This task is accomplished by being fast and aggressive. With front teeth that are designed for grasping and quickly cutting up its prey, this little insectivore scurries through natural or mouse-made passageways, attacking and eating any suitable object in its path.

Nowhere is efficiency a more important word than when it is applied to shrews living through the seasons in the Yukon. Whether arctic tundra or boreal forest, minimizing energy and water loss is an essential. One way of doing this is to live in sheltered habitats that reduce the loss of soil warmth and moisture.

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The under-snow environment, with a ground temperature near zero degrees Celsius, provides that habitat in winter. Even in summer, shrews are usually found in damp, sheltered locations. Nevertheless, a shrew's life is very short. It will be over by the end of the shrew's second summer. But by that time, it may have produced as many as three litters (all in the second summer), each containing as many as ten young.



Distribution of:  
• Pigmy Shrew (north of line)  
• Water Shrew (south of line)

## SIMILAR IN APPEARANCE BUT DIFFERENT IN SPECIES

When it comes to shrews, you almost need to be a shrew to know one species from another. Of the five Yukon shrew species, three are very similar in outward appearance and differentiation is made on the basis of tooth and skull features. Unfortunately, there have been few studies of our shrews in their natural habitat that would help to identify unique ecological adaptations. One such study done in eastern Canada, showed that one species chose insect larvae, while another had a flattened head which allowed it to poke its mouth into places unreachable to other shrews. Perhaps some day an ardent shrew researcher will examine Yukon shrews this way and consequently provide more obvious clues to their differences. In the meantime, the differences are subtle.

## MASKED SHREW *Sorex cinereus*

One of the most common of Yukon shrews, the masked shrew is found in a wide variety of habitats, including forest and tundra, and at all elevations other than bare rocky mountain tops. Look for this species along forest edges, in clumps of dwarf birch and willow in wet sedge meadows and in cotton grass (*Eriophorum* sp.) tussocks.

The key to identification is size and characteristics of the teeth of the upper jaw. The masked shrew is about 10 cm. long from nose to tail and has five single-cusped teeth (like human 'eye' teeth) in each upper jaw. Its larger size and five single-cusped teeth instead of three, separates this shrew from the pigmy shrew.

## DUSKY SHREW *Sorex obscurus*

Equally widespread throughout the Yukon, the dusky shrew is about 12 cm. long and otherwise difficult to distinguish from the masked shrew. The dusky shrew is somewhat larger and more apt to be found closer to water.

## WATER SHREW *Sorex palustris*

Unique among other shrews, the water shrew is a swimmer and diver most commonly found under overhanging vegetation and banks bordering fast moving streams. To date, this species has been found only in the southern Yukon, including such well-known sites as McIntyre Creek, Nisutlin River, Canol Road, and Dezadeash Lake.

This is the largest of Yukon shrews (15 cm., nose to tail) and is distinctive in its pelage which is black on top and silvery underneath. It also has tiny hairs fringing its feet that help during swimming. When diving underwater in search of aquatic insects, small fish and tadpoles, the water shrew has a silvery sheen caused by the millions of air bubbles trapped in its fur.

## ARCTIC (TUNDRA) SHREW *Sorex arcticus*

The arctic shrew is found across the northern half of the Yukon in somewhat drier sites than those of the masked and dusky shrews. It is larger than the northern subspecies of the masked shrew and has a distinctive dark back, brown sides, and grey belly. Dry hillsides and well drained tundra ridges bordering on bogs, marshes and wet tundra are the typical habitats.

## PIGMY SHREW *Microsorex hoyi*

This tiniest of shrews is the smallest of North America's mammals and competes with a South American shrew and bumblebee bat of Thailand for the title of the world's smallest mammal. Yet this miniscule creature is widespread across nearly all of sub-arctic and temperate Canada and Alaska. It is found in the southern two-thirds of the Yukon. Excluding tail length, this shrew's body is only 5½ cm. long and weighs a little more than a penny (2.5g.).

Though to inhabit meadows and sphagnum bogs or their edges, the pigmy shrew is rare in most of Canada including the Yukon, although this may be due to lack of research into the species.

## VIEWING OPPORTUNITIES

Shrews are widespread throughout the Yukon and likely to be found in almost any moist habitat. But their minute size, earthy coloration, and habitat preference means that you are likely to see them only by accident. More than likely, the shrew you are lucky enough to see will be a dead shrew and, even then, that luck will probably come in winter when a dark shrew shows up well on white snow.



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## Collared Pika

**THE SPECIES:***Ochotona collaris*

From amongst the boulders in the talus slope, a weak "meep" signals the presence of the pika. But locating this little ventriloquist is a challenge. Grey as the rocks in which it lives and about the size of a tennis ball, the collared pika is difficult to spot, especially when its call never seems to come from where the pika is located.

**DISTRIBUTION**

Also known by the name, "coney" and "rock rabbit", the pika is found across most mountainous regions of western North America. However, the collared pika of the north is separated from the very similar Rocky Mountain pika by nearly 800 kilometres of suitable, yet empty habitat. Scientists have suggested that the most likely ex-

planation is related to the last glacial age, when northern and southern populations were isolated by continental and mountain glaciers. These populations survived in "refugia" where glaciers did not exist. Today, the collared pika has expanded its range south and east but only as far as the northwestern corner of British Columbia. In the Yukon, the collared pika is found in most of the mountainous Yukon except for the southeast portion and the extreme north.

Although pikas are usually found in higher, mountainous terrain, they are also known in much lower regions including sea level rockslides inland from the Alaskan coast. In the Yukon, collared pikas have been seen as low as the shore of Kluane Lake near Cultus Bay.

**CHARACTERISTICS**

Although at first glance the pika looks more like a mouse and not at

all like a rabbit, it is classified in the rabbit and hare order, *Lagomorpha*, which contains as well the snowshoe hare. A quick examination of a pika's skull shows clearly the connection, especially the double front incisors in which a smaller tooth is set directly behind the large front one. One other very rabbit-like feature of the pika is its habit of eating food twice: once as vegetation harvested from the slopes, then a second time in the form of soft faeces. Through redigestion, pikas and rabbits absorb key additional nutrients such as vitamin B12.

A pika is truly an "edge" animal: using the jumbled rocks on the fringe of the talus slope for its protective home and using the nearby vegetated slopes for its food supply. A study carried out in the mountains of Washington and Alaska revealed that both the collared and Rocky Mountain pika live only on the margins of talus slopes where

# Yukon Mammal Series

suitable vegetation is nearby - usually within five to six metres of its home.

Food for a pika takes the form of a wide variety of succulent greenery: nearly all plants in the vicinity, including leaves of mountain avens, lupines, vetch, dwarf huckleberry, kinnikinnik, and grasses. As summer commences, much of the abundant food is cured in the dry mountain air, usually in "haystacks" among the rocks. These haystacks can become quite large — as much as 35 centimetres high and 60 centimetres across. Usually a pika puts most of its effort into producing one large haystack but may also store small amounts in scattered locations. The habit of building haystacks is essential to a pika's survival because North American pikas do not hibernate and must have food for winter.

## LIFE AROUND A HAYSTACK

A haystack often forms the center point of each pika's territory which usually covers about 400 square metres. Socially, pikas will tolerate each other at a minimum distance of about 20 metres but a greater distance of 75 metres is preferred. As a result, pika territories are often strung out in a well-spaced line along the perimeter of a talus slope.

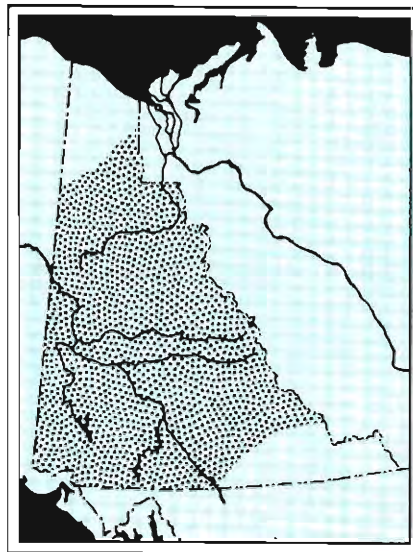
Much of a pika's calling is thought to be a declaration of, "this is my territory", which helps reduce the need to fight or chase one's neighbor away. Although fights seem to be rare, chasing one's neighbor is still a part of everyday life. Occasionally a call will announce the presence of a predator such as a hawk, owl, grizzly or ermine (short-tailed weasel). The ermine is one of the most effective predators because it is small enough to pursue a pika through the maze of crevices in a talus slope. Fortunately, ermine feed on a wide variety of mice and other small mammals and do not decimate pika colonies.

The loss of part of the population to predators and other factors is compensated through the birth of two to five young in late spring and possibly again in mid-summer. Living within their parent's territory for part of the summer, they will move into available vacant habitat by early autumn.

High temperature can be a critical factor to pika survival but it seems irrelevant for northern pikas which can easily avoid the occasional heat wave by retreating to a cool environment under the rocks.

## PIKAS AND PEOPLE

Aside from their aesthetic value, the Yukon's pikas are safe from predation by humans. For those who enjoy the hiking and climbing in alpine terrain, the call of the pika is a welcome sound in the often quiet landscape. Amongst the Southern Tutchone, it was considered bad luck to bother a pika, with foul weather being the predicted consequence.

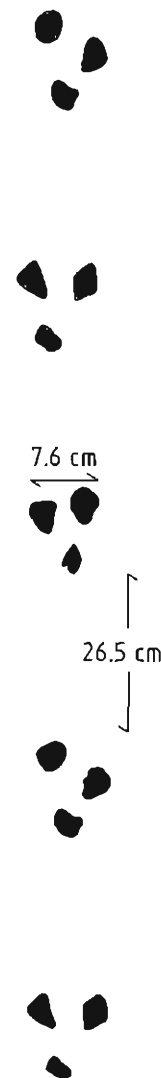


*Distribution of Collared Pika*

## VIEWING OPPORTUNITIES

Since pikas are daytime animals, they are out and about at the same time as most people. Aside from the fact that they are quite specific to talus slopes, usually above treeline, they are easily found because of their call. However, although they are heard, they are not necessarily easy to see. Usually, it is necessary to spend many minutes watching in the direction of the sound (if the direction can be determined!) until the pika's movement is discerned. The pika's lower pitched call is quite different from the squeak of an arctic ground squirrel and the whistle of a marmot.

Pikas are approachable as long as you have considerable patience. By moving very slowly and quietly, with no sudden flinches or hand movements, you may be able to approach very closely. Once near its home territory, you may find that the pika will approach within a few metres — or centimetres — if you are able to remain nearly motionless and quiet for a few minutes. It seems that pikas are sufficiently curious to come and check you out before going back to their busy chore of haymaking.





# Snowshoe Hare

## THE SPECIES: *Lepus Americanus*

White fur against white snow, a snowshoe hare crouches among willow stems. Its presence is betrayed only by black, marble-like eyes that scan the wintry world in a constant surveillance for predators. Too late, those eyes spot a lynx stalking on silent paws. Exploding from cover, hunter and hunted leap, bound, and merge in a flurry of snow. Then the hare lies still.

Known as a "rabbit" to most Yukoners and a "bunny" to some, the snowshoe hare fascinates us with its 10-year cycle of rising and falling populations. It is the single most important prey species in the territory.

## DISTRIBUTION

Widespread, and head-scratchingly abundant in peak years, the snowshoe hare has a range that stretches across North America. It inhabits brushy

forests from Alaska to Newfoundland, and south into the mountains of the eastern and western United States.

Snowshoe hares occur throughout the Yukon Territory wherever patches of shrub and forest intermingle. While forest is used for shelter from severe winter storms and predators, shrubs are used for food. Some favourite habitats are willow thickets and burn areas with regenerating pine and aspen. Areas like these, often recently disturbed, contain thick stands of tasty, nourishing and accessible shrubs.

Individual snowshoe hares occupy areas up to nine hectares in size, but most of their activity takes place within an area a third this size. As numbers build to a peak in the 10-year cycle, hares spread from pockets of prime habitat to fill every available space. During the last hare cycle, densities of Yukon hares climbed from one hare in 50 hectares during the low of 1976 to four hares in a single hectare

during the peak of 1980-81 — an astonishing 200-fold increase.

## CHARACTERISTICS

Since the Yukon is home to only one long-eared, fluff-tailed hopper, you can be sure any one you see is a snowshoe hare. Yukon hares weigh one to two kilograms and may reach half a metre in length. Their "snowshoes" are very broad hind feet padded thickly with bristly hairs. Like your own snowshoes, these feet distribute the hare's weight over a large surface area and allow it to move on deep snow without sinking in more than a few centimetres.

The snowshoe hare is a source of food for nearly every mammalian and avian predator of our northern forests. To evade its many hunters, the hare has developed two strategies. The first is camouflage, whereby this species earns its alternate name of "varying hare". Twice a year the snowshoe hare

trades its fur coat for another that more closely matches its surroundings.

In winter the hare's silky pelage is snow-white with black-tipped ears; in summer it is rusty or dark brown with touches of cinnamon, white, and black. Since the moults are triggered by daylength rather than snowfall, hares are very conspicuous when snowfall is late or lasts longer than usual.

The snowshoe hare's second escape strategy involves wariness, speed and agility. Large eyes set high on its head allow the hare to see in nearly all directions, while long ears swivel independently to pick up sounds. As long as it remains undetected, the hare holds its ground, forefeet tucked back between hind feet, ready to bound away.

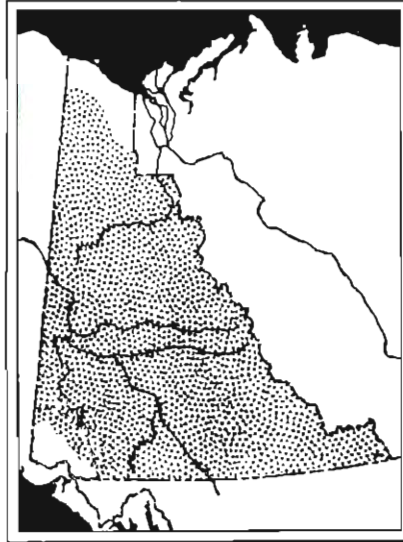
With rear limbs much longer than front ones, the hare's body is built like a souped-up racing car — high in the back and low in the front. Fused hind foot bones pack a powerful push-off, a reduced collarbone permits free-swinging leg movements, and a skull formed of pitted bones lightens the hare's load.

Once detected, the snowshoe hare leaps into action, jumping, bounding, zigging and zagging. It's been clocked at speeds of up to 50 kilometres per hour, and can cover three metres in a single bound. When pushed, it takes to the water and swims strongly, those broad snowshoes doubling as paddles.

Although often out and about on cloudy winter afternoons, snowshoe hares are active primarily at dawn, dusk, and during the night. In the daylight hours, they rest in shallow depressions called forms, which may be tucked beneath a snow-laden branch or deadfall. There they doze or groom themselves.

During rest periods, hares also excrete and then eat soft, green pellets of partly digested food. In much the same way as a cow or sheep chews and digests its food twice, these pellets go back into the hare's bag-like digestive chamber. There, more nutrients are extracted before hard, fully digested pellets are passed.

With evening's approach, snowshoe hares hop from their shelter in search of food along the edges of forests and thickets. So familiar are they with their home ranges that they know every trail, every clearing, and every hiding spot. With their lives riding on the quick escape, they pack snow paths



*Snowshoe Hare distribution*

hard and fast in winter.

## HOPPING THROUGH THE SEASONS

White spruce needles fall in a circle on the snow as a snowshoe hare moves round a young tree, stripping clean its slender twigs and eating them. At the edge of a clearing, it neatly clips dwarf birch and willow twigs. In a meadow, it digs through the snow to feed on last summer's horsetails, then nibbles at evergreen leaves and shoots of bearberry and twinflower in the woods nearby. Other popular winter foods are the twigs, buds, and bark of aspen, balsam poplar, and lodgepole pine, as well as mats of dryas.

As snowcover builds higher and covers low shrubs, hares use their snowshoes to stay on top of it. There they trim and girdle shrubs and trees to heights that surprise summertime strollers. Hares may choose particular foods having above-average protein content, and will stand upright, hop onto low branches, and dig craters in the snow to obtain their favourite dietary delights.

When the fresh winds of late February and March promise spring soon to come, male hares are possessed by the mating urge. Primed and ready a month before females, they leap and race about, burning off their unfulfilled ardour and fitting the description "mad as a March hare!" In late April, when breeding season does start, males become very aggressive and may fight over females.

In the southern Yukon, the first "bunny" litters are born in late May. Unlike true rabbits, which dig burrows and make fur or plant-lined nests within, hares simply drop their young into a shallow depression on the ground under a deadfall or at the base of a tree. However, the newborn hares, called leverets, are more highly developed than young rabbits. They have eyes open, are fully furred, and can hop on their first day of life. Within a week they speed away from danger and begin to feed on plants.

Snowshoe hares are casual parents. The male does not care for the young at all, and the female visits her young as little as once a day to feed them. Each day the leverets separate and find a sheltered spot where they remain alone. They return to a central location at feeding time which, here in the Yukon, is around midnight. Their mother arrives quickly, suckles them for two to five minutes, and then departs. This low-contact parental strategy may decrease the chances of leverets being killed by predators.

In the Yukon, snowshoe hares have up to four litters between May and September, twice as many as in Colorado. The first litter, averaging three young, is smaller than second and third litters, but has survival rates up to twice as high. Later litters may have a tougher go of it because, as young predators grow up, the number of hare hunters builds up steadily throughout the summer.

Our hares also produce more young each year than southern snowshoe hares — roughly twice as many as in Ontario and Minnesota. It seems that, even though Yukon summers are shorter than southern summers, our longer days affect the hormonal cycle of hares, increasing their productivity. This may be a response to the high mortality suffered by northern hares, compared with lower mortality and more competition between hares and rabbits in the south.

Many juvenile hares die or are killed within the first few weeks of life, and 15% or less survive to breed the next spring. A host of hawks, owls, eagles, and terrestrial hunters take both adults and young. Chief among the latter is the snowshoe hare's arch enemy, the lynx. However, coyotes, foxes, wolves, fishers, martens, minks, and wolverines also take their toll.

As spring gives way to summer

and then to autumn, grasses, herbs, and shrubs sprout, flourish and wilt. So does the snowshoe hare's interest in particular plants as food. Short-term specialists, hares switch onto the nutrient-rich new growth of boreal forest plants in the order that it appears. Grass shoots green the forest floor first, and the hare devours them. Sprouts of bearberry, horsetails, and the new leaves of lupine and willows follow as the growing season wears on. When the frosts and storms of September and October whip bright leaves to the ground, the snowshoe hare is once again left with its winter menu of twigs and dormant shoots.

### THE 10-YEAR CYCLE

Like small ghosts on a winter's night, snowshoe hares race and bound in a clearing, their tracks covering the snow. A few years later the hares are gone, and their familiar tracks are rarely sighted. Of all the cyclic ups and downs of animal populations in subarctic regions, it is the 10-year cycle of the snowshoe hare that is the most striking.

The hare cycle ranges from eight to eleven years in length. It happens at the same time across thousands of miles of snowshoe hare range. Here and there, isolated hare hotspots appear, then spread like a wave across the land, to be followed in a few years by the crash. The timing of the rise and fall of hare numbers is the same, within one or two years, over all of Canada and Alaska. Yet, in the most southern part of its range, where ecosystems are more stable and diverse, the population does not cycle at all.

Yukon hare densities in the last cycle began to increase in 1976 and peaked during 1980 and 1981. Hare numbers began to decline during the winter of 1981-82 and the decline continued until 1983.

Like snowshoe hare populations in Alberta and Minnesota, Yukon hares had peak spring densities of two to four hares per hectare. However, our lowest hare densities were ten times lower than in the more southern areas. As well, numbers of Yukon hares dropped from peak to low in only two years, much faster than the three years in Minnesota and four in Alberta. Why? Perhaps because a simpler food chain in the north leads to higher death rates.

And just what drives the snowshoe

hare cycle? This question has puzzled northerners and scientists for generations. On a broad scale, it may be the 22-year sunspot cycle and its effects on boreal forest weather patterns or forest fires. On a narrow scale, it may involve disease or the production of toxins by some of the hare's favourite shrubs. Two vital components in the cycle equation are known to be food supply and predation.

An on-going study at Kluane Lake has shown that food does not have to be in short supply for hare numbers to decrease. It has also shown that predation claims most hare lives in the winter following peak numbers. Key questions being asked at Kluane now concern the interaction of food supply, predation, and the survival of young hares.

The ups and downs of the snowshoe hare cycle affect more than just one species. During peaks, hares may compete with moose for browse. The lynx, another snow walker, feeds almost exclusively on hares, its numbers shadowing the rise and fall of the hare population. The coyote population also cycles here in the north, but being a more general hunter, the coyote is affected less by hare cycles than the lynx. Other mammalian predators are affected even less.

However, when hares are scarce, other prey are sought by all of the hare hunters. Like a ripple that spreads

from a single stone thrown in the water, the good and bad fortunes of the snowshoe hare touch every part of the boreal forest ecosystem.

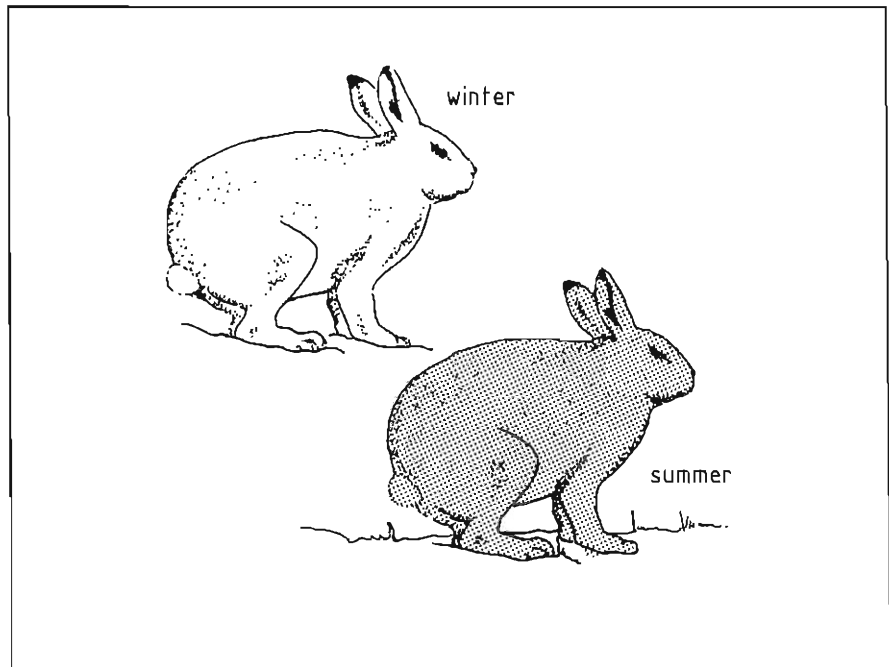
### SNOWSHOE HARES AND PEOPLE

Snowshoe hares have always been an important food source for Yukoners in remote areas and are still our most popular small game species. Although pelts are no longer sold in the fur trade, furs are used locally for mukluk trim and other crafts.

In the old days, Indians sometimes starved when rabbits were scarce. But when hare numbers soared, the people joined together to herd them like caribou into snares. They built long, low, fences of brush that came together in a V-shape, or stretched straight fences end to end. Then, shouting and beating the brush with sticks, the hare hunters drove their panicking quarry into snares set in the fences. The snowshoe hares provided not only food, but warmth as well. Their skins were peeled off in long strips and woven into blankets and parkas that were light and warm.

### VIEWING OPPORTUNITIES

Your chances of spotting snowshoe hares will depend largely on which phase of the 10-year cycle they are in. Numbers are expected to peak around 1990, so keep this in mind when you



are on the lookout for hares.

Remember too that hares are usually active in the twilight or dark hours and sit tight during the day. Forest edges are good places to look for hares, especially in spring and fall when their colouration may not match snow conditions. In summer, hares often feed in roadside ditches at dusk, allowing for great viewing on our long summer evenings. In winter, go for a daytime walk in the woods and see if you can spot a black-marble eye before a hare bounds away from beneath log, bush, or tree.

Hares leave plenty of obvious sign. In thickets and forests, look for well-used trails a hand's width across. Trails are especially noticeable in winter. Look also for forms under a deadfall or at the base of a tree. There you'll find lots of round, brown, pea-sized droppings.

You can tell a hare track from others by the hop-hop pattern and much larger hind feet than front. If you're unsure of which direction it's heading, note that a hare's hind feet land ahead of its front feet when it's bounding.

Hare browsing can be identified as twigs clipped neatly at a 45° angle, and stems girdled by hare-sized toothmarks. If you find feeding sign much higher than a hare is tall, remember that snow makes a great elevator for hares in winter.

### DID YOU KNOW?

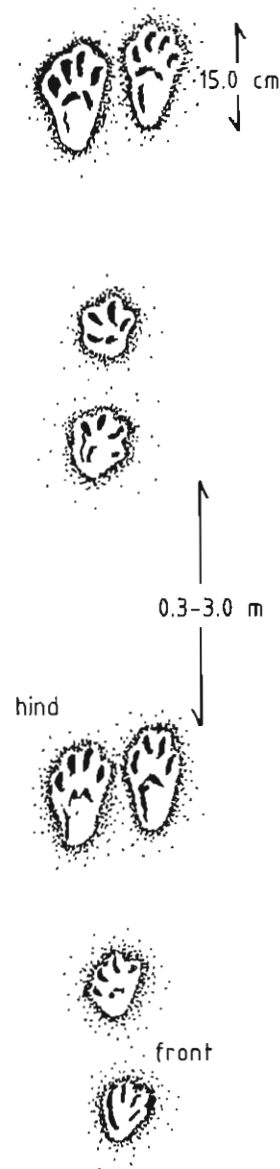
*The showshoe hare's cold-weather coat has 27% more insulating value than its summer coat.*

*In 1865, Hudson's Bay Company traders were flooded by hare pelts brought in by trappers; by 1870 only a few trickled in. The pattern repeated itself over and over, roughly every ten years.*

*In the winter of 1922-23, there were so many hares that Yukoners could step outside and hear the munching, crunching drone of hares devouring haypiles after depleting their natural foods.*

*So tied to its favourite food is the lynx that crashes in hare numbers may send it ranging hundreds of kilometres in search of hares.*

*The showshoe hare is so vital to the boreal forest ecosystem that scientists call it a "keystone species". Like the keystone that caps an arch of rocks, the showshoe hare is central to this ecosystem's structure and composition.*





# Red Squirrel

## THE SPECIES:

*Tamiasciurus hudsonicus*

Perched on a limb, tail aloft, a red squirrel chews seeds from a spruce cone. Alerted by voices, it “chucks” out a challenge, then scolds when footsteps move closer. The most widespread of North American squirrels, this bold tree dweller is the best-known mammal of Yukon forests.

## DISTRIBUTION

The red squirrel inhabits boreal forests from Atlantic to Pacific, ranging north to treeline and south into the mountains of the eastern and western United States.

Here in the Yukon, red squirrels chatter and chase throughout forests to the edge of alpine and Arctic tundra. Unlike many other mammals, they prefer to live among mature evergreens, where dense branches offer them highways through the sky, and they

can gather plenty of cones for food. Our best red squirrel habitat is older white spruce forest, where squirrels reach densities of two to three per hectare. They also inhabit stands of black spruce, pine, and aspen or poplar mixed with conifers.

## CHARACTERISTICS

One of the smallest of North America’s tree squirrels, the red squirrel in the Yukon reaches a length of 30 cm and a weight of 280 grams. It boldly advertises its presence and aggressively challenges any and all intruders that enter its particular patch of forest.

Active by day, this feisty rodent attracts our attention with barked challenges and muttered threats. Its winter coat of rust and grey stands out in a snow-dusted world. In summer, it’s cloaked in olive-brown and white, with a bright black line along its side.

At home in the treetops, red squirrels race up and down trunks, gripping

bark with curved claws and keeping balance with bushy, flattened tails. They cling to the undersides of branches, dash through the canopy, and leap spread-eagled to branches below or to the ground. Some fall tens of metres from the tops of trees, yet scamper away unhurt.

On the ground, the red squirrel sticks close to trees, running quickly from the base of one to another until it gets where it’s going. It occasionally takes to the water and swims strongly, sometimes covering distances that surprise summertime paddlers.

Yukon red squirrels build oval nests of dried grasses and stick them firmly into the forks of tree branches. Some of these nests are used simply as platforms for sitting and eating. Others are filled with stores of mushrooms. Most nests are found about half-way up spruce trees, often tucked into the untidy clumps of witch’s brooms (a witch’s broom is an unnat-

usually thick growth of twigs that looks like a big lump on a spruce tree – it's caused by a parasitic fungus). Sheltered by the trees themselves, these nests have linings of grasses shredded so finely that the pieces resemble sawdust.

## GUARDING THE CONE CROP

Lovers of conifer seeds, red squirrels rely on stored cones to carry them through the long northern winters. Their lives depend not only on finding enough cones to harvest, but also on defending cone supplies from thieves. Both of these ends are achieved by the same means – territoriality. Individual squirrels occupy areas within the forest and defend them from others of either sex.

When a twig snaps in the squirrel's domain, it goes on defense, barking out a series of challenging "chuck-chucks" punctuated by emphatic body jerks and tail flicks. If the intruder moves closer, the squirrel bursts into a frenzied chatter, feet stamping and body quivering with aggression.

If trespassers are neighbouring squirrels, territory owners may chase them out. However, red squirrels usually spend less than one percent of their time in defense of their territories, and of this, only a quarter involves chases – the rest is purely and loudly vocal.

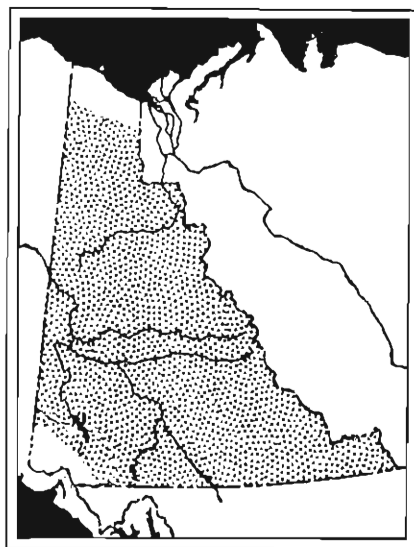
In the southern Yukon, a red squirrel territory ranges from one-third to half a hectare in size and usually has the same boundaries year after year. Within this area, a squirrel may harvest up to 16,000 cones in one season. Occasionally it caches them in a few small stockpiles scattered about its territory, but most often the squirrel stashes all its cones in a central storage depot called a midden.

Middens are piles of bits and bracts from cones already eaten. They're often found around the bases of large trees or under windfalls. Since red squirrels use the same middens year after year, these piles of cone refuse grow in size with age. Older middens may be a metre deep and more than 20 square metres in area.

## CHATTERING THROUGH THE SEASONS

### Spring

Red squirrels mate while the fresh winds and warm sun of spring slowly



*Red Squirrel distribution*

melt the boreal forest's carpet of snow. Zipping through trees overhead and racing across the forest floor, they chase intruders and potential mates in what we see as games of high-speed tag.

Female red squirrels allow males onto their territories for only one day during a breeding season that starts as early as late March and ends in mid-May. On mating day, their scent attracts a group of males, and females mate with one or more suitors before banishing them once again to their own territories.

About a month after mating, female red squirrels give birth to three or four young. Like red squirrels throughout most of Canada, Yukon females produce a single litter each year. Pink and naked, the newborn squirrels depend entirely on their mothers for food and protection. Within a month the young are covered in fine fur, their eyes are open and their teeth have erupted. Although weaned in June or July, at about 50 days of age, young squirrels will remain with their mothers until August.

### Summer

Green cones bulge with ripening seeds as young red squirrels playfight and chase each other both inside and outside of nests. Soon after weaning, they start to practice territorial calls and to forage on their own.

Bustling and busy, both young and adult red squirrels power their lively antics with a fast metabolic rate that

depends on high-energy foods. Most of this energy comes in the form of conifer seeds, buds, and flowers, as well as mushrooms. While these foods supply over 90% of their diet, red squirrels also eat aspen buds, lichens, and berries.

More carnivorous than other species of squirrels, red squirrels take advantage of the summer season to eat insect larvae, wasps, bird eggs and young birds. Scavengers too, they drag foot bones of snowshoe hares and whole carcasses of young hares up into trees to chew on them.

The red squirrel is most active in the cool hours after dawn and before dusk, and spends 80% of its time searching for, collecting, and eating food. At midday, it takes a rest, often soaking up some sun on a log or branch. Careful to "freeze" when a hawk flies over, it races up a tree to taunt any earthbound hunter that appears. Predators of this bushy-tailed tree-dweller include goshawks, northern harriers, red-tailed hawks, kestrels, northern hawk-owls, great-horned owls, lynx, coyotes, wolves, ermine, marten, and fishers.

### Autumn

Spruce cones thud on the forest floor as red squirrels harvest their cone crops. They cut the cones green in August and September, before seeds start to fall. They also collect mushrooms for a winter snack and stash them in trees.

Squirrels living in poor habitats must travel far afield to collect enough cones to survive the winter. These are usually juveniles that have been excluded from better habitat by adults. On the move, they are often exposed to predators and suffer high death rates in the autumn and early winter months. Those that can't find a territory by autumn usually don't survive the winter.

A Yukon study has shown that some red squirrel females give up parts or all of their territories to one or two offspring. By giving up territories to their young, female red squirrels may increase their offspring's survival to carry the family genes on to new generations. Most squirrel deaths occur in the first year of life. However, once a squirrel claims a territory, it may live up to six or more years.

Although the cone crops of pines and black spruce vary little from year

to year, that of white spruce occasionally fails completely. When it does, hardship may come to the chatterbox of the boreal forest. Higher in energy than black spruce seeds and far easier to open than the sealed cones of pines, white spruce seeds are the staple of the squirrel's diet. By eating the buds, sap, and inner bark of spruce trees, as well as mushrooms and rotting cones, the red squirrel may survive the winter following a cone failure.

### Winter

When winter's white cloak settles over the boreal forest, the red squirrel slows down to conserve energy. Forty times less active than in mid-summer, it sticks to its nest more, moves about and calls less. Cold temperatures, high wind speeds, and decreasing daylight have a negative effect on activity levels, with the squirrel leaving its nest only around midday.

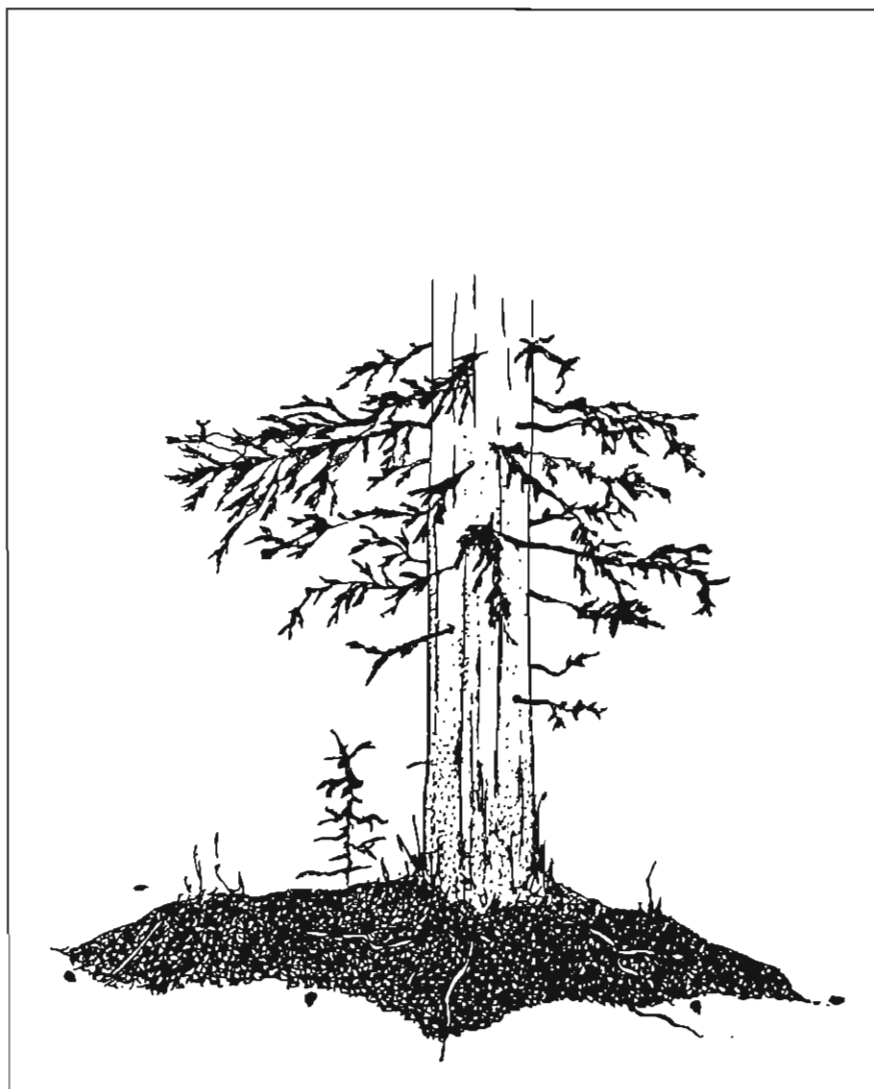
During cold snaps, red squirrels abandon tree nests and burrow into their middens beneath the snow's insulating layer. Snug in their food cache with cones close at hand, they await warmer weather's return.

### RED SQUIRRELS AND PEOPLE

In the old days, Yukon Indians ate red squirrels only in times of starvation, and ignored their fragile skins. However, the squirrel was put to other uses. In the depths of winter, it was sometimes used to cast a warm-weather spell, and throughout the year babies wore diapers of squirrel nest linings, smoked first to rid them of fleas.

After a method was developed to process squirrel skins commercially, the red squirrel became a wanted species. Today more red squirrels are trapped in the Yukon than any other furbearer. Trappers snare many from a single midden, which has led to a belief that squirrels share winter nests. But red squirrels are territorial and don't share nests. The snared squirrels are probably neighbours coming to check out an empty territory. Squirrel pelts are most often used to line coats, but light garments are also made from pelts that are tanned and dyed.

Bold and brazen, red squirrels often invade camps and yards, where they steal objects both edible and inedible, chew up clothing, and pull out cabin insulation to line their nests. Nonetheless, these feisty tree dwellers liven up many a winter's day and likely provide Yukon residents and visitors with more hours of entertainment than any other animal of our boreal forests.



### VIEWING OPPORTUNITIES

Watch for red squirrels dashing across the road with cone in mouth and tail streaming behind. Look for them and their rust-coloured middens in spruce and pine woods near your home, at a campsite, or deep in the back country. Keep an eye out too for mushrooms stashed in trees.

When you're in squirrel country, you'll hear about it. Listen for the red squirrel's scolding chatter, then search the treetops for its jerky movements and twitching tail. If you stay still, it may even check you out – especially your lunch!

## DID YOU KNOW?

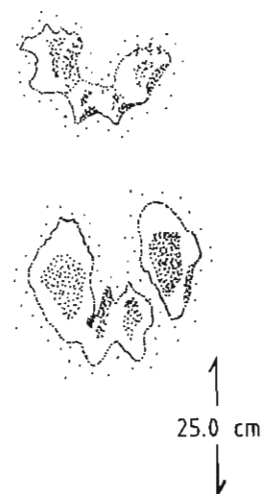
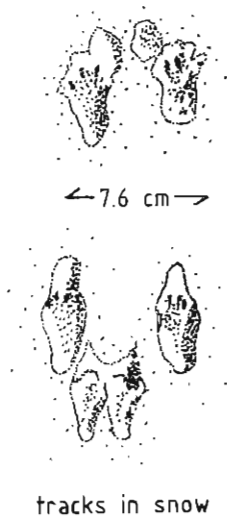
The red squirrel's generic name, *Tamiasciurus*, means "the steward who sits in the shadow of his tail".

Pure black squirrels, a melanistic or dark phase of colouration, are occasionally seen in the Yukon.

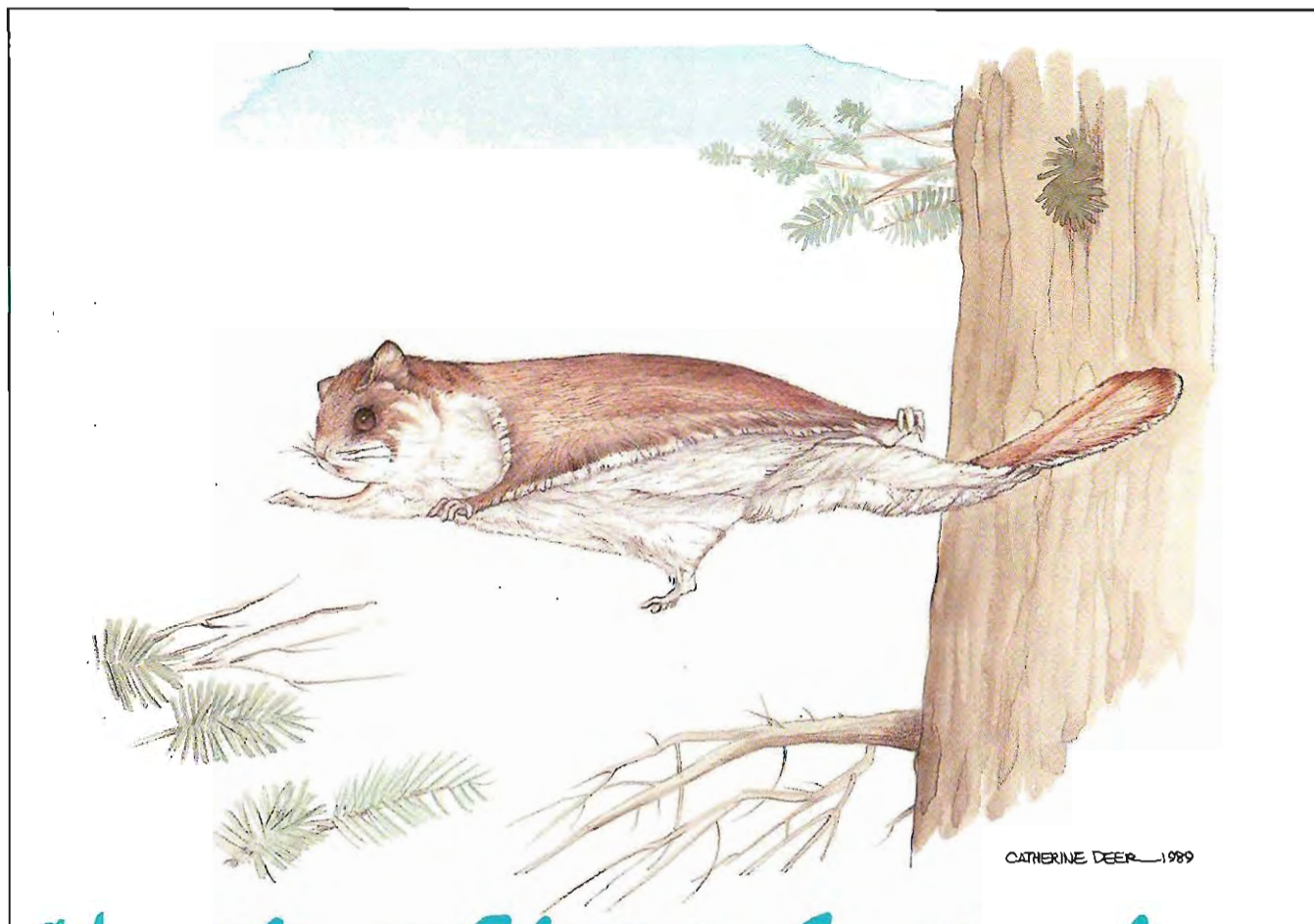
The 'floater' is a secretive squirrel that never calls and never challenges. Instead, it bides its time in areas outside territory boundaries. When a territory becomes vacant, the 'floater' moves in and tries to defend it against other squirrels with the same plan.

Red squirrels can cut one white spruce cone per second and eat 40 to 50 cones a day in winter.

When temperatures plunge to  $-40^{\circ}\text{C}$ , red squirrels increase their metabolic rate by three to four times to burn enough energy to stay warm.



# Yukon Mammal Series



## Northern Flying Squirrel

### THE SPECIES:

*Glaucomys sabrinus*

Clinging to the trunk of a spruce tree twenty metres above the forest floor, a northern flying squirrel turns head down, gathers its muscles, and leaps into space. With four limbs spread wide, the loose skin between them stretched out to create a parachute effect, the squirrel glides for fifty metres, twisting and turning through the trees. Approaching its chosen landing site, it swoops upward at the last moment, checking its speed before settling on to the lower trunk of another large spruce. The squirrel quickly scrambles a few metres up the tree before pausing to survey its new surroundings.

The northern flying squirrel is fairly common in Canada's boreal forests, but because it is a nocturnal species, few people have ever seen

one. Most Yukoners are unaware of the flying squirrel's presence in the territory.

### DISTRIBUTION

Since the flying squirrel has been little studied in the Yukon, its local distribution is not well known. It is thought to occur from the B.C. border north to Dawson City, but the exact northern limit of its range has not been documented.

This squirrel inhabits dense coniferous forests with large mature trees, and is likely confined to lower elevations in the Yukon.

### CHARACTERISTICS

Thanks to its long tail and the mass of skin folded along its flanks, the northern flying squirrel appears to be almost the same size as the red squirrel. But with its delicate body structure, it is considerably lighter. Weights range from 75 to 140 grams, about half the weight of a

red squirrel. The northern flying squirrel is larger than the southern flying squirrel which occupies south eastern North America.

Brownish grey fur on the top surface of the flying squirrel's body contrasts sharply with the pale, cream colored underparts.

The loose skin that extends from wrist to ankle is folded along its flanks when not "in flight". These membranes, which make the flying squirrel less agile on the ground than the red squirrel, function beautifully in the air. Spurs of cartilage extending back from the wrists help to spread the folds of skin. With the aid of its flattened tail, the flying squirrel is able to bank and turn in mid-glide. The large luminous eyes of a nocturnal hunter contribute to the flying squirrel's unique appearance.

### LIFE HISTORY

Northern flying squirrels pro-

## Yukon Mammal Series

bably mate in late March and April, with females giving birth to an average of three young in May. The young are born in a tree nest from one to ten metres above the ground. The nest may be a renovated bird nest, a mass of twigs, moss, and shredded bark arranged around the base of a branch, or an abandoned woodpecker hole or other cavity in the tree trunk. Tree trunk nests are thought to be more commonly used in winter.

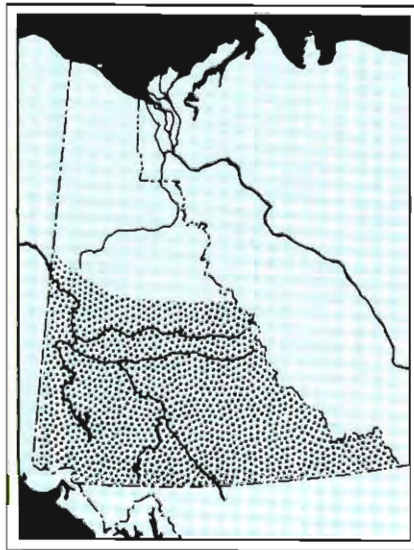
At forty days old, young flying squirrels are walking well but are unable to glide. Occasionally, a mother will glide while holding one of the young with her mouth. At three months of age, the young begin their gliding lessons, and by September they are as mobile as their parents. Young females will be ready to breed the following spring.

Unlike red squirrels, flying squirrels are very sociable. Several adults may feed in a group, and nests are often located close together. In Alaska, as many as 20 flying squirrels have been found sleeping in a single communal winter nest.

Northern flying squirrels sleep through the daylight hours and rise to feed after dark. In southern parts of their range, peaks of activity are thought to occur at 11 P.M. and again at 3:30 A.M.. Flying squirrels are not active during windy nights, but may be out foraging in late afternoons on cloudy days. It is not known how the long daylight hours of the Yukon summer and the long periods of darkness in winter affect the activity patterns of this nocturnal mammal.

The primary foods of the northern flying squirrel are tree lichens, fungi, and the buds, leaves, seeds and fruit of many trees and shrubs. It also eats insects, bird eggs, and fledgling birds, and may scavenge off any carcasses in the area. Much of its foraging is done on the ground. Cones are stored in tree cavities and nests for the winter, and these supplies allow the squirrels to remain near dormant in their nests during blizzards and period of extreme cold.

Flying squirrels glide from one tree to another to forage, but also to escape predators. Owls are their main predator, but foxes, weasels, marten, and even lynx and wolves occasionally eat flying squirrels.



*Distribution of Northern Flying Squirrel*

### FLYING SQUIRRELS AND PEOPLE

As noted earlier, most Yukoners are unaware of the flying squirrel's existence. It is occasionally caught in traps set for other furbearers, but its pelt has no market value.

The true value of this unique and mysterious mammal may lie in the wonder and appreciation for nature that it inspires in many people.

### VIEWING OPPORTUNITIES

How do you view a small animal that only comes out at night? Well, usually you don't, but there are exceptions. More than one Whitehorse resident has been fortunate enough to have a flying squirrel land on a bird feeder near a window.

During the longest days of a Yukon summer, the dark hours are short and still fairly well lit. Since the squirrels will be more visible, this may be the best time to look for them in dense, mature spruce forests, or to visit a nest you may have located.

Knocking on the trunk of a tree with a squirrel nest in it may bring a flying squirrel out, but be careful. Continued harassment may cause the squirrels to abandon their nest.

Flying squirrels are less active in winter, but you can still look for the characteristic landing patch with tracks leading off in the snow.



# Yukon Mammal Series



## Arctic Ground Squirrel

### THE SPECIES:

*Spermophilus parryi*

Standing lookout beside its burrow entrance or scampering across a roadway, the arctic ground squirrel is a familiar sight to northern residents and travellers. An important food source for a range of Yukon predators including the grizzly bear, this rodent has also provided fur and food for Yukon Indians. A true hibernator, the arctic ground squirrel is a welcome sight in late winter, when its shrill whistles signal the swift approach of spring.

Ground squirrels are a wide-ranging, circumpolar group of rodents that occupy five continents. The largest and most northerly distributed of the American ground squirrels, the arctic ground squirrel ranges across the Arctic and subarctic regions of North America and eastern Siberia.

### DISTRIBUTION

Of the three sub-species of arctic ground squirrel that inhabit Canada, two live in the Yukon. The smaller of the two races (*Spermophilus parryi plesius*) occupies the southern and central Yukon. The second type (*Spermophilus parryi kennicottii*) lives in the northern Yukon between Dawson City and the Arctic coast.

The ground squirrel makes its home in arctic and alpine tundra, openings in the forest, riverside cut-banks, and clearings along roadways. Although this species is relatively abundant in the Yukon, its distribution is limited in much of the region by the presence of shallow permafrost which prevents burrowing.

### CHARACTERISTICS

The arctic ground squirrel has a small, plump body, short legs, long claws, small cheek pouches, and a

tail about one-quarter of its body length. Its head, shoulders, legs and under parts are reddish brown, while its back is greyish brown with a pattern of white spots. Melanistic ground squirrels (excessive pigmentation as opposed to the lack of pigmentation of the albino) which are uniformly black in colour, predominate in some localities in the southern Yukon.

Males average 790 grams in weight while females average 700 grams.

### THE COLONY

Arctic ground squirrels are social animals and they live together in colonies. Their extensive burrowing systems tunnel below the surface of the ground to a depth of one metre and are occupied year round. Large burrows may have combined tunnel lengths of up to sixty metres and as many as fifty entrances.

Although they are not highly

# Yukon Mammal Series

territorial, arctic ground squirrels defend small home ranges. Covering an area up to 25 hectares in size, the home range of a male overlaps the range of several females. This pattern allows males greater access to receptive females during mating season. A male's range rarely overlaps with that of another male.

Ground squirrels on good terms with each other, often feed together and groom each other. In an attempt to warn off intruders, defensive ground squirrels may arch or flatten their bodies, flare their tails, and make sharp noises.

One of the major advantages of colonial life is the greater safety from predators that it affords its members. The more squirrels on watch, the less chance of a predator approaching unseen. When one ground squirrel spots a potential threat, it sounds a warning call to alert the others. If sufficiently alarmed, it will plunge down its burrow with a shrill chatter.

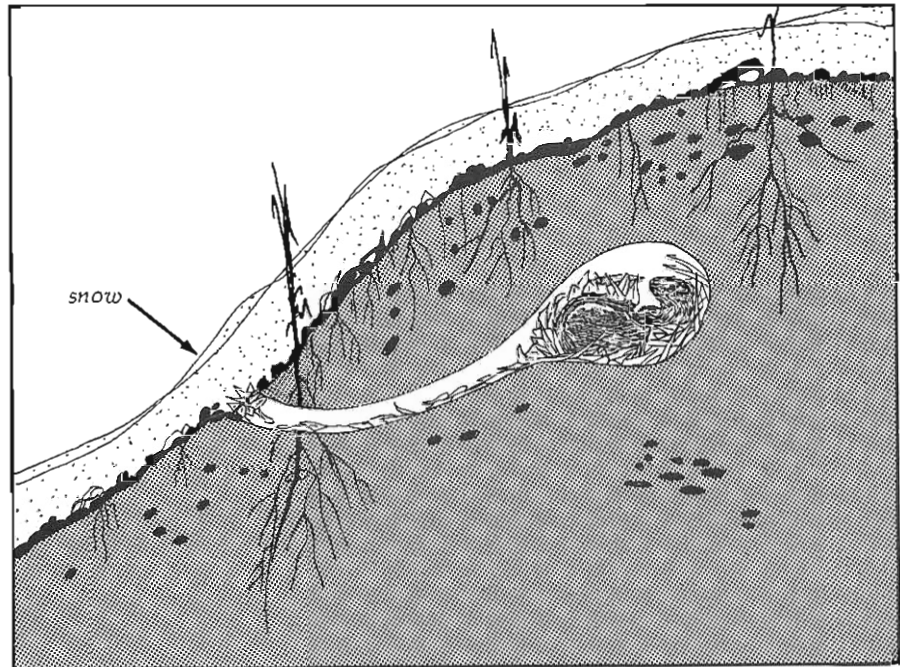
Although squabbles over food are quite common, male and female ground squirrels get along fairly well until the birthing period. Once the young are born, females become extremely territorial and chase off any males that come near their burrows. Relations between closely related females are friendly, but fights break out between distantly related and non-related females. It is not known how ground squirrels are able to recognize their relatives.

## A YEAR IN THE LIFE

### Winter

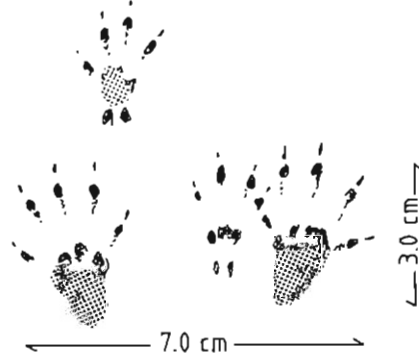
In a snug underground den, curled into a tight ball with its tail tucked over its head, an arctic ground squirrel escapes the bitter temperatures and gusting snow of the Yukon winter. A true hibernator, its breathing and heart rates are lowered and its body temperature drops from 36.4 C to 17 C. The ground squirrel relies on its fat stores, accumulated during the summer months to carry it through the longest and coldest part of the year. During periods of wakefulness in the den, male ground squirrels feed on cached seeds to supplement their bodies' fat reserves.

Deep snowdrifts above their hibernation dens insulate the ground from the -30 C air temperatures. But this is not enough



Winter burrow of Arctic Ground Squirrel

to prevent a ground squirrel from freezing. In addition to lining its nest chamber with grass, it ensures that its nest is elevated above the burrow entrance. Sometimes things go wrong and ground squirrels die in their winter dens. Insufficient insulation from snow, a shallow den, or low fat reserves can spell the end of a ground squirrel's life before the arrival of spring.



### Spring

In mid-April, the first male ground squirrels begin to wake from their winter dormancy. Adult females emerge about a week later, followed shortly by the juvenile females. In the alpine uplands and arctic regions, emergence from the den can be delayed by weather. Since there is still snow on the ground when most ground squirrels first emerge, they remain close to

the burrow until the snow has cleared off.

During the few months of the year when arctic ground squirrels are active, their lives are conducted at a frantic pace. Females produce only one litter a year and have a very little time in which to prepare themselves for pregnancy after emerging from the den.

When breeding begins in mid-May, the males become increasingly territorial, chasing off any other males paying court to females within their home ranges. Interaction between males are especially heated during the mating period, and extensive wounds often result from skirmishes along home range boundaries.

Although males are sexually active for a three week period, each female is receptive for only one or two of those days. The difference in mating period allows males to sire more young, both inside and outside their home ranges. This is important to the social makeup of a colony. Since it has been observed that related ground squirrels get along better, the more widely distributed a male's offspring are, the greater cooperation will exist in the colony.

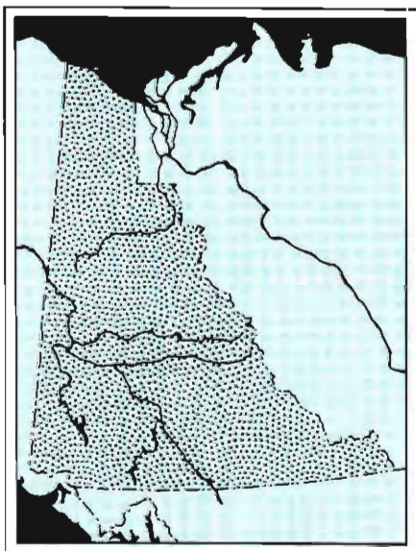
In preparation for the birth of her young, a female ground squirrel adds a natal burrow onto the main

## Yukon Mammal Series

burrow system, lining it with grass and ground squirrel or caribou hair. Natal burrows have smaller entrances than other burrows and are often blocked with a loosely fitting earth plug which helps to conceal the burrow from potential predators such as the weasel.

In early to mid-June, twenty days after mating, the female gives birth to five to ten young. Weighing less than an ounce, the young ground squirrels are blind, naked and toothless, but they develop quickly. Within a week, their weight has increased to an ounce and they are fully furred. By the third week, their eyes have opened and they begin to emerge from the burrow. During this time the young are extremely vulnerable to predation by wolverine, eagles and hawks. Grizzlies also feed extensively on ground squirrels in the spring. Male ground squirrels can be considered predators as well. They often kill and eat non-related young, but the reasons for this are not well understood.

To safeguard her young against danger, a female ground squirrel may take up residence with a closely related female that also has young. This strategy increases the number of adults protecting her young, and if anything should happen to her, they are adopted by the other female. Males related to the group also protect the young by chasing off unrelated males.



Arctic Ground Squirrel distribution

### Summer

With mating over, the ground squirrels spend most of their time feeding and sunning themselves. Legumes such as bear root form the mainstay of their diet, but they also eat grasshoppers, bird eggs, sedges and grasses. Although they are basically vegetarians, meat from the carcasses of lemmings, birds, caribou and other ground squirrels is also eaten. In June, ground squirrels feed on the buds and catkins of willow, goldenrod and figwort and, in the alpine, mountain avens. As summer progresses, lupine seeds are consumed in large amounts along with ripening raspberries, strawberries and soapberries.

In the clearings of the boreal forests, the August diets of male and female ground squirrels begin to change. As the females prepare for hibernation, they start feeding extensively on sage. A month later, in September, the males also begin eating large quantities of sage.

By late summer, the young ground squirrels have almost attained their mature weights, but in order to survive the long winter, they must still store up large quantities of fat. To allow themselves more time to do this, young squirrels den up for winter later than most of the adults.

### Fall

When the first frosts hit and summer vegetation begins to wither, grizzlies search for ground squirrels to satisfy their voracious appetites. Entire colonies may be excavated by a sow and her cubs as they prepare themselves for their own hibernation.

The first mature female ground squirrels begin to hibernate in mid-July and most of them are bedded down by mid-September. Juvenile females stay active a little longer and start denning up in mid-August and early September. During early fall, male ground squirrels begin to amass large quantities of seeds which they cache in the hibernation den or in nearby passages. By the time the first snow falls in mid-October, both the adult and juvenile males have settled in for winter. As the temperatures begin to plummet, all are safe within their dens, waiting for spring to release them from their sleep.

### THE HUMAN CONNECTION

Although the arctic ground squirrel was not essential to the survival of Yukon Indians, spring was eagerly awaited as the time when the tasty, well-furred gopher once again graced the land. It was the women who trapped arctic ground squirrels, first in mid-May and again in late summer. Snares were made of twisted sinew or the flexible midrib of a crow or eagle feather. Ground squirrels are still eaten today and are considered to be at their best in late summer.

Ground squirrel pelts were traditionally used for making robes and trimming ceremonial garments. Gopher grease was eaten in small amounts, but because it did not solidify in the cold, it retained its smell and was frequently used for mink and lynx bait.

Since there are few markets for gopher skins, very little trapping effort is directed at them today.

### DID YOU KNOW

*An arctic ground squirrel may store as much as two kilograms of seeds, berries and leaves in its winter food cache.*

*In mild winters, ground squirrels may still be out and about in late November and early December.*

*Arctic ground squirrels have been observed feeding more than a kilometre away from their burrows.*

*Ground squirrels have been known to swim across large, swift rivers.*

*Arctic ground squirrels change from their winter to summer coats in June, and back to their winter coats in September.*

### VIEWING OPPORTUNITIES

Arctic ground squirrels are very common in the Yukon and are familiar to most of us. But if you want to know more about this animal, you will have to watch it for a while and observe its social interactions.

You should have no trouble finding ground squirrels along most Yukon roadways. Remember that they are most active on warm, sunny days but remain in their burrows during periods of rain and intense heat.

## Yukon Mammal Series



# Beaver

## THE SPECIES: *Castor canadensis*

Twig in mouth, nimble forefeet busy, a beaver inspects and repairs its dam. As a tree cutter, this largest of North American rodents is unique among mammals. As a dammer of streams, it can alter a landscape while creating its own special home – the beaver pond. And, as a wearer of fine fur, this New World species is credited with a leading role in the European exploration and settlement of much of our continent, including the Yukon.

## DISTRIBUTION

Beavers cut trees and dam streams across Canada and the United States except for Florida, the arctic tundra, and arid regions of the Canadian prairies and American southwest.

Here in the Yukon, beavers inhabit forested and subalpine regions throughout the territory. Ideal sites for colonies

are ponds, small lakes, and narrow, slow-moving streams. Highest densities occur in burn areas, like the Takhini and Teslin Burns, and in the Liard River drainage. In areas such as these, colonies over a long stretch river are separated by an average of 2 km. The closest colonies may be as little as a few hundred metres apart.

## CHARACTERISTICS

More at home in water than on land, the tail-slapping, tree-munching beaver is one of the most easily identified of mammals. Its most characteristic of features – that broad, flat, black tail up to half a metre long – is used not only to warn family members of danger, but also to maneuver in water, to prop up its owner while gnawing through trunks, to lever logs being dragged to the pond, to store fat for winter, and to lose excess heat during exercise.

Although clumsy and hump-backed on land, the beaver is graceful and

streamlined in water. Its hind feet are broad and webbed, serving as powerful paddles. Dense fur, a rich brown in colour, traps air in a buoyant, insulating layer that helps beavers to stay submerged for up to 15 minutes. Other adaptations to its aquatic lifestyle include lips that close behind front teeth, enabling this pond dweller to eat under water; nostrils that close, ears with valves, and eyes protected by transparent eyelids.

Nature's logger, the beaver chews through wood with stout, ever-growing incisors kept chisel-sharp by the frequent grinding of upper teeth against lower. The power behind those amazing, orange teeth comes from a strong skull and massive jaw muscles.

Once a tree is down, the beaver's sturdy body, half a metre long and heavy with bone and muscle, is ideal for dragging the branches, or a section of trunk, to the water. Weighing up to 23 kilograms, Yukon beavers are

lightweights compared to Ontario beavers, some of which weigh almost twice as much. Poorer habitat and short growing seasons may explain why Yukon beavers are smaller than southern Canadian beavers.

### CASTOR'S CONSTRUCTION CO.

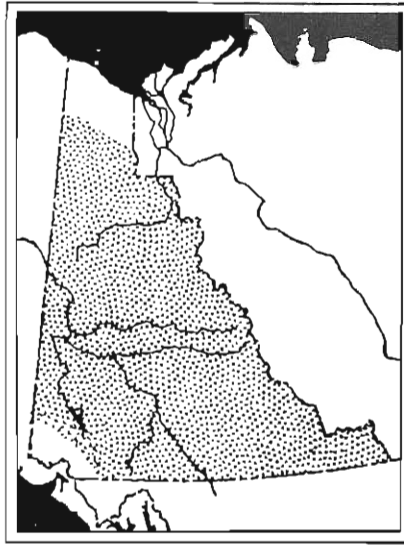
By tuning in to the noises made by water flowing over obstructions, beavers get their directions straight for damming. Then they use small, agile forepaws to push mud and stones into a ridge along their chosen site across a narrow stream or even a broad slough. With the whole family chipping in, they push sticks and logs into the muddy ridge for support, sometimes using the peeled remains of winter food caches. Then they add more muck and rock, and keep on building until the dam is high enough and long enough to prevent water from flowing over or around it. Instead, the trapped water seeps slowly through the dam, which acts more like a sieve than a blockade.

A beaver dam may be more than three metres high and can stretch for hundreds of metres. Sometimes a dam spans an entire river and changes its course. The end result is a pond two to three metres deep in which its architects can build a secure lodge and swim beneath the thickest ice of winter.

Dams extend beavers' food-gathering range by flooding cut-over areas and giving access to new stands of shrubs and trees. They also kill shoreline trees and create new willow habitat. Frequent inspections and maintenance keep dams in good repair throughout the life of the colony.

Home-builders too, beavers dig burrows in banks or build lodges of sticks and mud; some do a combination of both. 'Bank beavers' live on rivers, where currents sweep away sticks and make lodge-building difficult. 'Lodge beavers' live in quiet waters, where you can find their houses tucked against a shore or completely surrounded by water.

The beaver lodge, typically a mound of logs, sticks, and mud, rises above water level and has a nesting chamber within covered by a loose roof of sticks to allow for ventilation. An underwater tunnel near the bottom of pond or stream gives beavers entry to their dry home and prevents entry by all predators except otters. The lodge dwellers



*Beaver distribution*

sleep and dry off on ledges surrounding the tunnel entrance. Water from wet coats filters down through a carpet of wood chips and fibers, keeping the lodge dry. Before cold weather sets in, beavers winterize their homes by adding more layers to lodge roofs and smearing them with mud. When frozen solid and covered with snow, the lodges are snug and almost impossible to penetrate.

### THE SOCIAL SIDE OF LIFE

Beaver life is a family affair that centres around an adult female. She chooses the colony's home site and, here in the north, mates with one male for life. Her mate and litters of one or more years make up the rest of the family circle. An average colony has five members, and all colonies live within small, well-defined territories that contain their ponds and food supplies.

A beaver family works together to build and repair dams and lodges, and to prepare a winter food cache. When kits are young, all family members bring them leafy branches and herbs to eat. The adult male brings them most of their solid food, an unusual trait among mammals. By the time autumn arrives, kits are ready to take part in the gathering of food for winter.

With all the time and effort spent in the building and maintenance of dams and lodges, beavers have to protect their investments. During spring break-up, when juveniles are on the move in search of sites to set up or

take over colonies, an established colony goes on the defense. The whole family piles mounds of plants and mud on shore, then marks them with castoreum. These sign posts set territory boundaries and let dispersing beavers know the ages, sexes, and reproductive condition of family members. They not only discourage intruders, but also let dispersing beavers know if an adult has been lost and needs replacing.

Juveniles leave their home colony at one to three years of age. They travel by land and water, sometimes more than 150 kilometres, in search of sites where they can start their own colonies. En route, they often clash with members of established colonies, and many a beaver with a battlescarred pelt and torn tail has been seen.

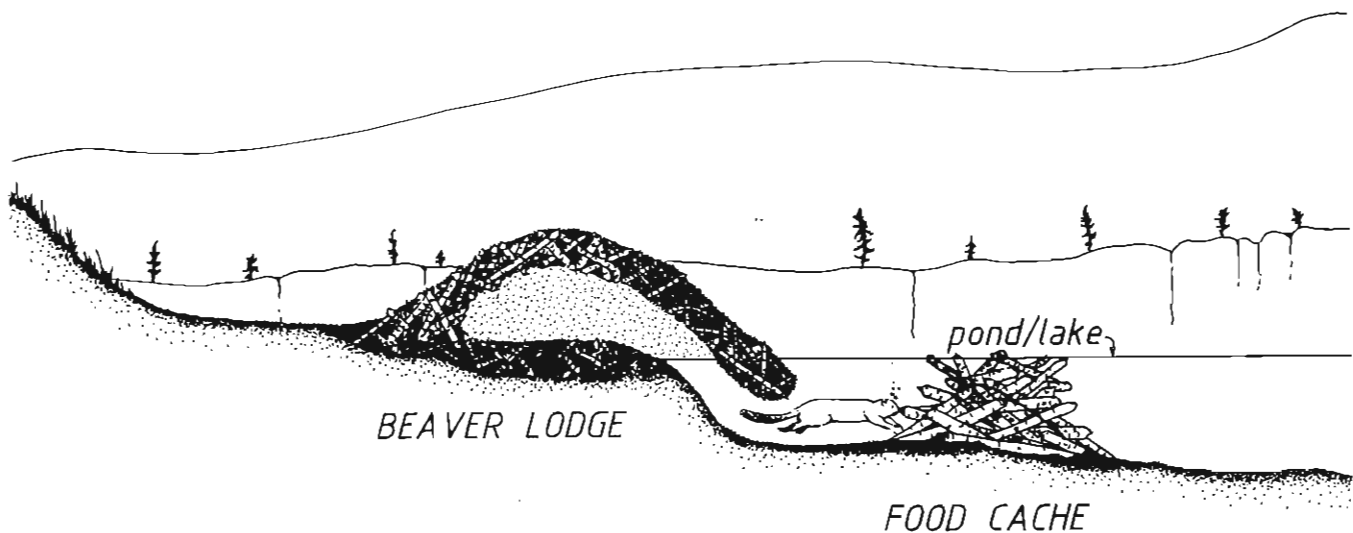
Although young beavers are quite safe in their home colonies, about 90 percent of dispersing yearlings and two-year-olds are killed by predators, crushed by moving ice, or die from diseases before they can establish a new colony. A few of those that succeed may reach the ripe old age of 20 years, but most beavers die at less than half that age.

Many colonies go in cycles. Three to four years after a new colony establishes itself, it reaches its greatest size. After five or six years, the colony begins to over-eat its food supplies. Fewer young are produced, fewer beavers survive the winter, and food supplies diminish. Eventually the colony abandons its site to avoid starvation. After a few years, the food supply may regrow to point where new beavers are able to move in. Where the colony has been surviving on temporary food sources such as fire-caused aspen stands, the site may be abandoned permanently.

Some colonies are able to shift their cutting operations up or down stream as food supplies diminish, and in this way are able to occupy the same colony site on a semi-permanent basis. Others may concentrate on temporary food sources such as fire caused aspen stands.

### GNAWING THROUGH THE SEASONS

While winter winds howl and temperatures plunge, a family of beavers sits tight in its lodge. Beneath the ice, they live in total darkness for up to 8 months of the year, sleeping, eating, and grooming their waterproof fur



with split nails on two toes of each hind foot. Having cached branches and logs of willow, poplar, dwarf birch, and aspen near the lodge's entrance, they brave icy pond waters only to visit their pantry. Beavers eat twigs, leaves and buds, or gnaw at soft inner bark. In February and March, adults take to the water for a different reason – mating.

When the ice melts, juveniles leave their home colonies and the rest of the beavers get busy. They patrol their territories, scent-marking and challenging intruders. They sample the new leaves, twigs, bark, and buds of most plants growing in or near the water. Aspen is the beaver's first choice for cutting throughout North America, but is not widespread here in the Yukon. Instead, willow is our beavers' main source of food, and they will eat spruce only when faced with starvation.

In spring, beavers repair dams threatened by high water. They also build new ones to flood an even larger area and bring more trees and shrubs within easy reach. Later on, when water levels drop, they save energy by digging canals and floating logs to their ponds instead of dragging them.

Early in summer, three or four kits are born within lodges or bank burrows,

each weighing roughly half a kilogram. Fully furred and with incisors ready to chew, they can swim in the underwater entrance within a few minutes. They start to eat leaves and herbs within a few days. At two weeks of age, kits make their pond debut and start slapping their tails soon after. Here in the north, beavers grow slowly throughout their first year, and then only in subsequent summers until they reach adult size at four years.

With the first frosts of autumn, beavers step up their logging as they begin to prepare food caches for winter. These gnawing wizards can fell small aspen in three minutes and will cut down trees up to a metre in diameter. They first chew one groove, then add another below and rip out the wood chips between until trees tremble and topple. Because one logging skill beavers lack is that of aiming the direction of the fall, they are occasionally crushed by their own timbers.

Since beavers on land are vulnerable to predation by coyotes, wolves, foxes, eagles, bears and lynx, they rarely go inland more than 30 metres. And since it takes more time and energy to fell a large tree than a small one, the larger the tree, the closer it must be to the water. Large trunks are left behind

while branches and saplings are dragged to the water and piled in a cache near lodge entrances. Beavers cut trees as long as they can break through the ice near shore. They rely on the cold water to keep their winter food supplies fresh.

## BEAVERS AND PEOPLE

Beaver pelts have historically been among the most desirable of furs. In the old days, Yukon Indians set nets in front of entrances to beaver lodges and used moose-hoof bells to signal a catch. In spring, they also lured beavers to their death by baiting holes in the ice with poplar twigs and branches, then spearing the beavers with antler or bone spearheads.

For the Tlingit and Tagish, the beaver is the most important crest animal or totem. They call it "Smart Man" because of its ability to cut trees and build dams like people do. They also tell powerful legends of an eight-legged, double-tailed beaver that is featured on ceremonial shirts that have been passed on for generations.

During the 1700s and 1800s, hats made from the felt of beaver fur were the fashion rage in Europe. Demand for beaver pelts led to the exploration and settlement of large tracts of North

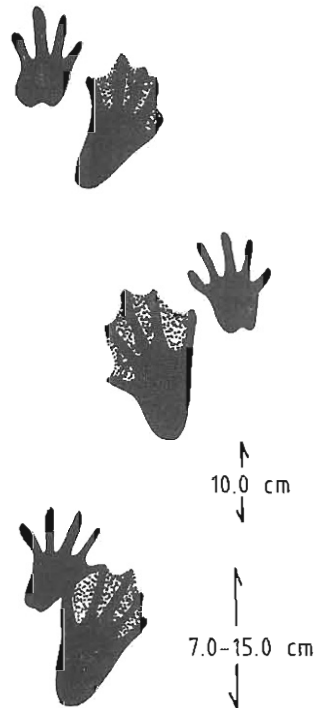
American wilderness, with fortunes made or lost, and bitter trapping feuds along the way. By 1840 the beaver was largely exterminated in eastern Canada and a representative of the Hudson's Bay Company — Robert Campbell — descended the Liard River and entered the Yukon in a search for rich new trapping grounds.

Today, the beaver is a national emblem whose fur is not as valuable as it once was. However, this most industrious of mammals is now also valued for the castoreum that it secretes, which is used as a perfume base, and for the valuable habitat it creates for other animals and plants.

### **VIEWING OPPORTUNITIES**

Any spot where aspen or balsam poplar grows near water is prime beaver habitat. River and lake travellers are in the best positions to view beavers, but hikers and highway drivers have a good chance of spotting them as well. You will likely see beaver sign before seeing the beavers themselves. Look for pointed stumps, dome-shaped lodges with nearby underwater branch piles, shoreline scent mounds, dams, canals, and trails that beavers use for dragging twigs and branches to their ponds.

Beavers are most active at night, dawn, and dusk. They swim with only their heads above water, and trail a characteristic "V" wake. They have poor eyesight, but excellent noses and ears, so approach them quietly from downwind. If you hear a resounding SMACK!, you can bet they've spotted you or something else that's a potential threat. Sit tight or back off and try a different approach — they'll reappear eventually, and your patience will be rewarded with a viewing of one of nature's most ingenious mammals.



# Yukon Mammal Series



## Deer Mouse

### THE SPECIES:

*Peromyscus maniculatus*

Eyes bright, nose twitching, a deer mouse crouches hidden while voices and boots pass by. Then off it scampers through aspen leaves, along a log and into the safety of its tree stump nest. Unknown to many people, vermin or friend to others, this mouse may be North America's most widespread rodent and is one of the Yukon's liveliest small mammals.

### DISTRIBUTION

Deer mice occur throughout southern and central Yukon, but are absent beyond treeline in the north. They are very common in a wide variety of dry habitats, from gravelly beach ridges to spruce and aspen forests.

### CHARACTERISTICS

Young deer mice have dark grey coats with white feet and underparts, and a long tail that is distinctly dark above and white below. Most adults have buffy brown coats, but those in our southwest corner have greyish coats. Deer mice are so named because their two-tone coats look like that of the white-tailed deer.

Yukon deer mice will fit easily into your cupped hand and weigh less than a first class letter. At about 20 grams, adults are fairly large in comparison to other Canadian deer mice.

### LIFE ON A FOREST FLOOR

As buds burst open in the warmth of spring sunshine, deer mice leave solid earth below and climb into shrubs and trees to eat the rich new growth. They use their long tails to help grasp twigs or to keep their balance, and can climb a

metre or higher. Back down on the forest floor, they also find spiders and insect eggs or larvae.

Deer mice start breeding in May, when males set up loose territories. These are areas from which other males are excluded, and to which females are attracted. Since male deer mice avoid each other and are quite sociable with females, there is no strong territorial defense. The breeding season lasts two or three months and females produce up to three litters during this time, each with an average of six young.

Newborn mice are blind and naked. Their large, night vision eyes open within 2 weeks and they soon are covered in dark grey fur. At 6 weeks of age the litter is independent, but less than half of the young mice survive and few will live past their second winter.

Long summer days ripen fruits and seeds and hatch insects, all good foods for the increasing deer mouse

# Yukon Mammal Series

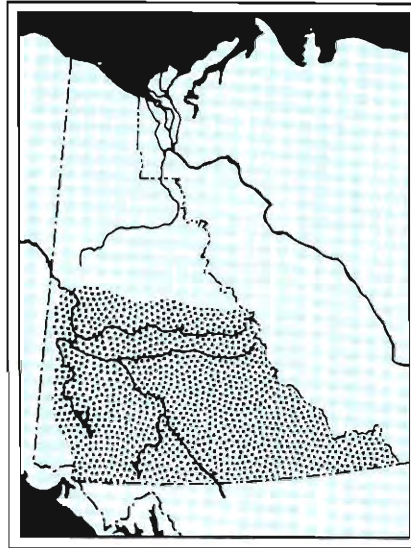
population. Deer mice are active only during dark hours, so their summer food-gathering time is limited here in the land of the midnight sun. Since these mice must reach a certain weight before becoming sexually mature, this limited foraging time may be one reason why Yukon deer mice don't breed in their first summer. It may also explain why they have a relatively short breeding season when compared with more southern deer mouse populations.

Numbers of deer mice peak when late August and early September frosts turn aspen leaves to gold. Young mice disperse from the site of their birth and may travel 10 times as far as their parents' home range. While looking for a good place to spend the winter, they often invade houses, cabins and sheds as well as their natural nesting sites of hollow logs, tree stumps or burrows abandoned by other animals.

Deer mice build ball-shaped nests of grass and line them with fur, downy seeds, or bits of cloth and paper. They stockpile seeds of grasses and forbs, first tucking them into their cheek pouches, then carrying them to a cache near their nest. The seeds are sorted carefully into different kinds and may total more than three litres.

Deer mice don't hibernate, but do escape the coldest times of winter by resting in a sluggish condition called torpor. When winds howl and temperatures plunge to -40 C, you can find them snug in their nests, often with company.

During the long winter nights, deer mice visit their seed stores and search for other sources of food. On top of the snow, they're exposed to the keen eyes of owls, and many an owl pellet contains deer mouse remains. Since Yukon deer mice don't breed during the winter, there are no new mice to replace those lost to winter hardships and predation by owls, weasels, and foxes. Populations hit rock bottom in early spring, but are soon on their way up once more with the onset of breeding in May.



*Deer Mouse distribution*

## DEER MICE AND PEOPLE

Because of its small size and nocturnal habits, many people don't even know the deer mouse exists. Of those who do, some see it only as a pest that invades their homes or garages and shreds mattress stuffing or leaves droppings on kitchen counters. Others enjoy the company of this perky rodent and some are glad to have it share a lonely cabin through the long winter.

## VIEWING OPPORTUNITIES

If you've heard a scritch-scratch in your walls and found small, black droppings in your cupboards, you're likely sharing your home with a deer mouse. Put a dab of peanut butter in an open cupboard and watch patiently for your late-night guest. For a more natural viewing, try sitting quietly in the woods at dusk, remembering that deer mice prefer dry places and often run along logs or scamper around the bases of trees.

If you can't see the mouse itself, you may be able to find signs of its presence, like its droppings that look twisted and are pointed at one end. Perhaps you can also find its ball-like nest made of grasses and tucked into a stump, or one of newspaper shreds in an old boot. In winter, look in the snow for a delicate trail of 4 tiny paw prints in clusters spaced about a hand's length apart, along with the occasional tail drag mark.

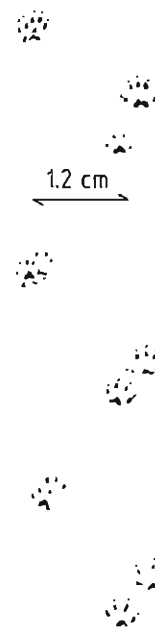
## IDENTIFICATION

To many of us, any wee creature scurrying among the leaves or peeking out at us from behind a cabin cupboard is a mouse. You can tell if it's a deer mouse by checking the following key features of deer mice and other Yukon small mammals:

**Deer Mice -** Have what we think of as the typical mouse shape. They have large ears and eyes, long whiskers, and a fairly long tail. Deer mice are brown or grey above and white below.

**Voles -** Have short, chunky bodies. They also have very small ears, beady little eyes and short tails. Voles are brown above and grey below.

**Jumping Mice -** Have bodies that look hunched up like kangaroos. They have large hind feet and extremely long tails. Jumping mice are yellowish-brown above and grey or creamy below.



## Yukon Mammal Series



# Voles

### THE GENUS:

*Clethrionomys*,  
*Microtus*,  
*Phenacomys*

Tiny feet blurred, rusty coat touched by the evening sun, a red-backed vole scurries through the moss and into a shelter beneath a spruce log. Wee and wary, it's our most common 'short tailed mouse'. The Yukon has 7 species of voles that can be distinguished from other small mammals by their beady little eyes, small ears, chunky bodies and short tails.

Because of their small size and secretive ways, many people don't even know that voles exist. Yet, as the main source of food for valuable furbearers like ermine, foxes and coyotes, they play an important role in the Yukon's economy. The Southern Tutchone, Tagish and Inland Tlingit regard these "mice"

with affection and amusement, and often credit them with wisdom and power.

### RED-BACKED VOLE

*Clethrionomys rutilus*

#### Distribution

Red-backed voles live round the world in northern countries and occur throughout the Yukon from Arctic coast to southern border. They typically inhabit spruce forests but can also be found in many other habitats, including aspen stands, shrublands, and arctic and alpine tundra.

#### Characteristics

Bright, rusty-red backs that contrast with tawny sides and brownish underparts give these voles their name. Even their short tails are reddish on top. Red-backed voles are small and slender, weighing about 20 grams as adults.

### Life History

As the last snow melts in late May, tiny red-backed voles lie naked, blind and deaf in a nest beneath a spruce log. Within a week the youngsters crawl feebly, and in 2 weeks they scamper about and groom their soft, reddish brown fur. Less than a week later, when they weigh about the same as a nickel, they're weaned and leave the nest.

The youngsters scatter through the forest, sticking to the cover of logs and deadfalls, or scurrying through tunnels in moss and leaf litter. Yukon red-backed voles are active day and night, nibbling at lichens and fungi as well as buds, leaves and twigs of shrubs or forbs. They build nests of grass, moss, or lichen and tuck them beneath rocks and stumps, or into shallow burrows abandoned by other rodents.

Many young voles die in their first month and less than half survive to see next spring. Some fall

# Yukon Mammal Series

prey to the talons of owls and hawks, others to the teeth of roving adult voles, weasels, foxes and coyotes. When our long mid-summer days begin to ripen fruits and seeds, survivors of May litters are red-coated adults.

In the social world of the red-backed voles, breeding females are dominant over all other individuals. They set up territories around their nests and have exclusive use of these areas. They're very aggressive and fight off other voles, accepting a male only when they're ready to mate. And mate they do.

Red-backed voles are reproductive wizards, with females breeding continuously from May through August. Pregnant and nursing at the same time, they produce an average litter of 6 young every 3 weeks or so, leaving even the prolific rabbit in the dust. However, along with a high reproductive rate, they also

one year than another. When numbers are high, space gets tight in good habitats and female young of the year don't breed until next-spring. This may be a way in which Yukon red-backed voles regulate their population size.

With the first frosts of late August and early September, the whirlwind breeding season of the red-backed vole comes to an end. Vole numbers reach their annual peak, breeding territories break down, and young voles disperse in search of good places to spend the winter. As the days get shorter and shorter, red-backed voles search for ripe seeds and occasionally raid a root cellar or storage shed. Unlike many small mammals, these voles don't stockpile food for the long winter months ahead.

When winter casts its white cloak over the north, red-backed voles have the freedom of the boreal

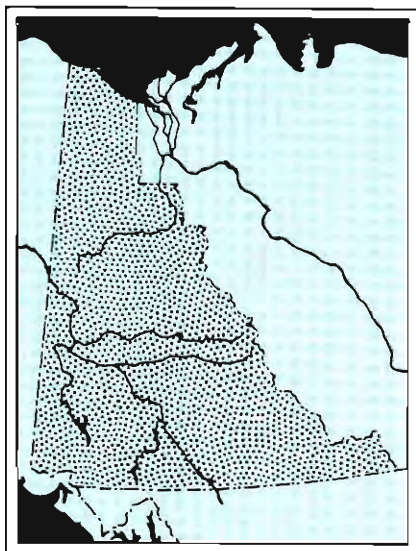
dioxide does build up so voles must punch an airhole through to the surface here and there.

Yukon red-backed voles don't breed during the winter, and their numbers drop from the autumn peak to an early spring low.

## Viewing Opportunities

The best way to see any of the Yukon voles in a natural setting is to first find some sign of their presence, and then wait patiently for the voles themselves to appear. Think about where these voles like to live, when they're active, and hope that numbers are high in your area. Remember that red-backed voles are active 24 hours a day and stay under cover, so watch for them running along beneath logs.

Before a thick snow layer develops, look for tiny paired paw prints, slightly offset and 2 or 3 centimeters apart. Later, when these

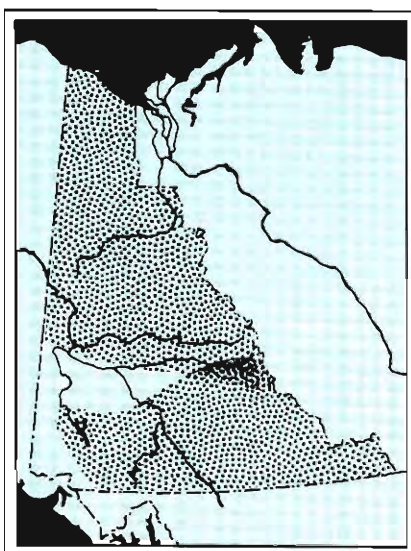


Voles common to entire Yukon

- Red-backed Vole
- Meadow Vole
- Northern Vole
- Longtailed Vole

have one of the shortest lifespans known among mammals, with few living beyond a year.

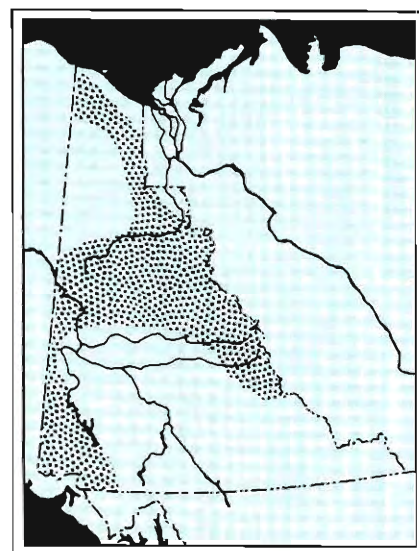
Even though females born in-spring are sexually mature by mid-summer, they don't breed unless they can set up and defend a territory. That's no problem if the vole numbers are low. However, Yukon populations fluctuate from year to year and can be 10 times higher in



Distribution of:

- Chestnut-cheeked Vole (northern shaded area)
- Heather Vole (southern shaded area)

forest. Beneath the snow, they build long tunnels and place grass nests on the ground. They don't hibernate and are active all winter, feeding on seeds, twigs and winter buds of heaths and shrubs. Snow not only protects red-backed voles from predatory eyes, it also keeps them warm. Temperatures in the sub-nivean layer may be 20 degrees Celsius warmer than air temperature. However, carbon



Distribution of the Singing Vole

voles are busy beneath the snow, you may be able to spot some round air holes that come to the surface and sometimes have a few droppings at their edges.

## MEADOW VOLE

*Microtus pennsylvanicus*

The meadow vole or "field mouse" tunnels its way through wet meadows and grasslands throughout the Yukon. Its chunky body is dark brown above, silvery gray below, and weighs about 35

grams. This is a feisty rodent that lives in large but not very cooperative colonies. Females are dominant to males and defend small territories around their nests. Males are also aggressive and fight viciously during the breeding season. Since neither sex is very sociable, a tussle usually ensues whenever strangers meet. Like their red-backed cousins, these voles are reproductive wonders and rarely live longer than a year.

Hidden in a grassy world, meadow voles are active day and night throughout the year. In spring they feed on new grass shoots, in summer on grass leaves and seed heads. They build ball-like nests of woven grass and tuck them into shallow burrows or grassy tussocks. Engineers too, these voles build highways or runways first by chewing through grass stems to clear a space, and then trampling down trails.

Come autumn, meadow voles stockpile ripe grass seeds for the long winter ahead. Later they build winter nests of dried grass and place them on the ground beneath the snow. Their runways get plenty of use in winter too, when snow covering the grass adds insulation and gives an extra measure of protection from avian hunters.

You can often spook a meadow vole into view just by walking through the grass in an area with lots of sign. Soon after snowmelt is an especially good time to look for runways, flattened winter nests, and brown oval droppings. Meadow voles sometimes chew the bark from shrub stems beneath the snow, so look also for bare stems with tiny, parallel tooth marks. In high population years, these voles may girdle ornamental trees and shrubs, and often raid haystacks too.

## HEATHER VOLE

*Phenacomys intermedius*

Heather voles resemble meadow voles so closely that the two are virtually impossible to tell apart unless you have one of them in hand. If the one you have has very loose skin, a somewhat orangy nose, and sits calmly in your hand, it's a heather vole. If neither of the first two characteristics apply, get out the band-aids because meadow voles

## DID YOU KNOW?

*The Yukon and Alaska have more kinds of vole-like rodents than anywhere else in North America.*

*The singing vole was first discovered in the Yukon in 1943 during construction of the Alaska Highway.*

*Yukon villagers say dogs gorge themselves sick on chestnut-cheeked voles during population explosions every 20 years.*

*Many of the Yukon's winged and four-footed hunters rely on voles to get them through lean years following crashes in snowshoe hare populations every 10 years.*

*The heather vole looks so much like the meadow vole that it fooled scientists until 1889, when close examination showed that it has quite different teeth from the meadow vole. Its scientific name means 'deceiver'.*

*Furbearers have a taste for voles and specifically hunt them rather than other small animals.*

*Voles have some of the highest reproductive rates known among mammals, and some of the shortest lifespans.*

rarely leave your fingers intact.

The range, preferred habitat, and habits of the heather vole may also help you to separate it from the meadow vole. Heather voles occur only in southern Yukon in broadleaf and coniferous forests, shrublands and meadows. A key element of these different habitats is the presence of heaths and shrubs like blueberry, dwarf birch, willow or soapberry.

This vole is solitary in summer and is active during twilight and dark hours. It feeds on the green parts and berries of heaths and shrubs in summer, and on their bark and buds in winter. It also caches twigs for winter food supplies, and makes its winter nest of heather twigs, lichens, and grasses.

## ROOT (TUNDRA) VOLE

*Microtus oeconomus*

The root vole may also be confused with the meadow vole since they not only look alike, but have

very similar habits too. As well, their ranges overlap throughout the Yukon except for the southeastern corner, where the root vole is absent. However, there are some clues as to the root vole's identity. Its brown coat has a yellowish wash and it is on average slightly larger and heavier than the meadow vole. The root vole also occupies a greater variety of habitats than the meadow vole. Northern populations prefer to live in damp tundra vegetation near lakes and streams, or in sedge and cottongrass meadows. Southern populations can be found in alpine tundra, marshes, and poplar and spruce woods.

In autumn the root vole stores grass seeds and underground stems of licorice root and knotweed. This thrifty habit led scientists to give it a specific name meaning the "economic vole". In the past, Southern Tutchone women appreciated the root vole's industrious nature, since it saved them the trouble of finding licorice root (*Hedysarum* sp.) for themselves. They would locate the small piles of dirt that mark a vole's underground storehouse, then dig up the licorice root with a stout stick and add it to their own winter food supplies.

## LONG-TAILED VOLE

*Microtus longicaudus*

Weighing up to 60 grams, the greyish long-tailed vole is one of the Yukon's larger voles. However, its outstanding feature is a tail of six or seven centimeters, far longer than the tails of our other voles.

The long-tailed vole is found throughout the Yukon except for the arctic coastal plain and lives in a wide variety of habitats, including marshes, closed spruce forests and alpine tundra. Few studies have been done on this vole, but its habits are thought to be similar to those of the meadow vole.

## SINGING VOLE

*Microtus miurus*

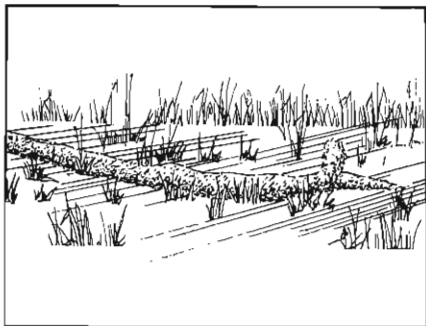
The singing vole is another medium-sized Yukon vole, weighing 25 to 40 grams. Its coat is buffy brown all over and it has a very short, bristly tail. It occurs in arctic

## Yukon Mammal Series

and alpine tundra, willow thickets, and spruce forests throughout the Yukon except the southeastern-corner.

Singing voles are active day and night throughout the year. They live in colonies that dig shallow burrows and make inconspicuous runways. From their burrow entrances they chirp and trill loudly, earning their name. These voles have also been called 'hay mice' because they pile grasses, lupine and willow leaves into stacks up to 25 centimetres high in preparation for winter.

Not especially wary, the singing vole often comes out into the open to clip off a lupine stem and drag it back to its hay pile. So, if you can find a freshly excavated burrow or a pile of vole hay curing around the stems of a willow or under a log, you may be able to spot a singing vole. Sit quietly, watch the burrow, and listen for single-note, bird-like chirps.



Winter runways exposed after snowmelt

### CHESTNUT-CHEEKED VOLE

*Microtus xanthognathus*

Chestnut-cheeked voles are the giants of Yukon voles, weighing up to 170 grams. They too are brown in color, but have obvious rusty-yellow cheek patches. They occur throughout the northern half of the Yukon in colonies that dig deep burrows in forests, logged-over woodlands, or on grassy slopes. Piles of dirt one to three meters in diameter show where burrow entrances are, and wide runways radiate outward from a central burrow.

Like the singing voles, chestnut-cheeked voles are active both day and night and make chirping noises when intruders approach their burrows. Colonies of this rat-sized, orange-cheeked vole appear and disappear with no apparent rhyme or reason, making it a difficult species to observe and study. Look for fresh dirt piles and runways; if you're lucky enough to see one of these voles, you can't mistake it for any other.



# Yukon Mammal Series



## Lemmings

### THE GENUS:

*Lemmus*,  
*Dicrostonyx*,  
*Synaptomys*

Cold and sunless, the Arctic in January seems trapped in the dead of winter. Underneath the snow, however, key members of the North's food chain are very much alive. Lemmings are busy at work building runways, searching out food and even bearing young. These tiny rodents are preyed upon by almost every meat-eating animal in the Arctic. Despite years of intense study of their fluctuating populations, lemmings are still mysterious and fascinating.

Two species of lemmings are found in the Yukon: the brown lemming and the collared lemming. Because of its common name, the northern bog lemming is included in this publication although it is more

closely related to the mouse-like microtine rodents.

### CHARACTERISTICS

Lemmings are small, furry rodents. They are so round and thick set that they appear almost neckless, legless and earless. Short stubby tails and small beady eyes are often barely visible.

Active throughout the winter, lemmings survive the extreme cold by tunneling under the insulating snow layer. Long, thick, waterproof fur provides additional insulation. In summer they build their tunnels and runways under leaf litter instead of snow. They can also tunnel into soft soil.

Lemmings are social rodents which usually live in colonies. They use scent to mark their small territories and to indicate social status. Distinct calls are used to indicate alarm, to threaten others, and for courtship and mating.

### RISE AND FALL

Lemmings are prolific breeders despite — or perhaps because of — their short, one-year lifespans. Since females of some species are able to breed at three weeks of age, and breeding continues year round (with brief interruptions), population levels can rise dramatically in a short time. Eventually lemming numbers reach a critical high, and reproduction rates begin to drop. Females mature at a later age, the breeding season becomes shorter and infant mortality increases. As a result of these changes, lemming populations tend to rise and fall every three to four years.

Although biologists are familiar with the mechanics of these cycles, the reasons behind them are still not known. There are two popular theories. One is that the lemming's food supply is exhausted as the population increases, leading to malnutrition and a die-off. The se-

# Yukon Mammal Series

cond holds that lemmings tend to become aggressive as densities increase. This leads to lower reproduction and higher mortality rates due to fighting and dispersal.

Canadian scientists have studied the collared lemming extensively but are still not certain if disease, predation, overcrowding or even food shortages are responsible for the population cycle. However, they do dismiss the notion of mass suicides. It was a European lemming which gave rise to all of the unfounded stories of stampeding, suicidal lemmings.

## BROWN LEMMING

*Lemmus sibericus*

The brown lemming is found throughout the Yukon including Herschel Island. Males average 73 grams in weight while females are slightly smaller. The brown lemming has a large, neckless head and a stubby, hairy tail. Its back is reddish brown while its head and shoulders are a greyish color. The soles of its feet are covered with fur.

This species is found in areas of moist tundra, damp meadows, and near lakes and streams. It is a very good swimmer.

The brown lemming is active 24 hours a day, four seasons a year. Grasses and sedges, its primary foods, are not gathered and stored for the winter. Instead, at ground level, brown lemmings cut the bases of grass shoots, then pull them into their tunnels to eat.

During the summer, this species builds extensive networks of runways under the moss and tangled vegetation of its habitat. Tunnels are about 25 centimetres long, leading to chambers about 15 centimetres in diameter. Chambers usually rest on the permafrost line, and are insulated with grass and lemming fur.

In winter, nests are located on the ground surface under the snow. Surface nests are made with dried grass and lined with fur. The heat from the lemming's body will melt the snow above the chamber, forming an air pocket. The layer of snow itself provides additional insulation. New nests are built frequently, as they are quite fragile and are easily soiled.

The brown lemming breeds con-

tinuously throughout the winter. Its gestation period is two to three weeks long. Litters consist of four to eight newborns, which begin to scramble around the burrow after two weeks. At three weeks old, females are ready to breed.

Spring and autumn are critical times for the lemming. The melting snow in spring reveals its nest and tunnels. As these become flooded, the brown lemming must move to higher ground. It is particularly susceptible to predation during this period. In autumn, a critical drop in temperature before insulating snows arrive can kill many lemmings.

## COLLARED LEMMING

*Disicrostonyx groenlandicus*

The collared lemming is found in two separate areas of the northern Yukon: the North Slope and the headwaters of the Peel River watershed. With an average weight of 73 grams, it is the same size as the brown lemming.

The collared lemming is well adapted to arctic winters. It is the only rodent which changes color with the season. In the summer it is greyish brown in color with a black stripe running down the middle of its back. Its winter coat is snowy white. The third and fourth claws of

its front feet enlarge with the coming of winter, in order to help it dig through snow. These special claws are shed during the spring thaw.

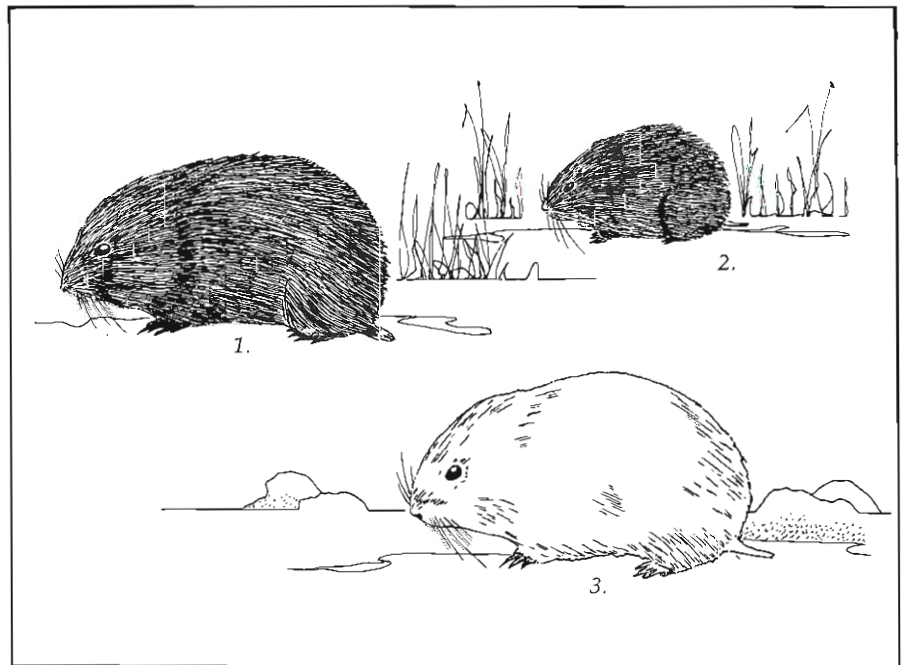
Although the range of the collared lemming overlaps with that of the brown lemming, the collared lemming prefers drier habitats. It feeds on willows and flowering plants. Like the brown lemming, it is active all winter, digging tunnels underneath the snow and feeding on tundra vegetation.

The collared lemming lines its nesting chambers with moss and grass. The small chambers are 10 to 12 centimetres in diameter. Litters are produced throughout the year, with the exception of brief pauses during spring and fall. Females are sexually mature at one month of age. Collared lemming populations fluctuate as dramatically as those of the brown lemming, with population densities ranging between two or three lemmings per hectare to 125 per hectare.

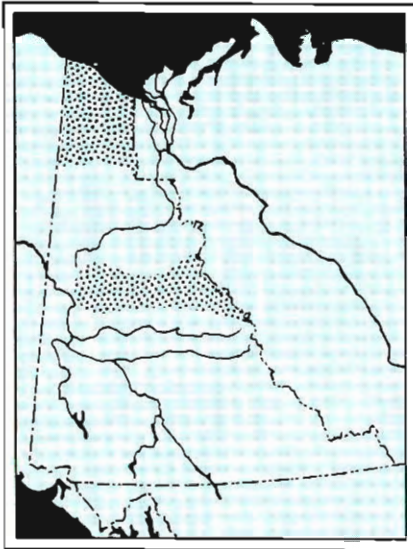
## NORTHERN BOG LEMMING

*Synaptomys borealis*

The northern bog lemming is one of the lesser known Canadian mammals. It is found throughout the Yukon with the exception of the North Slope. Despite its common



Size differences in Yukon Lemmings:  
Brown Lemming(1); Bog Lemming(2); Collared Lemming (winter coat)(3).



Distribution of Collared Lemming

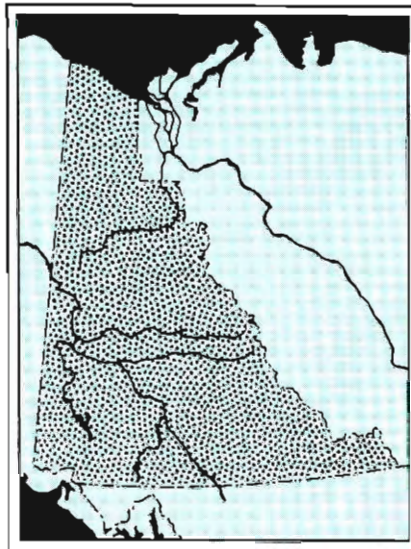
name, this species is not a true lemming. Like the meadow vole, it belongs to the microtine rodent family. With an average weight of 33 grams, it is about half the size of the brown and the collared lemming.

True to its name, the bog lemming is found in boggy areas of sphagnum moss, Labrador tea, and black spruce, and in damp meadows carpeted with thick leaf mold. The Yukon's boreal forest contains prime examples of these habitats.

The northern bog lemming resembles the meadow vole, but has longer, shaggier fur and a short tail. It is usually about 12 centimetres long, with the tail accounting for about one-seventh of its overall length. Biologists believe its middle claws enlarge in winter to help with digging.

This tiny mammal feeds on grasses, sedges, seeds, willow tree bark, and even insects. It cuts and stores its own "hay" — short sections of grasses, sedges and other vegetation — which is stored along its runways under the surface leaf mold (in summer) or snow (in winter).

The northern bog lemming builds its nests from grass which it weaves into balls about 20 centimetres in diameter. It is active 24 hours a day, even through the darkest and coldest times of winter. However, the northern bog lemming does not breed during this period. Instead, it breeds from May



Distribution of Brown Lemming and Northern Bog Lemming

to August. It is capable of bearing four litters during this time, with up to eight young in each litter.

## LEMMINGS AND PEOPLE

The population cycles of lemmings have long been misunderstood. Legends dating back to the sixteenth century, for example, tell of lemmings "falling from the sky". In our generation, a popular television documentary filmed hundreds of lemmings suicidally leaping off cliffs into a river. But what the camera did not reveal, was the crew members on the cliff top throwing lemmings over the edge. Mass migrations of lemmings have never been witnessed in the Yukon. Suicidal lemming behaviour has never been documented.

The fortunes of northern trappers are influenced by lemming population cycles. Since arctic foxes and other furbearers feed extensively on lemmings, their populations follow the lemming cycles as they rise and fall.

## VIEWING OPPORTUNITIES

To find lemmings, first look for signs of their activity. The collared lemming leaves huge mounds of sandy soil by its burrow entrances in the summer. Check for the "super highways" that lemmings bulldoze through the grass. The nests and "haystacks" built up for the winter are easily visible in the spring. The nests look like dilapidated bird nests

## DID YOU KNOW?

Collared lemmings turn from brown to white about the time of the first snowfalls, usually in October.

Brown lemmings and collared lemmings often share the same under-snow runways in winter.

Brown lemmings are more active on dull cloudy days than in bright sunshine.

Lemmings deposit their droppings in special "outhouse" chambers off the main runways.

The northern bog lemming is rarely seen in the Yukon.

Brown lemmings occasionally nest in the ruins of hunting camps and in whale skulls.



lying on the open ground.

While walking over the tundra, you may come across a lemming that will stand up on its hind feet, take up a boxer's stance, and threaten you with a high pitched whine. These scrappy creatures will

## Yukon Mammal Series

bite if given the opportunity.

The best times to see lemmings are during the peaks in their population cycles. You are more likely to spot a brown or collared lemming, because northern bog lemming populations do not increase so dramatically.

The presence of more visible animals and birds can lead you to lemmings, and give you an idea of where they are in their population cycles. If snowy owls, arctic foxes, hawks, jaegers and other predators are common, lemmings are likely common also.



CATHERINE DEER 1990

# Muskrat

## THE SPECIES: *Ondatra zibethicus*

High in the water, a muskrat swims, sun dancing on the water around it. Then, spooked by a shadow, it dives below, to a world of pondweed and milfoil. With a long tail as rudder, and partly-webbed hind feet as propellers, the "rat" glides to its bank burrow's safety.

Largest of New World mice, the muskrat dips and dives in shallow waters from the Mackenzie Delta to northern Mexico. Throughout North America, it is praised as a maintainer of wetlands and bearer of dense, lustrous fur. Here in the Yukon, it's an important part of the local economy for the people of Old Crow.

## DISTRIBUTION

Musk rats live in streams, rivers, potholes, and shallow lakes throughout the Yukon south of the

British Mountains. With limited habitat in the south, most of our muskrats are found in the north, on the extensive wetlands of Old Crow Flats. There, muskrats outnumber any other species of mammal, with five rats per hectare, an area about the size of a baseball field.

## CHARACTERISTICS

The muskrat is really a giant field mouse that has traded meadows for marshes. Like its vole and lemming cousins, it has a plump body, small ears, and beady, little eyes. However, the muskrat is far larger, with a body and tail that stretch half a metre. Its most distinctive feature, and one that distinguishes the muskrat from all other mammals, is a long, naked tail that is scaly, black, and flattened from side to side.

Weighing about a kilogram, our northwestern rat has a thick, dark brown coat and is up to 40% smaller

than other Canadian muskrat races.

## LIFE IN SHALLOW WATERS

Mud churns as a muskrat plunges into the frigid water of an underwater entrance to its streambank burrow. Leaving the warmth of its nest behind, the rat enters the stream and swims beneath metre-thick ice, stopping on the bottom here and there to search for dormant plants. It uses nimble forefeet to dig up roots and underground stems of pondweed, water milfoil, and burreed. Then, with food in its mouth, and forefeet tucked beneath its chin, the rat paddles on to an open hole in the ice. There it climbs up into a dome-shaped resting and feeding station called a pushup.

Musk rats build pushups by first chewing plunge holes in thin autumn ice at cracks and bubbles and places where marsh gases escape. Then they pile mud and plants into domes above the holes. When frozen solid and

covered with snow, these domes close in air and close out winter's worst weather.

Using a line of pushups stretching away from its burrow, a muskrat can gather food farther than it could otherwise reach. As well as providing insulation from cold air temperatures, pushups also provide relief from icy waters that quickly rob heat from the muskrat's naked tail and feet. And if the underwater entrance to the muskrat's bank burrow should freeze over, it can use pushups as temporary homes.

Come spring, the fresh winds and warm sun of May melt old ice and free Yukon muskrats from more than half a year under ice. Only 10% to 40% of those alive in autumn survive winter, and few live past their second year.

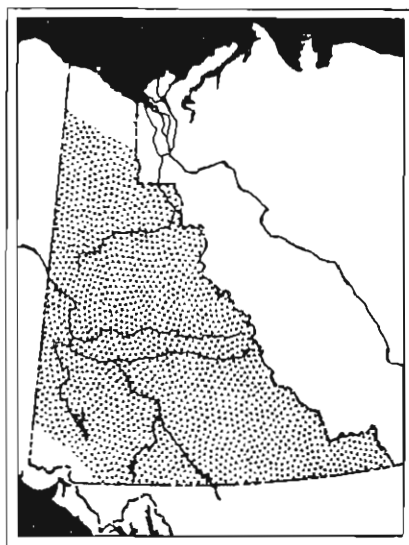
Breeding starts soon after break-up, in late May or early June. Those muskrats that once shared winter dens and huddled to conserve heat now bare their teeth in disputes over burrows and borders. Aggressive and possessive, muskrats fight viciously to obtain and defend their territories — patches of shallow wetland where they can mate and raise young.

Winners of breeding wars warn other muskrats away by secreting a musky substance onto shoreline scent posts made of cut stems and mud. Losers search elsewhere for territories. These "runners" may travel up to twelve kilometres. Many are killed by other muskrats, mink, otters, foxes, coyotes, marsh hawks, and great horned owls.

During the long days of mid-summer, muskrat litters are born in nesting chambers dug deep into stream banks and lake shores. A pair of Yukon muskrats produces only one litter each year, with an average of eight kits per litter. By comparison, two or three litters are the norm in Ontario, and up to five or six in Louisiana.

Blind and nearly naked, newborn muskrats weigh about the same as a mouse. Within a week, their large, ever-growing incisors erupt, and soon after, the kits are covered in gray-brown fur. At two weeks they take to the water, buoyed up by a layer of air trapped in their dense fur.

Spending most of their time afloat, muskrats feed on pondweeds, bur reeds and water milfoil, as well as horsetails growing along the shore.



*Muskrat distribution*

These ponds are less nourishing than the cattails and bulrushes of southern marshes. This fact, along with our short growing season, may explain why Yukon muskrats have fewer young, and why Yukon kits gain weight only half as quickly as Ontario kits.

At four weeks of age, kits are weaned. Though independent, many remain in their parents' territories until autumn, when drought or freeze-out can force muskrats to abandon summer territories for deeper water. In good habitat, kits may remain near their parents until the breeding battles of spring force them to leave in search of a space where they too can reproduce.

## MUSKRATS AND PEOPLE

In the old days, Yukon Indians caught muskrats by setting spring-pole snares in the grass along rat trails. Now, they and other trappers set steel traps in pushups or lure muskrats into shooting range by cupping hands over mouths and imitating the whining noises of young rats or the calls of seductive females. Muskrats are especially important to the Vantat Gwich'in of Old Crow, and provide up to three quarters of their annual fur harvest income.

Spring "ratting" is also a social event and part of the traditional lifestyle of many Yukon Indians. Not only does ratting provide furs and meat (which some eat and some don't), it's also an opportunity for

whole families to get out on the land, celebrate spring's arrival, and hunt other game, such as waterfowl and caribou.

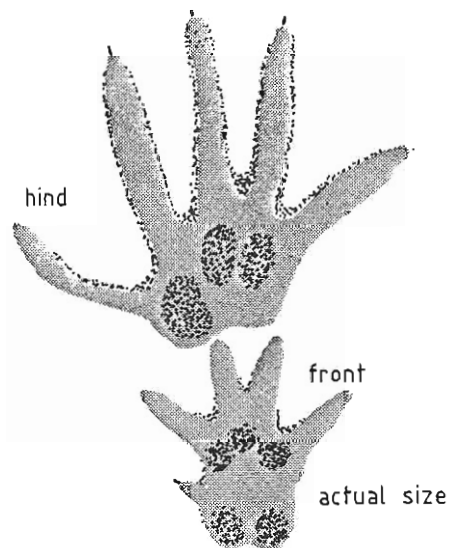
## VIEWING OPPORTUNITIES

The key to seeing muskrats is finding shallow wetlands with plenty of aquatic plants. Muskrats often share beaver houses and ponds, so look for both species in beaver country.

River travellers have excellent chances of spotting muskrats in slow, meandering, marshy stretches. Lake and highway travellers, as well as hikers, may see muskrats in any shallow, productive waters. Keep an eye out for brown bodies afloat or hunched amid sedges on shore.

Note that muskrats swim with their heads and backs out of the water, whereas beavers show only their heads and trail a characteristic "V" wake. Note also that muskrats are most active in the twilight hours, but can often be spotted during the day as well.

After freeze-up, look for dome-shaped pushups in the ice. They're most visible before snowfall or after the snow has melted from the surface of thick ice in spring.



**Yukon**  
Renewable Resources

## Yukon Mammal Series



# Jumping Mice

## THE FAMILY: *Zapodidae*

Packing a kick that will send it nearly three metres through the air, the jumping mouse could be, for its size, the long-jump champion of Yukon wildlife. Of the four species that live in North America, two are found in the Yukon. The meadow jumping mouse (*Zapus hudsonius*) is the most common and is widespread throughout south-central Yukon. The western jumping mouse (*Zapus princeps*) is only found in extreme southern Yukon.

## CHARACTERISTICS

If you are lucky enough to flush a jumping mouse from its shrubby home, you will have no difficulty identifying this tawny colored critter. Leaping away with a kangaroo gait, it could only be mistaken for a frog or grasshopper — both poor

alternatives. However, the jumping mouse is usually a surprise and, after taking a few long leaps, it will hunch down in the grass again and remain motionless. It is the kind of animal that leaves one wondering, "what was that?". Unless you move too close again, the jumping mouse is likely to sneak away through the grass with no chance for the mystery animal to be seen a second time.

Adding to the slim chance of seeing a jumping mouse is the fact that it is a solitary creature and seldom abundant anywhere. It is usually active in the evening hours; although, in the Yukon, that time can still be light enough for observation.

A jumping mouse is small, only slightly larger than the deer mouse, but here the similarities end. Built like a kangaroo, it has a very long tail — an asset for balance while leaping — and kangaroo-like hind feet. Both features allow it to jump

with great vigor and speed. When jumping, this mouse can move as fast as three metres per second.

Unless you are making a careful study of jumping mice, it is unlikely that you will be able to distinguish between the two species. Both have similar habits and characteristics, with skull measurement being the only definite way to separate them. However, because the western jumping mouse is so rare in the Yukon, the one you see will likely be the meadow jumping mouse.

Jumping mice are found in moist, usually shrubby or wooded locations near streams or lakes. Unlike the voles, jumping mice do not make runways through the grass. They are superb swimmers and divers, kicking like frogs though the water.

Food takes the form of a wide variety of seeds which are stored in cheek pouches until the mouse finds a suitable location for feeding. Ber-

# Yukon Mammal Series

ries are also enjoyed as is the occasional insect.

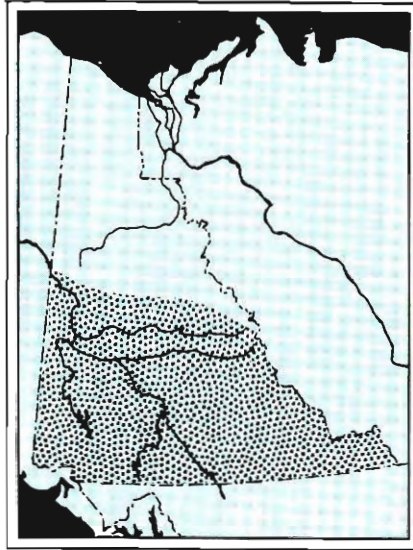
## JUMPING THROUGH THE SEASONS

Jumping mice are among the few species of mice living in the north that hibernate. Many small rodents and shrews do not have the capacity to store up energy in the form of fat. This is essential for hibernation because, although body temperature and activity levels drop, the animal must still have a source of 'fuel' for life to continue. The jumping mouse begins to store this energy supply in early summer and by hibernation time in early September it is a fat little butterball, weighing nearly double its early summer weight of about 16 grams.

When our Yukon autumn arrives with its brightly colored leaves and nippy nights, the jumping mouse is curled up in a tight little ball in its nest of hair and grass. With its tail wrapped around its small body, it is oblivious to the happenings going on a metre above its underground burrow.

By spring, up to one-third of the hibernating population may have died due to insufficient energy reserves. Those that have made it show up only when greenery has become well established and is able to support their need to put on weight.

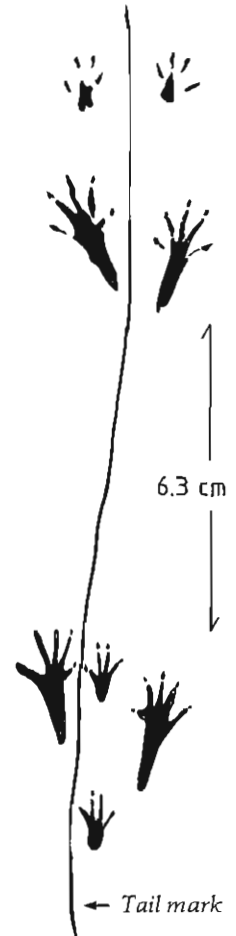
With summer's arrival, the female jumping mouse gives birth to as many as six hairless young in a grass-lined nest under a log or in some other secluded location. Within a month the young are molting into adult pelage and fattening up for the long winter sleep.



*Meadow Jumping Mouse distribution*

## MICE AND PEOPLE

The jumping mouse has little significance to humans and therefore goes about its business with no known interference. For the interested observer however, the sight of this leaping rodent is a memorable experience. By keeping a sharp eye while walking brushy lakeshores and stream banks, you have a reasonable chance of a sighting.



## Yukon Mammal Series



# Porcupine

## THE SPECIES

*Erethizon dorsatum*

The literal translation of the porcupine's scientific name is "irritable back" — an apt description of this rodent's distinctive feature. About 30,000 quills cover the back of the porcupine, a formidable defense against predators. This bow-legged, pigeon-toed tree climber isn't considered overly bright, yet it is one of the most independent and self-sufficient animals found in boreal forests.

## DISTRIBUTION

The porcupine is found throughout the Yukon but is most numerous in the southern and central parts of the territory. North of the Arctic Circle, the porcupine's range is limited to forested river valleys extending to the Arctic coast.

## CHARACTERISTICS

The porcupine is the second largest rodent in the Yukon, next to the beaver. At best the porcupine is capable of a slow, lumbering gallop. Instead of speed, it relies on its quills for defense. Most quills are hidden in the porcupine's long, yellow-tipped hair and usually lie close to its body. Quills are not thrown at attackers. When threatened, the porcupine arches its back and draws its quills erect, ready for action. The quills dislodge quite easily when the porcupine thrashes its club-like tail. Lost quills are replaced during the annual moult.

Quills aren't poisonous but can still be deadly. Each has about a dozen small barbs. Once implanted in an attacker's flesh, the barbs swell from the surrounding skin moisture, forcing the quill in deeper. Death can occur if an infection sets in or the victim can't swallow water or food.

The porcupine is a skilled tree-climber thanks to its long, curved claws and its tail, which it uses as a prop. Swimming is another talent. The porcupine has a keen sense of smell and touch. Its eyesight is poor, however.

The porcupine is usually quiet, but when it is vocal it can make a wide variety of sounds — from-cooing and whining all the way to screeching.

## LIFE HISTORY

Birth takes place in May or June, with a pair of porcupines producing just one offspring annually. Thanks to its seven month gestation, the porcupine is quite well developed at birth. It already has quills, although they are soft — luckily for its mother! The quills harden after a few hours of exposure to the air, ensuring the newborn has adequate protection against predators.

Occasionally several porcupine

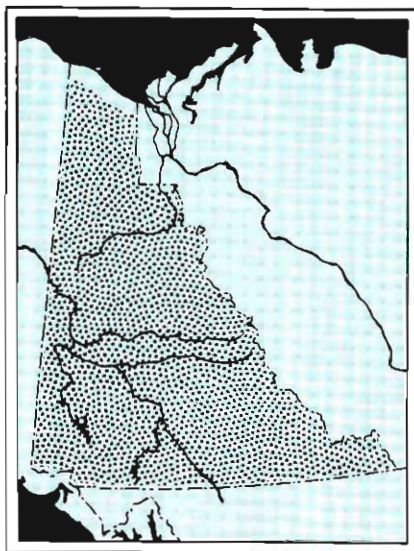
## Yukon Mammal Series

families will den together until the end of July. Dens are commonly found in caves, the hollows among tree roots, or in other natural cavities. The porcupine tends to live a solitary existence except at mating time in November and December.

Because of its quills, mating is a tricky process. A male serenades a female with grunts and low humming, an overture that's often rejected with loud squeals. If the female is ready to breed however, the two approach each other in a "love dance," standing on their hind feet while whining and grunting. The pair will place paws on each other's shoulders, rub noses and, quite frequently, belt each other to the point of knocking the other one down. During mating, the porcupine relaxes so its quills stay close to the body and out of harm's way.

The porcupine has well-developed incisors which allow it to feed on forbs, shrubs and trees, as well as chew antlers and bones for their mineral content. It stays active during the winter, switching to the bark and the nutritious cambium layer of spruce and pine trees for the bulk of its diet. The porcupine tends to rest during the day — usually up high in a tree — and feed at night.

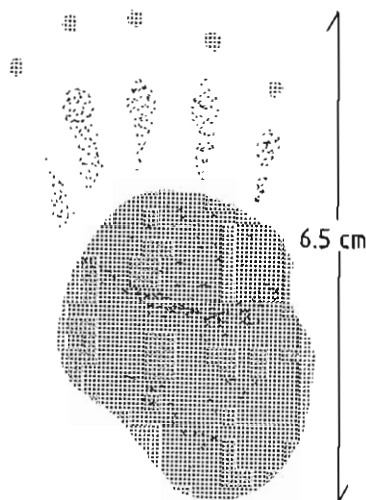
The porcupine has an average life expectancy of nine to ten years thanks to its strong defenses. There are animals which have learned the trick of killing the porcupine, however. The wolverine and the fisher prey on Yukon porcupines with little damage to themselves. Like the porcupine, they are excellent tree climbers. They either tackle the porcupine while it is treed or get a paw under the animal and flip it onto its back, exposing its defenseless underbelly.



*Porcupine distribution*

### PORCUPINES AND PEOPLE

In the past, the inland Tlingit people considered the porcupine a "special friend" of the beaver, although it was "really dumb" in comparison. Quills are still used to make earrings and decorate moccasins, jackets, baskets and boxes. Many people find porcupine meat tasty — and it makes a good emergency meal because the animal is so easy to catch.



The porcupine is sometimes considered a pest by foresters because of the damage it inflicts on forests. Its craving for salt and love of wood leads the porcupine to destroy unlikely objects, such as plywood outhouses, trappers' cabins, axe handles and even tires "perfumed" by dogs. The porcupine often makes its den in a culvert during the wintertime, when snow makes movement difficult.

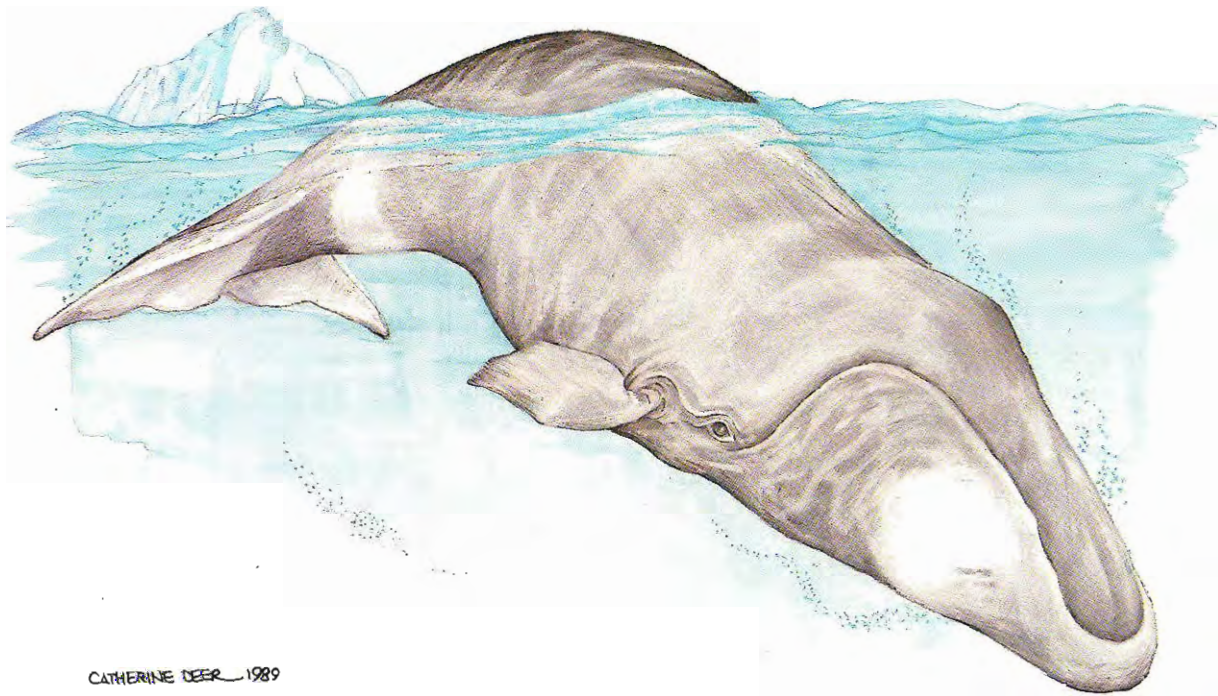
### VIEWING OPPORTUNITIES

The porcupine is easy to observe as it is slow to move away from approaching humans. As it retreats, it may even climb a tree, where it can be viewed at leisure.

Since porcupines like to feed on the grass and succulent vegetation growing along the roadsides, and sometimes sun themselves on the road itself, they are a familiar sight to motorists. In fact, many are killed by passing vehicles. In winter, porcupines are attracted to the salt used on roads.

Dogs darting into the bush, while their masters stick to the trail, often find a porcupine — much to their discomfort. Canoeists should take care with their sweat-covered wooden paddles. After all, to a porcupine they're a tasty midnight snack.

# Yukon Mammal Series



## Whales

### THE YUKON COAST

The Yukon section of Canada's Arctic coast is less than 250 kilometres wide — a narrow piece of land squeezed between Alaska and the Northwest Territories. Off-shore, washed by the icy waters of the Beaufort Sea, lies historic Herschel Island. It was the massive bowhead whale which attracted 19th century whalers to this area, especially to Herschel Island — a key whaling settlement at that time.

In addition to bowhead whales, the area is home to large numbers of beluga whales, and occasionally killer whales. At the right time of year, visitors to this lonely stretch of coastline can scan the horizon for fins, backs, or the spray of these whales.

### BELUGA WHALE

*Delphinapterus leucas*

The beluga is the most common

whale in the Beaufort Sea. The sight of its white back, rising and falling in the waves, is a clear indication that summer has arrived in the Arctic.

### Distribution

The beluga whale is found in five major population groups in the Canadian Arctic: Lancaster Sound, Cumberland Sound, Ungava Bay, Hudson Bay and the Eastern Beaufort Sea. Appearing in the Beaufort Sea about mid-May, belugas concentrate in the Mackenzie River estuary from late June to early August, then depart for their wintering areas in the Bering Sea around mid-September. In 1981, the Beaufort population was estimated at 11,500.

### Characteristics

Originating from the Russian word "byely", meaning "white", the word beluga appropriately describes

the adult coloration of this whale. Newborns are dull brown, but as the young whales grow older, the brown turns to a bluish grey with mottled patches of white. The transformation to an overall white is complete by the time the whales reach maturity at about six years of age.

Adults range in length from four to six metres and weigh 540 to 765 kilograms — about the size of a midsize car.

If you have seen a beluga whale at an aquarium, you've probably noticed what appears to be a smile on its face. The beluga's ability to communicate and feed is partly related to the flexibility of its mouth, which can stretch from a pursed opening to the apparent relaxed smile. The beluga is unique among the whales in that it has a flexible neck, which allows it to turn its head to the side at a near right angle.

# Yukon Mammal Series

## Natural History

When open water leads begin to appear in the spring, beluga whales leave their wintering grounds in the Bering Sea and move towards the Beaufort. Depending on the ice conditions, belugas reach the Mackenzie Delta area in late June. The Mackenzie River estuary is important to the whales, but the reason they concentrate there is unknown.

Females mature at five years and males at eight years of age. Mating takes place sometime in May, enroute to the estuary. Young are born in July, 14 1/2 months later. Giving birth every two or three years, a mother usually has one calf, though twins have been recorded. The estuary river water provides a warm nursery compared to the cold Beaufort, and a place for adults to molt.

Offshore, belugas feed on schooling fish, crustaceans, worms and sometimes mollusks. Belugas sometimes work together in groups of five or more, herding fish into shallow water or sloping beaches. They also pursue single prey on the bottom. The flexible neck permits a wide sweep of the sea floor, and the mouth can create a suction or produce jets of water to dislodge prey.

Belugas communicate with each other by sounds, which range from moos and chirps to whistles and clangs. These calls may be useful when the whales cooperate to hunt.

By the end of summer, belugas have a layer of blubber from 10 to 20 centimetres thick. This provides them with insulation as well as an off-season energy supply. In September, they leave the Mackenzie estuary and Beaufort Sea, to make their way back to the Bering Sea.

Belugas have several predators. Killer whales are the most important as they share the same habitat with the belugas in winter. While travelling to the Mackenzie River estuary, belugas may be attacked by polar bears or humans. Polar bears can kill whales if they are trapped by ice, or while surfacing at holes where the ice sheets are breaking up.

## Belugas and People

Inuvialuit people who live in the nearby Northwest Territories' communities of Aklavik, Inuvik and Tuktoyaktuk harvest approximate-

ly 130 whales a year in the Beaufort. Each summer, families travel by boat from the Mackenzie Delta to the Yukon's north coast to carry out this traditional harvest. Leaving the bugs of the Delta behind, families gather at summer camps along the coast to whale, fish, and hunt caribou. When the first whale comes ashore, adults and children gather to help cut the muktuk — a layer of skin with blubber attached. Muktuk is considered to be an essential part of the Inuvialuit diet, a delicacy when fresh and raw. The meat is also collected to be dried or eaten fresh.

The Alaskan Inuit also hunt beluga whales in the spring and fall as they travel to and from the Beaufort. They harvest roughly the same number of whales as the Inuvialuit. The total aboriginal kill, including losses, is estimated to be below the sustainable yield for the population.

Present regulations support the indigenous people's right to hunt belugas for subsistence use, but require females with calves to be spared, and other whales to be harpooned before they are killed (to minimize losses).

## BOWHEAD WHALE

*Balaena mysticetus*

This whale belongs to the right whale family, named by whalers because they were the right whales to kill: they swam slowly and floated when dead. There are three species in this family, the bowhead being the only one found in the western Arctic.

## Distribution

The eastern Arctic has several small populations of bowheads, which summer in Lancaster Sound, Davis Strait and northern Hudson Bay. The Beaufort population, the largest remaining stock of the bowhead species, migrates from wintering areas in the Bering Sea through leads and between ice floes to summer areas in the Beaufort Sea and Amundsen Gulf.

Presently the International Whaling Commission estimates the western Arctic bowhead population to be 7,800 animals. In the east, where they have suffered more exploitation, their numbers are only

three or four hundred.

## Characteristics

The bowhead is a "baleen whale" with 650 to 720 baleen plates (4.5 metres long) in an adult whale's mouth. These plates are fringed with bristles which strain small organisms from the water. The whale then uses its large agile tongue to sweep across the baleen and dislodge the food for digestion.

Reaching a maximum of 20 metres in length, this black whale with a white chin patch can weigh up to 50,000 kilograms. A very pronounced curved jawbone contributes to a head which may be up to 40 percent of the total body length. The head is triangular in shape, and is a distinctive feature of the bowhead seen when it breaks the ocean surface to breathe.

## DID YOU KNOW?

*The mouth of a bowhead whale is five to seven metres long.*

*The bowhead whale was one of the first arctic resources to be exploited by Europeans.*

*Beluga whales have been known to swim long distances up coastal rivers. One such whale killed in Alaska had swum 1,200 kilometres up the Yukon River.*

*Beluga whales are thought to be primitive dolphins.*

*The killer whale is the largest member of the dolphin family.*

*When killer whales blow, they produce a spray two to five metres in height.*

## Natural History

In the Beaufort Sea at the edge of the Mackenzie River Delta, summer's 24 hours of light triggers enormous blooms of small organisms, including algae and plankton. These organisms form the vital link in a food chain which eventually supports all arctic inhabitants.

Bowhead whales feed by skimming with open mouths, surface concentrations of shrimp-like organisms called zooplankton. These filter feeders are approximately three centimetres long.

Bowheads form groups while feeding and migrating. Their activities in the Beaufort seem to be associated with feeding. Calves are born between May and August on the spring migration route and in the Beaufort summering area.

Slow breakup of coastal ice in the Canadian Beaufort normally prevents significant numbers of bowheads from utilizing the Mackenzie Delta and Yukon waters until July. Concentrations of whales in these waters occur from mid-August to early October of some years, depending on food availability. Then they leave the Beaufort to migrate back to the Bering Sea.

## Bowheads and People

The slow moving western Arctic bowhead became the target of intense hunting pressure near the turn of the century. Its blubber was

1891 until the early 1900's. Today little remains of a community that once numbered more than a thousand people.

At this time, all right whales are protected, but there is a subsistence bowhead hunt by some Inuit off the coast of Alaska.

## KILLER WHALE

*Orcinus orca*

Killer whales belong to the dolphin family — a family of sea dwelling mammals whose intelligence and social organization may equal the sophistication of land mammals like monkeys and apes.

## Characteristics

This whale has a shiny black body with white areas on the belly, chin, flank and behind the eye. The shape and size of its dorsal fin, as

Davis Strait to Lancaster Sound and Hudson Bay. In the western Arctic, killer whales are most often seen along the Alaskan coast west of Point Barrow. There have been very few confirmed sightings of killer whales in the central or eastern portions of the Beaufort Sea.

## Natural History

Killer whales, which sometimes hunt in groups of three to forty animals, eat a variety of foods including fish, invertebrates, dolphins, porpoises, seals, sea lions, sea birds and even other species of whales. Fish and squid form the bulk of their diet, depending on the area in which the whales hunt. Killer whales off the coast of Alaska feed on grey whales, minke whales, walrus, beluga and seals.

Killer whales travel together in what is referred to as a pod. The age and sex composition of the group remains fairly stable. There is usually one adult male to three or four adult females and several juveniles of both sexes. Female calves usually remain in the pod of their birth.

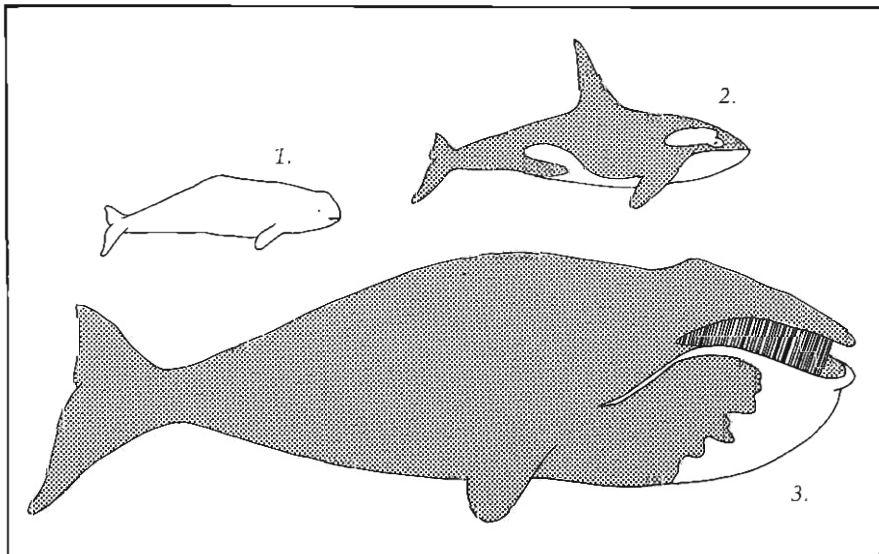
Mating is thought to occur sometime between May and July. A female will bear a single calf approximately every eight years, which is about the time it takes for a male calf to reach maturity. The gestation period is 15 months, and the mother will nurse the calf for one year.

## VIEWING OPPORTUNITIES

Depending on the time of year, you may see all three species of whale off the Yukon's north coast or Herschel Island.

Bowhead whales are usually seen far off shore in late July through September. With the use of a spotting scope or binoculars, you may see the spray exploding from a whale's blow hole. As you watch for the bowhead's large dark body rising from the water, check for the hump which distinguishes this species.

The beluga whale's white back is easy to spot from shore. But if it is windy, you will have to look carefully to distinguish the smooth white backs of the whales from the white caps of the waves. On calm days it is possible to see both the white adults and the grey juveniles gliding through the water close to shore.



Beluga(1); Killer(2); Bowhead(3). (Courtesy of N.W.T. Renewable Resources, Rod Raycroft)

rendered into oil for use in street lamps, lubricants, tanning and steel tempering. The large triangular baleen plates were used for hair brushes, typewriter springs, umbrella ribs, fishing rods and — most importantly — to fashion ladies dresses with corsets and stays. As the expense and commercial competition for whales increased, whalers began to collect the baleen only, leaving the less valuable blubber behind.

Herschel Island became a wintering base for the whaling ships from

well as markings on it, are used by biologists to identify individual animals.

Males are six to nine metres long, while females are slightly smaller at four to five metres in length. These whales are slightly longer than the belugas.

## Distribution

Killer whales are found throughout the world's oceans, though they are most numerous in cooler temperate waters. In the eastern Arctic they are found from

## Yukon Mammal Series

If you see a vertical fin breaking the surface of the water you have been lucky enough to spot a killer whale.

While walking along the shore, look for washed up whale bones. Vertebrae are commonly found. Beluga vertebrae are, of course, much smaller than those of the bowhead, averaging 20 centimetres in diameter.



# Yukon Mammal Series



## Coyote

### THE SPECIES:

*Canis latrans*

Tough and crafty, this wild relative of the common dog adapts masterfully to new environments. Coyotes were once creatures solely of the southern plains but today they thrive from the tropical heat of Costa Rica to the chilling arctic winds of the Yukon. Opportunists par excellence, they mold their lifestyle and diet to fit new surroundings with remarkable ease.

### DISTRIBUTION

This versatile animal extended its range northward into the Yukon sometime around the turn of the century. Today coyotes are common in the southern portions of the territory but their numbers diminish northwards, with only rare sightings in the Dawson City area.

Coyotes are animals of the

fringe. That is, they flourish in areas where two or more ecosystems meet and diversity of prey is high. Riversides, forest burns, and farmland are all likely homes for the coyote. Being opportunists, they are also scavengers and will often live close to our communities. The Whitehorse area, for example, maintains a population of 60 or more coyotes.

### CHARACTERISTICS

Yukon coyotes are generally tawny grey in colour with a slight cinnamon tinge to their coats. Both the belly and throat are white. Compared to coyotes further south, those in the Yukon have relatively less black-tipped guard hairs.

In spite of a delicate body build, coyotes are often confused with wolves. Coyotes range in weight from 9 to 13 kilograms which is less than half the size of a wolf. The large sharply pointed ears, long

slender snout, and bushy tail are all traits of the coyote. Another difference is the position of the tail. The coyote's hangs down, sometimes tucked slightly between the legs while the wolf's is held out level with its back.

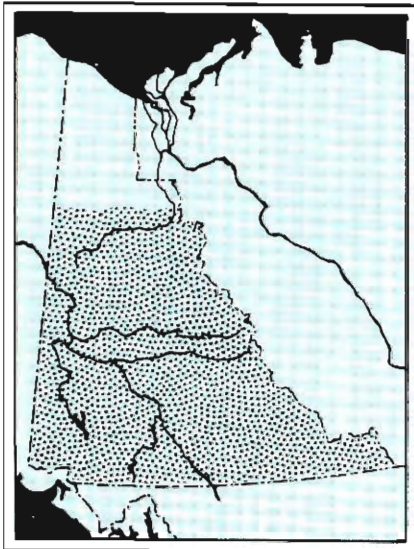
### LIFE HISTORY

Coyote pairs mate in late February or early March. Although not necessarily paired for life, a mating couple may remain together for a number of years. By early April, the pregnant female prepares for her litter by seeking a den site. She prefers to enlarge an existing ground squirrel hole or use a natural cavity rather than dig a new den. When she's finished, the den will be about one metre in diameter. To defend against attacks on her young, the female will either devise a second hidden escape route or ensure there are other burrows nearby. Coyote pups provide a tender meal

# Yukon Mammal Series

for wolves, bears and even golden eagles.

It is within the earthen den, during early May, that the young pups are born. Little bedding protects them from the damp earth and with eyes closed until 9 days, they look a vulnerable sight. But they develop rapidly. Nourished by their mother's milk, their fine brown fur becomes a thick coat and in less than two weeks they are peeking out of the den's entrance. By five weeks of age, they are eating the half digested snowshoe hare their parents provide. An average litter size of 5 to 7 pups keeps both parents busy hunting for whatever they can catch or scavenge.



*Coyote distribution*

Near the end of two months the hunting lessons have begun. The young are natural hunters. Whether they are after a dinner of ground squirrels, mice, beetles, or bird's eggs, their cleverness pays off. Coyotes have a distinctive hunting technique. Once prey is spotted, a coyote will stalk slowly and silently until finally it springs up and pounces stiff-legged onto the unsuspecting animal. The young's hunting ability must be finely tuned by summer's end when crisp autumn winds signal the break up of the family unit.

Heavy winter snowfalls are the curse of Yukon coyotes. They are animals of open spaces and their bodies are not adapted to walking on deep, soft snow. Quick, stealthy movements, a necessity for hunting success, are hampered by the snow. Yet coyotes have responded by adapting their ways. Each year at the onset of winter, they take cover in the forests where overhanging tree limbs shelter the ground from large amounts of snow. Here they rely on snowshoe hare and "left-overs" like moose kills or dried berries and seeds.

In some winters, a family unit may stay together to increase hunting efficiency. This is done if the winter is particularly lean or if the main food source is a large animal like the deer. Just as soon as the snow's crust is hard enough in open areas, coyotes return to roaming freely. But even then, they will tailor their movements to take advantage of snowshoe hare trails or other areas of compact snow.

## COYOTES AND PEOPLE

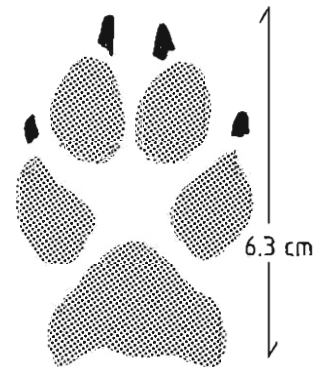
Although often associated with populated areas, the coyote is timid and wary of people. Yukon trappers recount numerous stories of the coyote's remarkable ability to outwit humans. They are indeed a hard animal to trap, perhaps because they are so familiar with human scent.

Coyote fur is coarser than the fur of many animals. It stands up well to use. Because of its low price and good serviceability, coyote fur is commonly used as parka trim.

## VIEWING OPPORTUNITIES

Strangely enough, if you're eager to view a coyote you have a better chance near a community than in remote areas of the Yukon. Coyotes are active at night and can often be spotted along backroads or in the suburbs of Whitehorse by those who rise at first light. If you are lucky, you might see one lazing in the early morning spring sunshine when the days start to lengthen.

Coyotes are heard as often as they're seen. A chorus of whines, barks, and howls drifting into the late evening or early morning air is sign of their presence. The exuberant cry of one coyote is often joined by the yips and yaps of other family members.



# Yukon Mammal Series



## Wolf

### THE SPECIES:

*Canis lupus*

The grey wolf is one of the world's most successful land predators. Like early human hunters did, wolves work together to take down moose and other prey species much larger than themselves. Group hunting efforts like this require strong social bonds and the society of the wolf pack is one of the most complex of the North American mammals.

The grey wolf is an unusually variable species, with geographical differences in size, shape and colour. At one time, it had the greatest natural range of any living mammal other than the human. With the spread of agriculture and human habitation the wolf has disappeared from most of the continental United States, Europe, Scandinavia, the

Middle East and India. Today, healthy wolf populations are found only in the less developed, circumpolar regions of the world, including Canada, Alaska, and the Soviet Union.

### DISTRIBUTION

Wolves inhabit the entire Yukon except for the icefield ranges of Kluane National Park. Their distribution is closely linked to the ranges of three wild ungulate species — moose, caribou, and Dall sheep. Where these prey species are most abundant, wolves are most common. In the Teslin burn area, considered the best moose range in the Yukon, wolves reach their highest density of 18 per 1000 square kilometres. In the Northern Yukon where moose are rare and caribou unpredictable, wolves are at their lowest density of 3 per 1000 square kilometres. The total Yukon population is about 4,500 wolves.

### CHARACTERISTICS

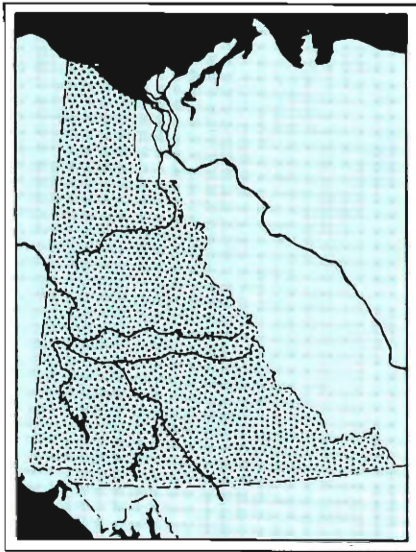
The subspecies occupying Alaska, the Yukon and adjacent parts of British Columbia and the Northwest Territories, is the largest race of wolf in North America. Yukon adult male wolves average 43 kilograms, and females 37 kilograms. Individual weights can vary from 21 to 55 kilograms.

Compared to a domestic dog of similar weight, a wolf is longer, taller, and has a larger foot. Its long legs allow it to travel great distances in search of prey, with minimal energy loss. During winter, the wide foot acts like a snowshoe, improving the wolf's mobility.

Yukon wolves range in colour from nearly pure white to jet black. About half are a mixture of grey and white with some tan colouring on the ears and shoulder. Another third are dark wolves; black, chocolate brown, or dark grey. Less than five percent are white or cream coloured.

# Yukon Mammal Series

wolves. These colour proportions are generally similar throughout the Yukon, but some areas, a single colour phase dominates. For example, most wolves in the Tatshenshini River valley are dark; wolves in the Tagish Lake area are generally light grey.



Wolf distribution

## THE WOLF PACK

A wolf population is composed of separate social units known as packs. Each wolf pack defends its home range, or territory, from other packs and lone wolves. The pack is a family unit made up of one pair of breeding adults (alpha members), and a number of subordinate wolves (beta members) which include subadults (1-2 years old) and pups. The average pack size in the Yukon is seven to nine wolves. The largest pack observed by biologists included 39 wolves, and was likely a short-term merging of two or more packs with related alpha members. During the 1950's, packs of fifty to sixty wolves were reported on the large lakes between Carcross and Atlin B.C..

The breeding habits of wolves are based on highly specialized social behaviours. In each pack only the dominant pair breeds. But since it is the ultimate goal of all wolves to breed and reproduce, there is continual competition for dominance. When a wolf competes for the breeding position but fails, it will usually leave its old pack in search of a new one and another

chance to reproduce. This dispersal of unsuccessful breeders is an important feature of wolf ecology. It reduces internal pack conflict and encourages the genetic mixing which keeps a pack healthy. Recent studies have shown that Yukon and Alaska wolves travel up to five hundred kilometres in their search for breeding opportunities.

The reproductive rate of wolves is relatively high — ten times greater than that of the northern grizzly bear. Although they rarely achieve breeding status before two years of age, wolves are capable of breeding as yearlings. The average litter size is four to six pups. The high reproductive rate of wolves is related to their high mortality or death rate. The oldest wolf aged in the Yukon was 12 years old, but it is a rare wolf that survives more than three or four years. Injuries inflicted from moose hooves, caribou antlers, or sheep horns are often fatal. Many subadult wolves die when they first leave their natal pack. Travelling alone, they face increased risks from hunting injuries, starvation, other wolves, and humans.

## PREDATION

Wolves must eat meat to survive. The main prey species of Yukon wolves varies by region. In the southern Yukon, moose are the most important prey, followed by woodland caribou, then sheep. On the Yukon's north slope, migratory barren-ground caribou are the main prey of wolves. Moose are more important than caribou to wolves in the Porcupine River drainage in the Northern Yukon.

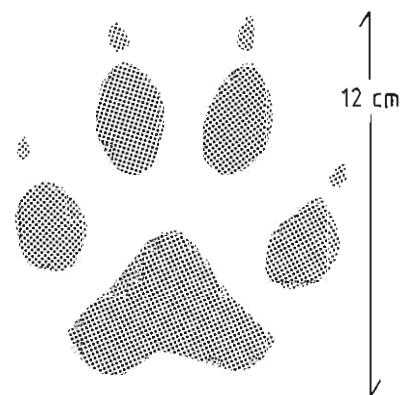
Recent Yukon studies have shown that moose-killing wolves tend to concentrate on calves and older age moose whenever they are available. However, any moose can be vulnerable to wolf predation, depending on the terrain, snow conditions, and its response to attack. Generally, a moose that remains stationary can successfully defend itself from wolves, while a moose that flees is attacked from the rear and often brought down. By backing into a thicket of trees, a moose can fend off wolves with its powerful front hooves. Nearly all adult wolves have one or more broken and healed ribs from such en-

counters.

On average, a wolf pack will test ten moose before it makes a successful kill. A pack of seven wolves will kill a moose every five to six days, taking two to three days to eat most of it. They will often return a week or two later to finish off the scraps, bones, and parts of the hide.

In the northern Yukon, wolves follow the barren-ground caribou of the Porcupine herd throughout the year, with little or no territorial behaviour. Studies in the central Yukon found that wolves were also the most important predators of woodland caribou. More than 50% of calves were killed by wolves before they reached six months of age. Unlike moose, caribou cannot fight off wolves. Instead, they respond to attacks by outrunning the predator. However, since caribou can run only short distances, persistent wolves are often successful, especially if they find the caribou in large open areas like frozen lakes or the wind swept tundra. An average wolf pack will kill a caribou every three days during winter, spending one day or less feeding on the carcass.

Sheep hunting wolves are found mainly in the mountain ranges of the southwest Yukon. In the Kluane Game Sanctuary and National Park, some packs subsist almost entirely on Dall sheep. They travel across large areas of the icefields in their search for isolated groups of



wintering sheep. Wolves attack sheep by surprising them from above and running them downhill into deep snow, or onto ice where the hard hooves of sheep are a disadvantage. Although they tend to kill the old age ewes and rams, wolves can also kill rams in their

## Yukon Mammal Series

prime. Ewes and lambs appear to be less vulnerable to wolf predation because they form larger groups and travel shorter distances from escape terrain. A pack of wolves will kill and consume an adult sheep in 24 to 48 hours, eating all but the horns and hooves. It is thought that wolves hunt sheep regularly when moose and caribou are limited or not available.

### A YEAR IN THE LIFE Winter

For most Yukon mammals, winter is a time of hardship and reduced food supplies. But not for the wolf. When cold temperatures and deep snow sap the energy of their hoofed prey (ungulates), wolves enjoy their greatest killing success. As a result, a wolf's winter weight can be as much as ten kilograms higher than its summer weight.

in less than a week. Pack members mark the borders of their territory with urine scent and howl to warn neighbouring wolves away. As winter progresses, most ungulates bunch together on their winter range. Wolves respond by concentrating their hunting in these dense prey areas.

In early March the breeding period begins. Aggression in the pack increases, until either the alpha members maintain their dominance and breed, or new breeders emerge.

### Spring

In early April pregnant females begin searching for suitable dens in preparation for birth. After a sixty day gestation period, four to six pups are born, usually in mid-May. Other pack members remain loosely attached to the den, bringing food to the mother wolf and her pups. This tie to the den restricts the

a shorter summer coat.

### Summer

As summer progresses the ungulate species become more difficult to kill. Cow moose with calves can escape predation by wading into lakes and rivers. Month-old caribou calves and the lambs of Dall sheep are remarkably quick and agile. Although large mammals continue to provide the most food, small mammals are also important in the summer. In many areas wolves prey on beaver, muskrat, and snowshoe hare. On Old Crow Flats in the northern Yukon, waterfowl are a common item in the diet of denning wolves.

By mid-summer, the pups are spending much of their time outside the den, wrestling with their littermates, nursing, and resting in the sun. The mother wolf will often move the pups to another den area, called a rendezvous site, where they remain until late summer.

### Fall

Wolf pups are half grown by the first snows of fall. The pack members begin to travel together more frequently, accompanied at times by the pups. Wolves are not yet restricted by snow depths and move freely throughout the mountains and valleys in search of prey. Hunting improves in the fall, as ungulate species are distracted by their breeding period, pay less attention to predators, and are generally weakened by the effort. Male caribou, moose, and sheep are especially vulnerable to wolf predation during the rutting period.

### WOLVES AND PEOPLE

Of all the wildlife species on our planet the wolf has been the most feared and hated. The origin of this image problem may stretch back many thousands of years, to the first time a group of early human hunters watched a pack of wolves feeding on a deer carcass and wondered "Is this why the hunting is poor?" When humans began to keep livestock, the antagonism towards wolves was set in stone.

Early Yukon Indians respected the wolf in the way that one great hunter respects another. When large wolf packs were spotted, they may have been a cause for concern. But



*Wolf dens are often located near water*

During the winter the wolf pack is a smooth functioning cohesive unit. In the deep snow, wolves travel in single file to minimize energy loss. Pups, nearly adult size by now, travel with the pack at all times, watching and learning the skills of the hunting adults. Traveling as much as 40 kilometres in a day, the pack can move through its thousand square kilometre territory

movements of wolves during spring. They no longer travel great distances in search of prey as they did during the winter. By late spring moose and caribou are giving birth to their own young. Their calves make up the bulk of the wolves' diet during this period.

Wolves take on a leaner, ragged appearance in spring as their thick winter fur is shed and replaced with

# Yukon Mammal Series

there was a positive side to wolf predation. In times of need, when a hunter came upon a pack of wolves feeding on a freshly killed moose out on a frozen lake, he would take over the carcass and remove the meat for the use of his own family. To maintain the respect, such a hunter would thank the wolves for killing the moose for him.

The wolf is a major crest of many Yukon Indian bands. In the southern Yukon, most Indians belong to one of two clans: the wolf clan and the crow clan. The division plays an important role in the rites of birth, death, marriage, and achievement.

When non-Indians arrived in the Yukon, they brought with them the attitudes and methods of predator control practiced in southern Canada and the U.S..

Yukoners will always have tough decisions to make regarding the management of this controversial species. But such decisions are only made after careful study, and with a strong concern for the wolf's long term survival.

## VIEWING OPPORTUNITIES

The sighting of a wolf outside of a zoo and off the television screen is a memorable experience by virtue of its rarity. But even in the Yukon, you will have to spend a fair bit of time in the bush before you will get a good look at one. Sightings from the roadway are not very common, but they do happen.

## DID YOU KNOW?

*The Yukon wolf population is comprised of about 40% pups, 20% yearlings, and 40% adults.*

*A caribou hunting wolf kills the equivalent of fifteen to twenty adult size caribou in a year.*

*A moose hunting wolf kills the equivalent of six to eight moose each year.*

*In mid-summer, adult wolves of both sexes sometimes bring food from a kill site to the pups by carrying it in their stomachs. At the den site, when the pups bite at the corners of the adults' mouths, the food is disgorged.*

*The recent introduction of wood bison into the Yukon has provided wolves with another large prey species. But Yukon wolves have no strategies for attacking bison, and it is not known how long it will be before they learn how to kill them.*

In the southern and central Yukon, you will have a better chance of spotting wolves if you spend time out on some of the more remote rivers and lakes. Remember that moose pursued by wolves will often head for water. Keep an eye out for kill sites on the shoreline.

In the northern Yukon, the treeless Arctic tundra allows for clear long distance views. Firth River rafters and hikers in North Yukon National Park may catch the migration of the Porcupine caribou herd if the timing is right. If you are lucky enough to see the herd pass by, watch for wolves trailing along behind.

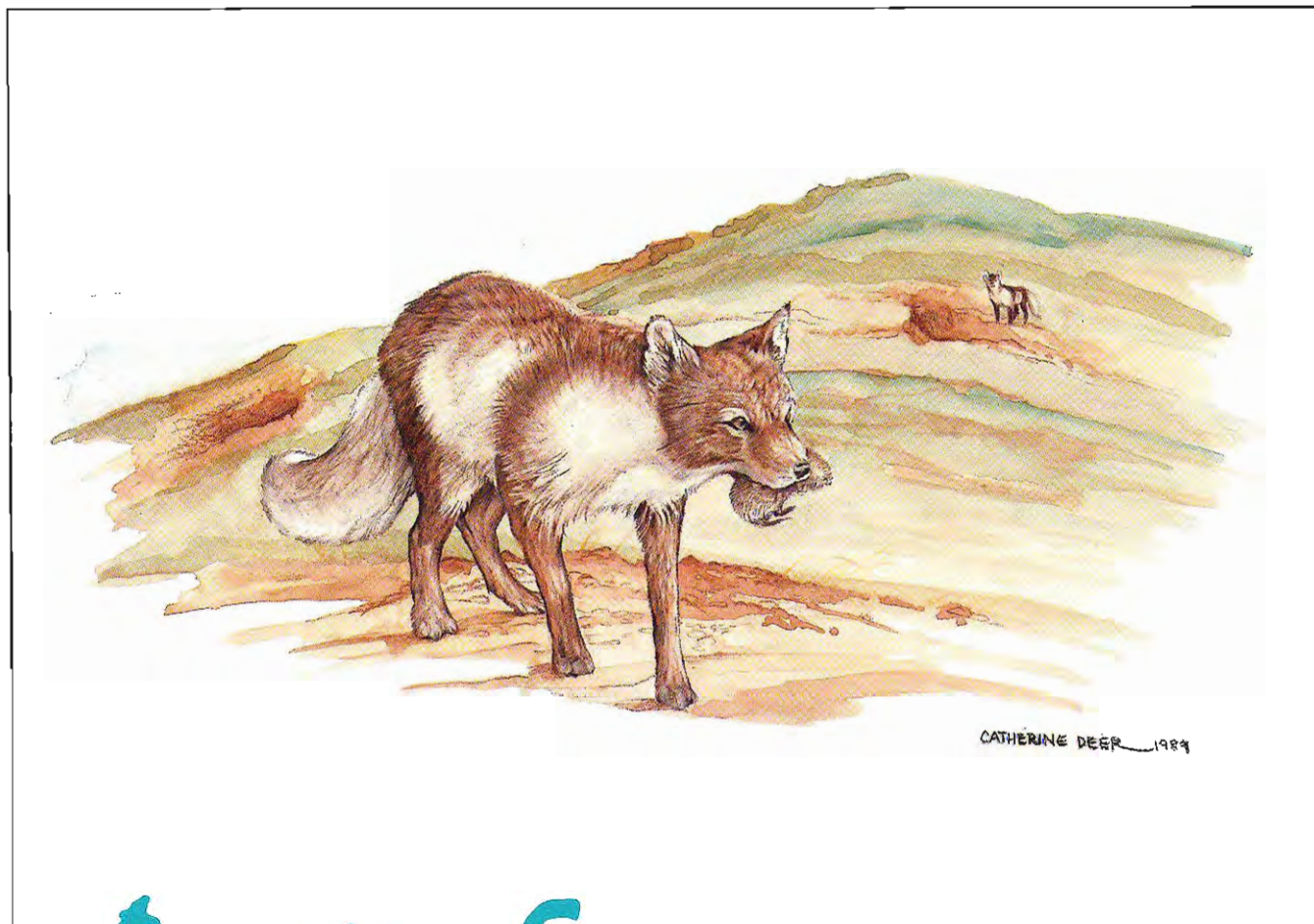
You can often make contact with wolves by imitating their howls, by yourself or with a group of people. Calm, quiet evenings are the best times to try this. Good places to howl include rivers, lakes and open meadows where sound will carry for a distance. A wolf howling in return will produce one of the most enjoyable sounds of the Yukon wilderness.

## IDENTIFICATION

If you see a large wolf-like animal near Whitehorse or one of the smaller communities, it may be one of the husky type dogs common in the Yukon. Generally, wolves carry their tails low, while these dogs carry theirs high in the air.

Once you get out of town and into the bush, the only other animal you might confuse with a wolf is a coyote. A wolf is about twice the size of a coyote and has a stockier build. If the animal's colour is black or creamy white, it's a wolf you are looking at. If it has a long thin face, long ears, and a light build, it's a coyote.

## Yukon Mammal Series



# Arctic Fox

### THE SPECIES:

*Alopex lagopus*

Few animals make their home in the harsh environment of the Arctic. An exception is the arctic fox, an adaptable circumpolar specialist. The size of a large house cat, the arctic fox is one of the smallest mammals to remain active above the snow surface during the long northern winter.

### DISTRIBUTION

In summer the arctic fox inhabits a narrow strip of land along the Yukon's arctic coast and nearby Herschel Island. During winter its range expands considerably as it moves out onto the offshore ice. Arctic foxes have been sighted hundreds of kilometres from the nearest land.

The size of the Yukon's arctic fox population is difficult to estimate

but it is not very large. A 1986 survey concluded that 14 to 20 foxes live on Herschel Island. There are probably no more than 50 foxes in all on the Yukon's north slope. Observations by local trappers as well as research suggests that the Yukon has less-than-optimal arctic fox denning habitat, with fox numbers here increasing only after populations have reached their limits in prime habitats east and west of the territory.

### CHARACTERISTICS

Though its average weight is three kilograms, the arctic fox looks deceptively large in winter because of its thick protective fur. Adaptations like its short ears, legs, and muzzle, and its thickly furred foot pads enable it to maintain its body temperature despite temperatures of minus 40C and lower.

There are two color phases among arctic fox — white and blue.

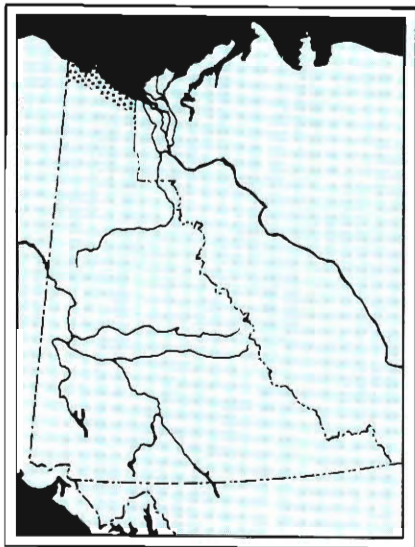
Both phases change color from summer to winter. The arctic fox is the only canine that undergoes this seasonal color change.

White phase foxes predominate in the Yukon. By the beginning of July, molting reveals their brown and fawn colored summer fur. About eight weeks later the white winter coat begins to grow in again. Blue phase foxes are a dark bluish in summer and pale grey in winter. They are more common in the Aleutian Islands and the eastern Arctic.

Like other canines, the arctic fox has a keen sense of smell and acute hearing. This combination helps it detect lemmings — a major food source — moving about under the snow. It is a better swimmer than other canines, an asset for an animal that lives on the coast and offshore ice.

The arctic fox has a characteristic high pitched bark. It's also been known to purr like a cat.

# Yukon Mammal Series



*Arctic Fox distribution*

## LIFE HISTORY

Most arctic foxes mate in February or March. Shortly after mating, each pair begins to search for a natal den site which will ensure the survival of their pups. But suitable den sites are hard to find. Permafrost must be far enough below the surface to permit burrowing. In the Yukon, some arctic foxes den among the sand dunes and loose gravels of the coastal plains, between the Babbage River and the Alaska border. Others den on Herschel Island's well-drained peat mounds. The density of dens on the island is relatively high — about one den for each four square kilometres. Because good sites are scarce, dens are often re-used for hundreds of years. Over time, elaborate burrow systems covering several hundred square metres develop.

In April or May the pregnant female gives birth to five or six pups. Blind, deaf, and toothless, a newborn pup weighs no more than a tennis ball, but it has a voracious appetite. A constant supply of lemmings, voles, and other small rodents and mammals are provided by the parents. Fortunately these prey species are usually plentiful in

the summer. Hunting takes place from dusk to dawn and even when the summer sun shines 24-hours a day, the foxes continue to hunt during the night time hours.

Natal dens are usually abandoned by the end of August when the arctic fox family splits up. Each fox then embarks on a solitary search for food. Through the winter it trails polar bears and even wolves in order to feed on the scraps of carrion left by these big predators.

In the spring, arctic foxes search out newborn ringed seals in their ice dens and occasionally snap at fish they have stirred up in the water.

Arctic fox numbers rise and fall in a more-or-less regular cycle lasting three to five years. This cycle is related to changes in the lemming population. When food is scarce, foxes are known to migrate — some for hundreds, even thousands of kilometres.

Arctic foxes have a high mortality rate. Parents frequently abandon their young, and aggressive pups are known to kill their littermates. In addition to starvation, rabies is a major cause of death in adult foxes. The virus for the fatal disease is found in 1% to 20% of the population. The incidence of rabies increases during the periods of food scarcity, presumably because of lowered resistance. Although the arctic fox has a potential 10 year lifespan, only one in 25 will live past its fourth year.

## THE ARCTIC FOX AND PEOPLE

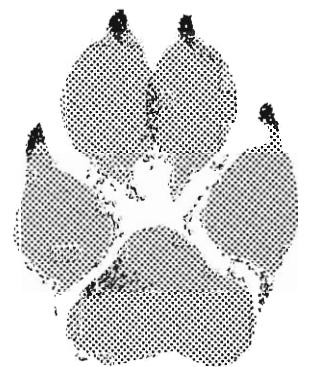
Arctic fox pelts have been an important resource in Canada's Arctic since the early 1900's. Thousands are harvested annually in the Northwest Territories, but in most years only a handful of foxes are trapped in the Yukon. When Yukon arctic fox populations rise due to immigration from adjacent areas of Alaska and N.W.T., harvest levels also rise. As a result of their land claims settlement, the Inuvialuit of the Mackenzie Delta have the exclusive right to harvest arctic foxes and other furbearers on the Yukon's north slope.

The arctic fox is a frequent — sometimes unwelcome — visitor in northern settlements and camps. It will steal edible objects and chew on inedible ones. It can also become quite tame and approachable. Petroleum exploration in the Beaufort Sea could affect arctic foxes since they, as well as seals and polar bears, are attracted to the open leads which occur around drill sites.

## VIEWING OPPORTUNITIES

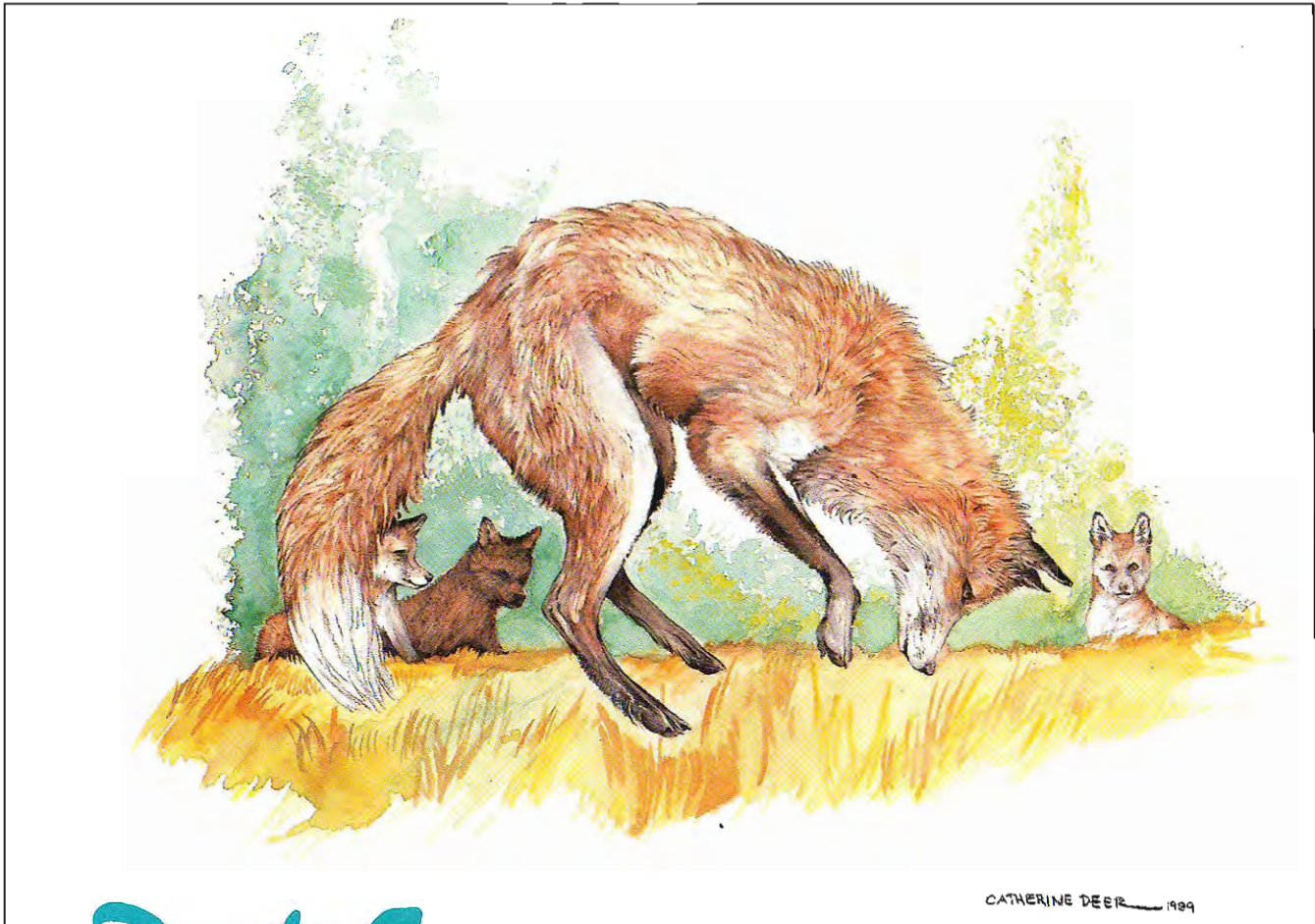
Arctic foxes are easy to observe as they are relatively unafraid of humans. Dens are not difficult to spot. Years of constant use enrich the soil, creating a unique, lush green "fox garden" which contrasts with the surrounding area.

Visitors to Herschel Island Territorial Park and North Yukon National Park, as well as Firth River rafters, are all in arctic fox territory. But if a den is spotted there is a good chance it is not occupied. About one-quarter of the dens in the Yukon will be occupied in the spring and early summer. Dens should not be tampered with, whether occupied or not. Bring your binoculars and observe from a distance.



← 5.5 cm →

# Yukon Mammal Series



## Red Fox

### THE SPECIES:

*Vulpes vulpes*

With keen eyes and ears, a red fox follows the faint sounds and stirrings of a tiny meadow vole moving through the grass. After a few minutes, the fox pinpoints the exact location of the vole, leaps in the air and drops on its hapless victim with both forepaws. A quick bite and it's all over.

Also known as the coloured fox because of its different colour phases, this animal is an old world species with a wide distribution in the Northern Hemisphere.

### DISTRIBUTION

The red fox is at home in all parts of the Yukon. It inhabits three main habitat types: white spruce forests, subalpine areas of willow and soapberry, and alpine tundra. Small numbers also inhabit the arc-

tic tundra of the far north. One reason why the red fox is less abundant in the Arctic is because of competition with the arctic fox for food and territory. The recent expansion of the coyote's range into the southern Yukon has also affected red fox distribution.

Although population estimates are not available, it is thought that the Yukon population is fairly large and stable due to this animal's ability to adapt to different and changing habitats.

### CHARACTERISTICS

Distinctive features of the red fox include its slender, tapering muzzle, very pointed ears, and long brush-like tail. With weight varying between 3.6 and 6.8 kilograms, it is considerably larger than the arctic fox, but about half the weight of a coyote. Female red foxes (vixens) usually weigh about one kilogram less than males (dogs).

The red fox is easily recognizable in its red colour phase. The classic black stockings and cheek patches, and white throat and chest parts contrast vividly with the red coat. About half of all red foxes are of the red phase.

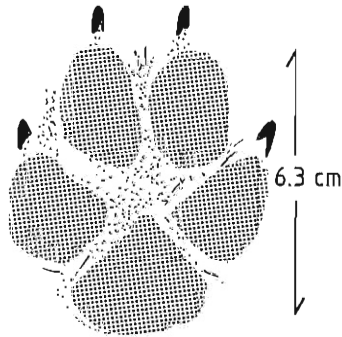
Two other common colour phases, the cross and the silver fox, are darker versions of the red fox. The cross fox is so named because of a dark band of guard hairs which form a cross over the shoulders and back. Greyish brown in colour, the cross fox also has black legs and face markings, but due to the darker coat the contrast is not so evident. The silver fox is black with white tipped guard hairs which give it a silver sheen. A range of colour variations can occur within the same litter of pups.

### LIFE HISTORY

The red fox is a solitary, territorial animal. Home ranges

# Yukon Mammal Series

average 295 hectares in size, and are often bounded by rivers or other natural barriers. Related foxes do not share home range resources. Females occupy smaller ranges than males, and it is thought that the sizes and shapes of home ranges are also related to the status of the individual and the local food sources.



Although they are usually non-aggressive, red foxes engage in skirmishes at the onset of the mating season in mid-January. Dominant dogs fend off other suitors attracted by receptive vixens. Inseparable after breeding, the mated pair traverse the countryside in search of a den. In mid-March, the vixen beds down in a renovated rodent burrow or an abandoned wolf den on a south facing hillside or streambank. There she usually gives birth to four young, some fifty-two days after conception. The vixen is confined to the den during the pups' first few days of life, depending on her mate to supply food for her. But she soon begins to leave the den for short periods to forage on her own. The pups face several dangers while their mother is away, including predation by lynx and wolves.

During the first few months of life, the milk diet of the young pups is supplemented with semi-digested meat provided by both parents. By their third month, the pups have been weaned and under the vixen's critical eye, they begin learning to hunt. Playful interludes during their lessons help to develop the speed and agility so vital to the fox's survival. In autumn, their hunting skills are well honed. The young foxes rely less on their parents and in early winter the family disbands, each fox going its own way to seek out a new home range.

The red fox spends the mornings and evenings of the cold Yukon

winter roaming around the edges of snow covered clearings and ponds, foraging for mice, voles, shrews, snowshoe hare, and muskrats. If a small group of ptarmigan or a snowshoe hare catches the fox's eye as it skirts the forest openings, it will slowly stalk its quarry until it is close enough for a sudden attack.

The melting snow and emerging plant life of early spring provide better hunting for the fox. Along with the renewed abundance of young voles and mice, the eggs of ground nesting ducks and marsh birds create dependable food sources. Grasses and sedges are also eaten in summer, and berries become important when they ripen in the fall. On the arctic tundra, the red fox feeds mainly on collared lemming, tundra voles and arctic ground squirrels.

## THE RED FOX AND PEOPLE

Like other peoples, Yukon Indians associated the red fox with mischief and mishap. Called "Smart Man" by the inland Tlingit, in legend the fox was blamed for the anguish of human death. If foxes were seen near a home it was considered a bad omen for those who lived there. Despite its role as a harbinger of ill fortune, Yukon Indians also regarded the fox as a spirit helper.

Although its meat was not eaten, the fur of the red fox was traditionally used by Yukon Indians for robes and linings. Fox were trapped with snares and deadfalls, and were hunted with bows and arrows. The carcass of the fox was treated with respect.

The red fox was the first furbearer to be raised in captivity for pelt production. In the Yukon, fur farming reached its peak in the late 1920's and early 1930's. Yukon fox fur was known worldwide for its superior quality and was in high demand in Europe and the United States. Fur farms were set up in hopes of breeding large numbers of highly sought after silver fox, but a change in European fashions and import quotas resulted in a declining market, and this once lucrative business met its end.

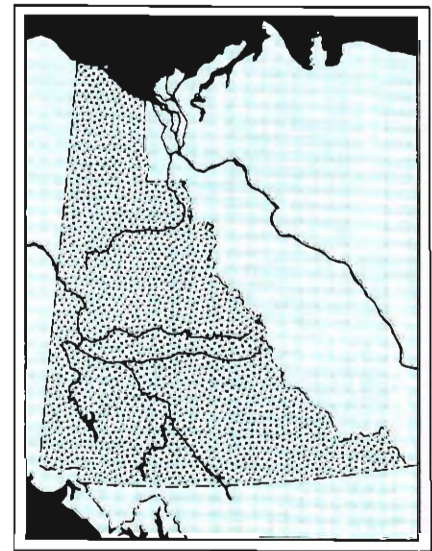
## VIEWING OPPORTUNITIES

The highway traveller has a good chance of spotting a red fox

either crossing the road or skirting a nearby clearing. Foxes are more easily seen in winter when they contrast with the snow, but any movement is noticeable against the backdrop of a still forest, so summer sightings are also likely.

The optimum time for viewing red fox is in the spring, when the south facing slopes of hills and knolls are bare of snow and foxes are concentrated near their dens. Dens are more obvious at this time of year because of the increased activity as the pups begin to venture forth and forage nearby. After the pups move out of the den, they (pups and dens) are more difficult to locate.

Since foxes have sensitive noses and keen eyesight, the determined viewer would be wise to remain relatively still, at a good distance from the den in a downwind direction. Occupied dens should not be approached too closely as a disturbed vixen may abandon the pups or move them to another den. Binoculars will bring you closer to the foxes without encroaching on their privacy.



Red Fox distribution

**Yukon**  
Renewable Resources

## Yukon Mammal Series



# Black Bear

### THE SPECIES

*Ursus americanus*

The familiar black bear holds a special place in the North American folklore. Of all the wildlife species on this continent, the bear of Indian legend and pioneer tale resembles we humans the most. Its footprint, like ours, reveals an animal that walks with the entire length of its foot on the ground. When it rises up on its back legs and looks us in the eye, it is easy to imagine a man in that bear suit.

Unique to this continent, the black bear ranges from the east coast to the west and from the northern tree line down into Mexico. We think we know this animal, through fictional characters like Smokey the Bear and Yogi, and our own experiences at campgrounds or

bush camps. But how much do we really know about the black bear? In the Yukon, it's our least studied common large animal.

### DISTRIBUTION

Black bears are thinly distributed from the B.C./Yukon border to the northern tree line near Old Crow. But they're most numerous in the southern and central parts of the territory.

The Yukon's mountainous terrain tends to concentrate the range of the black bear. Unlike the grizzly, this is a forest bear and its range in the Yukon is confined to the river valleys and their finger-like strips of forested habitat.

Population counts are difficult to make because these creatures of the forest and the den are usually hidden from the view of airborne biologists. A rough estimate puts the Yukon black bear population at 10,000 animals.

### CHARACTERISTICS

The name "black bear" can sometimes be misleading. About 30 percent of Yukon black bears are actually brown in colour. Rare blue coloured (glacier bears) and white coloured (Kermode bears) black bears occur in coastal Alaska and British Columbia but their presence in the Yukon has not been confirmed.

Although it has the powerfully muscled build of the bear family, the black bear is relatively small. Yukon adult males average 135 kilograms in weight with a shoulder height of one metre. Females average 70 kilograms in weight.

Compared to that of a human, the eyesight of a bear is similar, but its senses of smell and hearing are more highly developed. These senses enable the black bear to detect the presence of grizzlies and humans (the only animals that are a threat) as well as carcasses and car-

# Yukon Mammal Series

tion that might mean a good meal.

## ADAPTATIONS

The black bear began to move northwards into the Yukon about 12,000 years ago. It was a time when the great ice sheets of the Wisconsin era were melting back into the mountains, and the boreal forests were slowly covering the fresh landscape.

The evolution of the denning behaviour was a key element in the expansion of black bear range into northern Canada. For this animal, a shorter foraging season simply means a longer denning period. At seven months, the denning period of a Yukon black bear is one of the longest of the species. Mexican black bears spend only a few weeks in the den.

Mountainous terrain tends to reduce the size of each animal's home range. Black bears need access to different types of habitat for food, water, dens, cover and concealment. Eastern black bears move great distances to meet all of these needs. Yukon bears have only to move to higher or lower elevations to find different types of habitat.

The presence of grizzlies in the Yukon affects the distribution and behaviour patterns of our black bears. Grizzlies may kill and eat black bears, and easily win the competition for food where their ranges overlap at river level and the subalpine zone. A black bear feeding on a salmon stream or in a berry patch will quickly move away when a grizzly arrives.

An important feature of northern black bears is their low rate of reproduction. A female black bear in the Yukon breeds for the first time at seven to nine years of age, and every three to four years afterwards. In its 20 year lifespan a sow will produce only two to four litters.

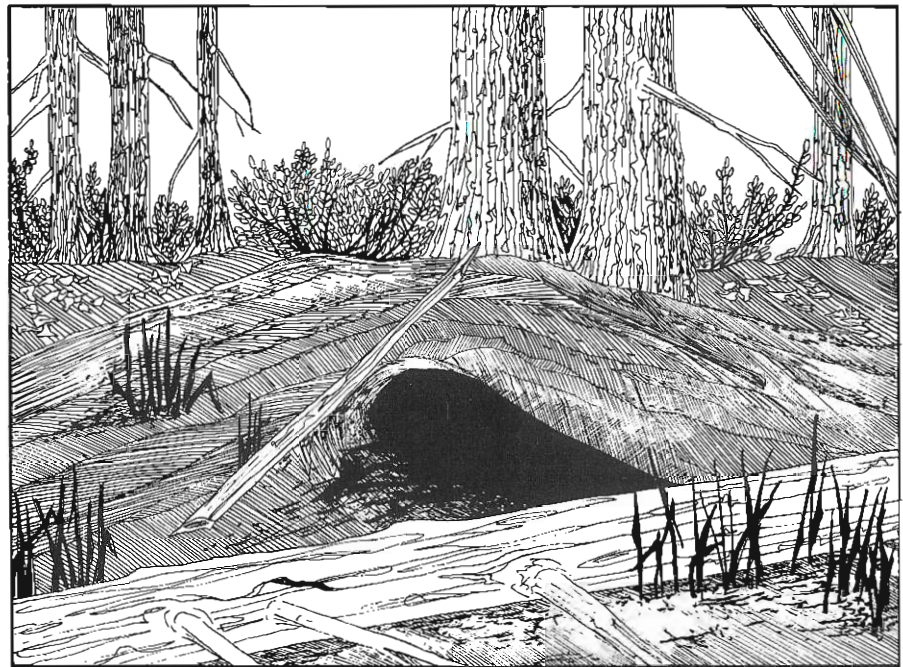
## A YEAR IN THE LIFE

### Winter

Black bears avoid the Yukon's severe winter by denning up before the worst weather arrives. Denning habits vary between different populations of bears, and between individuals in the same population group. Dens can be dug into the ground, or situated under the roots of fallen trees or in other natural cavities. Northern dens are usually

lined with leaves, grass, and twigs.

Pregnant females give birth in the winter den during the month of February. One or two, and occasionally three squirrel-size cubs are born. By the time they leave the den in April or May, the cubs will weigh about nine kilograms. It's a remarkable growth rate when you consider that the cubs have been nursed for three months by a mother that hasn't consumed any foods or liquids.



*One type of Black Bear den.*

### Spring

When longer days, warmer temperatures, and melting snow signals the arrival of another spring, black bears emerge from their dens. Males are the first to step out, usually near the end of April.

Many black bears move to the grassy south-facing hillsides as soon as they emerge. These slopes are free of snow at this time of year and the bears find overwintered cranberries and bearberries on which to feed. At river level, fresh growths of horsetails and willow catkins are important spring foods. Vegetation of one type or another makes up 95% of the black bear diet. However, unlike grizzlies, black bears seldom eat plant roots.

Most mammals are too fast for bears to catch, but young moose calves are an exception. A two year

study in the southwest Yukon revealed that black bears take from two to ten percent of the newborn calves. These kills were made in the subalpine zone where many cow moose give birth, but are also likely to occur in valley floor settings.

Yukon black bears mate between mid June and the end of July. During mating season male bears travel widely, searching for females and following their scent trails. Breeding pairs stay together for a few hours,

or a few days at most.

Females with cubs remain in their dens about a month longer than other bears. The cubs usually stay with their mothers for two years, denning with them each winter. Females breed again only after their cubs have left or died, and may skip a year in between.

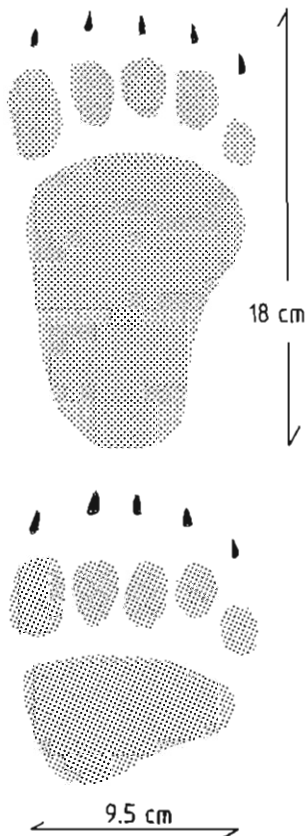
### Summer

Black bears make use of several types of habitat through the summer. Horsetails growing in openings in white spruce forests are attractive to bears in early summer. When soapberries ripen in July, the bears move into aspen and cottonwood stands. Soapberries grow along the margins of these stands and the fresh leaves of the aspen itself are also eaten.

Summer is the hungry time for

black bears. As the grasses and horsetails mature, their nutritional value declines. During these lean times, bears might climb trees to obtain cottonwood catkins, or fish for pike along the shallow margins of a lake. Some bears seek out campsites and garbage to supplement their diet.

As summer progresses, the bears move into black spruce forests where ripening blueberries are found. If they're not threatened by grizzlies, some black bears will move into sub alpine habitats where more blueberries and crowberries are found.



## Fall

In most years, energy-rich berries are plentiful during the autumn season. Bears gain weight rapidly at this time of year, as much as one to two kilograms a day.

Berry crops are critical to northern bears which must survive with a narrow variety of foods and a short foraging season. When berry crops fail as they do every few years, black bears are forced to travel widely in search of food.

Their desperation brings them into greater contact with people during these times.

Berry crop failures can also affect the reproduction of black bears. Pregnant bears go through a process known as delayed implantation. This means that the embryo lies dormant until November or December. During a bad berry year, if the female is in poor condition the embryos will not implant and no cubs will be born. This probably saves the mother's life.

In October, when the temperature drops and the snow flies, black bears search for new den sites and the cycle begins once more.

## BLACK BEARS AND PEOPLE

The black bear's inquisitive and adaptable nature has led it into contact with humans and their campsites for thousands of years. Yukon Indians viewed black bears in much the same way they viewed grizzlies. Both bears had powerful spirits that demanded respect and proper treatment when they were killed. It was not wise to speak badly of bears because the bear spirits would hear the words, and things would go badly for the speaker.

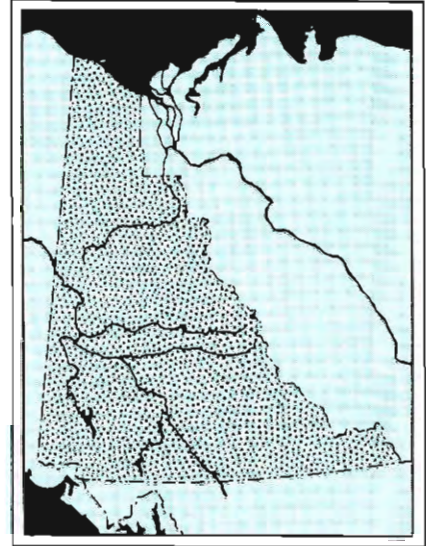
Before the arrival of firearms bears were rarely killed, and when they were, it was mainly through den hunting. When an occupied den was located, a group of the bravest men would try to kill the bear with spears and other hand weapons.

Most early non-Indian Yukoners considered the black bear to be a nuisance. Thousands were killed near camps and cabins over the years but few carcasses were actually wasted. The meat was fine on the table. The hides made warm coats, blankets and rugs, and the bear grease was as good for frying fish as it was for waterproofing boots.

Today, reported kills of problem black bears occur at an average rate of 40 per year, but knowledge and attitudes are changing. More bush camps now use garbage incinerators and other methods to avoid the problems that inevitably lead to dead bears.

## VIEWING OPPORTUNITIES

Black bears are commonly seen on the Klondike Highway and other roads in the south and central Yukon. But you'll have a better



Black Bear distribution

chance of seeing a bear if you step out of your vehicle and walk, paddle, ride a horse or use a river boat.

May is the best month for black bear viewing. It is one of the few times when this forest bear will be out in the open where you can see him. Look for bears on grassy

## DID YOU KNOW?

The black bear arrived in North America about 500,000 years ago by way of the Bering land bridge. It had evolved in Asia, thousands of years earlier, from a branch of the dog family.

The home ranges of female black bears are often passed from mother to daughter. Male black bears must establish their own home ranges once they leave their mothers.

"Bear trees" display the claw marks of bears that inhabit the area. These trees are usually marked by male bears in the height of the breeding season.

Black bears get more nutrition from overwintered bearberries in the spring, than from fresh bearberries in the fall. The sugar content of these berries increases by two to three times over the winter.

Bear lips, unlike the lips of other animals, are not attached directly to the gums. This makes them very flexible and useful for stripping berries from bushes.

# Yukon Mammal Series

south-facing hillsides at this time of year. The hills around Kusawa Lake, Frenchman Lake, Stewart Crossing and Ross River are well known for black bear, but the same types of hillsides can be found along many of the Yukon's larger rivers. A spring or early summer trip down the Pelly River with a pair of binoculars, should yield good results.

## IDENTIFICATION

Most of us have difficulty distinguishing between black bears and grizzlies in the field. Since size is difficult to judge, and both bears can be brown in color, you'll need other ways of telling them apart.

When you encounter a bear in the field, take note of the following features:

- Claws -** Black bear claws are much shorter than those of grizzlies. This is most noticeable on the front feet, where grizzly claws can reach 10 centimeters in length.
- Face -** The side profile of a black bear will reveal a straight line between nose and eyes, and a light colored nose mask. The side profile of a grizzly bear will reveal a concave or dished area between the nose and eyes.
- Hump -** Grizzly bears have a pronounced hump of muscle over their shoulders. Black bears do not.
- Chest - Patch** Many black bears have a white chest patch that is lacking in grizzlies.

# Yukon Mammal Series



## Grizzly Bear

### THE SPECIES:

*Ursus arctos*

Respected by all, the grizzly bear is a symbol of wilderness, of something out there that is bigger and stronger than us. If you've been lucky enough to see a grizzly in its environment, you know for certain that this is one of the most powerful northern land mammals.

The grizzly is a circumpolar animal. Its doughnut-shaped range extends from the Arctic coasts down into the central parts of Europe, Asia and North America. Within this range, some areas provide more food and are subject to shorter winters than others. Different conditions like these produce different types of grizzlies; bears that vary in size, body proportion, colour, and lifestyle.

### DISTRIBUTION

Grizzly bears inhabit the entire Yukon, from the B.C. border to Herschel Island off the Arctic coast. Since the Yukon's northern interior environment is less productive than southern or coastal environments, our bears are spread fairly thin over the landscape. The territorial population is estimated at 6000 - 7000 animals.

### CHARACTERISTICS

The colour of Yukon grizzlies ranges from near black to silver-blond. The typical bear shows darker colours on its legs and belly and lighter colours on its back. It is the lighter tips of the long guard hairs that give this bear its "grizzled" appearance.

Northern interior grizzlies are smaller than the southern grizzlies that benefit from longer foraging seasons, or the Alaskan coastal grizzlies that thrive on rich salmon

streams. Adult males generally weigh 225 to 275 kilograms, about half the weight of the largest bears from the Kodiak Islands of Alaska. The heaviest grizzly studied in the Yukon tipped the scales at 430 kilograms (940 lbs), and likely benefitted from a garbage enhanced diet.

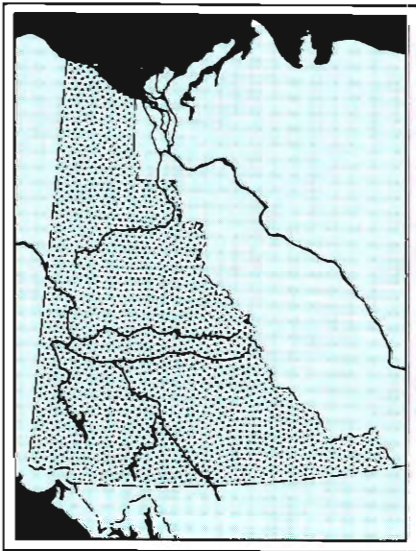
The denning period varies among different populations of grizzlies, depending on the regional climate. Yukon bears spend six to seven months in their winter den - October through April. Yellowstone grizzlies in Wyoming spend five months in the den.

An important characteristic of northern grizzlies is their low rate of reproduction. Yukon bears begin to breed later in life than other bears and reproduce less often. For example, female grizzlies in the Kluane area breed for the first time at seven years of age, and every three to four years afterwards.

# Yukon Mammal Series

## UNPREDICTABLE OR ADAPTABLE?

You'll often hear the comment that grizzlies are unpredictable, but this is somewhat misleading. A more accurate statement is that grizzlies are highly adaptable. The life of this omnivore centers around an intensive search for the most nutrient-rich foods it can find. Individual bears learn successful methods of achieving this goal, methods that vary greatly between regions, and to some degree between individuals. Generally, in a given region all bears will focus on the same set of foods at the same time, but some individuals are able to exploit additional localized food sources. For example, in mid-May virtually all Yukon grizzlies are eating roots and overwintered berries. A little later in the season, bears that have learned to capture moose calves focus on this food source, while others concentrate on newly emerged grasses, sedges, and horsetails.



Grizzly Bear distribution

Every adult bear has learned a unique set of feeding sites based on its mother's training and its own ramblings. Because of their much larger home ranges, more males are able to include unusual food resources like spawning salmon in their diet.

Finally, bears, like people, vary in their aggressiveness. At the top end of the aggression scale are females with young cubs. But

grizzlies generally avoid conflict with humans and, if we manage our own food and garbage carefully, co-existence between our two species is not difficult.

## A YEAR IN THE LIFE Winter

In its warm mountainside den, a Yukon grizzly escapes the blowing snow and -40°C temperatures of the northern winter. Its heart rate and breathing rate are lowered but its body temperature remains near normal, and it can wake up quickly. A thick layer of fat provides for the bear's low energy needs during this period when it doesn't eat or drink. The marvellous recycling of fluids and wastes that takes place inside a denning bear, is the subject of intensive study by biochemists and physicians.

## Spring

Spring is a season of rebirth for all life in the Yukon. Male grizzlies emerge from their winter dens in late March or early April. At tree line altitudes, the snow still lies heavy at this time of year, but south facing slopes are bare. Here the bears might turn over the soil to get at the starchy roots of Eskimo potato.

In the subalpine zone, grizzlies feed on overwintered cranberries and bearberries while searching for marmots and ground squirrels. Bears, other than females with newborn cubs, roam widely at this time of year, looking for winter-killed carrion, weakened animals, and newborn moose calves. At river level, the roots of Eskimo potato and horsetails are a primary food source in spring.

Most Yukon grizzlies breed during the month of June. A breeding pair will stay together for a week or two at most.

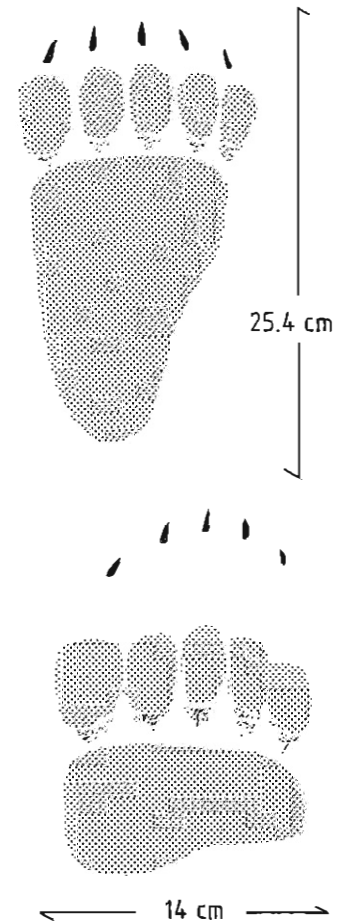
Another social unit is formed by a sow and her cubs. Females with newborn cubs remain in their dens about a month longer than other bears. This is done to give the cubs a better chance of survival, but even then about 1/3 of cubs die, usually as entire litters, before the end of the breeding season. The patterns of these losses are not well understood. Other bears, particularly transient males may be an important factor.

The cubs stay with their mother

for two or three years, denning with her each winter. The female will not breed again until the family has broken up. Siblings may also form a social unit after separating from their mother, and often den together the first winter on their own.

## Summer

In mid-summer, grizzlies will often be found in alpine settings, feeding on new growths of grasses and horsetails. Many bears are attracted to the river flats in mid-July when soapberries ripen. These red berries are a staple food source until other berries ripen in August.



To escape the mid-day heat of summer, grizzlies rest in shallow scrapes in the cool earth. These daybeds are roughly one metre in diameter and 25 centimetres deep. They are usually found near feeding areas; in shady spots near streams or meadows, and on cool snowpatches and riverside sandbars.

Summer can be an uncomfortable season for grizzlies. Their

## Yukon Mammal Series

bellies are full but poor quality foods provide little energy. Winter fur is shed as the summer coat grows in, and the bugs are a nuisance.

### Fall

When berries ripen in August, a change takes place in the grizzly lifestyle. Propelled by a voracious appetite and an approaching winter, the bears gorge themselves on large quantities of berries. This is the only time of the year when bears actually put on weight, up to one kilogram per day. In other seasons they are either stable or losing weight.

The fall weight gain of grizzlies varies by region based on the foods available in each area. The primary food source at this time of year in Kluane is soapberries; in the central Yukon it is blueberries; in the northern Yukon, in some years, it is ground squirrels.

Yukon bears do not have access to the heavy salmon runs of coastal rivers, but many streams in the Yukon river drainage host moderate runs of salmon in late summer to early fall. Some grizzlies in the Tatshenshini/Klukshu area put on fat at this time of year by feeding on those streams' salmon runs. Bears near the Fishing Branch River in the northern Yukon, take advantage of this stream's unusual late season chum runs.

Fallen berries and the first frosts of the season signal the approach of winter. In October, bears begin to move towards the high country as the denning period approaches. Grizzlies usually den on south facing slopes near treeline. To create a denning cavity, a bear might move as much as a ton of earth out of the hillside. The dens are about one metre high and one and a half metres in diameter. They are connected by a one to two metre tunnel down and out to the "porch" made from the pile of removed earth. A mattress of grasses, moss, and branches line the den, and they are very clean. What a sensible way to spend a Yukon winter!

### GRIZZLIES AND PEOPLE

Yukon Indian people shared the landscape with grizzly bears for thousands of years. An Indian who met a grizzly on the trail or in a berry patch would speak quietly to the bear, explaining that he was out

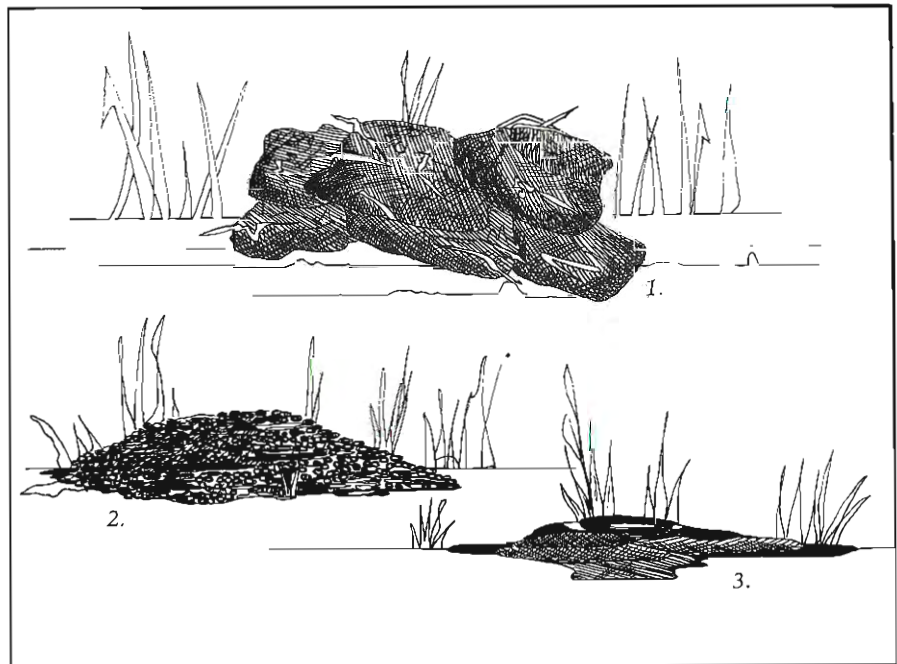
hunting moose (or she was out gathering berries) to feed the family and meant no harm to the bear.

A powerful legend tells the story of a woman whose husband turned out to be a grizzly bear in disguise. The woman's brothers eventually killed her bear husband and ate the meat, but she and her half-bear children refused to share in it. Some people believe that this story explains why many Indian people do not eat grizzly meat to this day.

Most of the early prospectors and trappers considered the grizzly to be a dangerous, almost evil animal. In reaction to the frequent damages to cabins and food caches, and the occasional maulings, the bears were often shot on sight.

about any road in the Yukon, but the odds of such a sighting are slim. In normal circumstances, bears avoid humans and their sign. The Dempster Highway probably offers the best chance to observe a grizzly from the roadway.

River travellers are much more likely to observe grizzlies, particularly in early spring and late fall. Salmon streams like the Tatshenshini and Big Salmon Rivers, can provide some good grizzly viewing at certain times, but there are two risks involved. First there's the need to keep a certain distance between yourself and the bear (easier said than done on a small river). Then there's the whitewater to deal with, particularly on the Tatshenshini



*Bear droppings indicate feeding habits:*

1. Tubular with green strands: Bear is eating horsetails and grasses;  
Tubular with white strands: Bear is eating roots;
2. Mushy with berry skins: Bear is eating berries;
3. Liquid: Bear is eating meat.

In more recent times, Yukoners have come to appreciate the value of this rare and exciting animal and have accepted responsibility for avoiding conflicts. Today, we are proud to share our living space with one of the world's largest remaining grizzly populations.

### VIEWING OPPORTUNITIES

The highway traveller might catch sight of a grizzly bear on just

(rafts and kayaks only).

Hiking is the best way to get into grizzly viewing territory above treeline. In the alpine habitat, vegetation is sparse, long distance views are common, and grizzlies are present through the seasons. Open vistas allow the hiker to observe grizzlies at safe distances. Kluane National Park and the Fishing Branch River are two good areas for viewing.

# Yukon Mammal Series

## IDENTIFICATION

Most of us can easily tell the difference between a bear and a moose, but are less sure about the difference between a black bear and grizzly in the field.

When you encounter a bear take note of the following features:

**Hump** - Grizzly bears have a pronounced hump of muscle over their shoulders, black bears do not.

**Face** - The side profile of a grizzly bear will reveal a concave or dished area between the nose and eyes.

The side profile of a black bear will reveal a straight line between nose and eyes, and a light colored nose mask.

**Claws** - Grizzlies have longer claws than black bears. This is most noticeable on the front feet, where grizzly claws can reach 10 cm. in length.

**Chest - Patch** - Grizzlies do not have a white chest patch, many black bears do.

## DID YOU KNOW?

*The grizzly is the largest land carnivore in North America. It fears only one other species - humans.*

*One quarter of the world's grizzly bears live in the Yukon.*

*Yukon grizzly bears have one of the lowest reproduction rates of all North American mammals.*

*In an autumn feeding frenzy, a grizzly can eat 200,000 berries in a single day.*

*Grizzlies stand up on their hind feet, not to attack, but to get a better view while they test the air and try to identify you.*

*In captivity, grizzlies have been successfully bred with polar bears. This is one reason why biologists suspect that polar bears evolved from grizzlies.*



## Yukon Mammal Series



# Polar Bear

### THE SPECIES:

*Ursus maritimus*

Wandering over the pack ice, following pressure ridges and open water leads, the polar bear breathes life into our image of the Arctic. But the bear is not alone out there. It is hunting for seals.

Biologists speculate that the polar bear evolved from northern grizzlies that began to venture out on the ice in pursuit of seals about 200,000 years ago. Gradually it became the maritime bear that we know today, spending most of its life on the arctic ice pack, rarely venturing inland.

The worldwide range of the polar bear encircles the north pole at about 82 degrees latitude, and extends southward to the northern coastlines of North America and Asia, and the arctic islands of northern Europe.

### DISTRIBUTION

The Yukon section of Canada's arctic coast is less than 250 kilometres wide — a narrow piece of land squeezed between Alaska and the Northwest Territories. Through the winter, small numbers of polar bears live and hunt on our mainland coast, Herschel Island, and the offshore ice. In summer they're out on the edge of the permanent ice pack — 150 kilometres or more off the Yukon coast.

These bears belong to the Beaufort population group. An estimated 2,000 bears live along the coast between Point Barrow, Alaska and Banks Island, N.W.T..

### CHARACTERISTICS

Polar bears are the largest non-aquatic carnivores in the world. Adult males weigh from 350 to 650 kilograms; females from 150 to 250 kilograms. To the human eye these bears appear to be white in color (or

creamy yellow) but their hairs are actually transparent and transmit energy in the form of invisible ultraviolet light to the dark skin below. The white color we see is a reflection of visible light.

When polar bears branched off from grizzlies they changed in other ways besides hair color. To help protect it from extreme cold (a thick layer of fat is its main insulator), a polar bear's hair covers its entire body except for the nose and foot pads. Its claws have become shorter and thicker to withstand the strain of running and climbing on hard ice rather than soft ground. After generations of feeding almost exclusively on seals, its teeth evolved into those of a carnivore — larger canines and smaller cheek teeth than the grizzly. Finally it developed a longer more streamlined body and head. The dishd face of the grizzly became the Roman nose of the polar bear.

# Yukon Mammal Series

## LIFE HISTORY

Polar bears are not territorial in their home ranges in the way that grizzlies and other land mammals are. Land based food sources produce in the same location year after year, but the open water leads and active ice areas that attract seals can shift many kilometres from one year to the next.

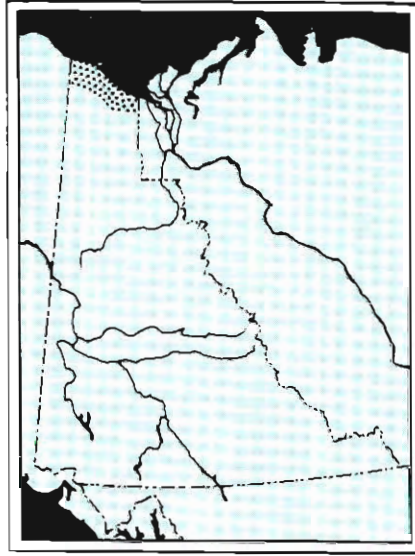
In the springtime, ringed seals are abundant and vulnerable as they give birth in their snowy lairs. Polar bears mate in April or May, wherever good seal hunting brings males and females together. The largest, dominant male chases off his rivals, then remains with the female for a week or two.

When the ice breaks up along the Yukon coast, usually in late May or June, polar bears move northwards with the retreating edge of the ice pack. As always, to hunt seals the bears need open water where seals can rise to breathe and solid ice for a hunting platform.

In autumn the Beaufort Sea ice moves southward until it joins with the Yukon coast once again, usually in November. When this happens the bears return to the better seal hunting areas over shallow coastal waters. A dozen pregnant females may go ashore on Herschel Island or the mainland west of there to prepare maternity dens for the coming winter. Within a few days they select a snow drift, tunnel in about two metres and excavate a chamber two metres in diameter and one meter high. The Beaufort population is unusual in that the majority of females den 250 to 450 kilometres offshore in the snowdrifts of the multiyear ice. It is thought that the limited number of dens on the mainland is related to excessive hunting during the whaling era.

Weighing about one-half kilogram each, two cubs are usually born in December. They are nursed on rich fatty milk through the winter until the family breaks out of the den in late March or April. After a few days of playing around the den entrance and acclimatizing to the cooler outside temperatures, the family moves out across the sea ice in search of seals.

Cubs remain with their mother for two or three years, which means that she cannot produce more young until three or four years have



*Polar Bear Distribution*

passed. Since the Beaufort Sea region is less productive than the eastern Arctic, Yukon polar bears breed for the first time at six years of age instead of at five as they do elsewhere.

The denning practice of polar bears differs from that of other bears. Males and non-pregnant females do not den up for the winter but instead follow the shifting leads and continue to hunt seals. They may bed down in the snow for a few days during a particularly intense winter storm.

In mid-winter, open water leads run parallel to the Yukon coast and also occur on the leeward side of Herschel Island. These active ice areas exist because the sea ice is continually flowing westward in a phenomenon known as the Beaufort Gyre. The leads are critical to seals and to the bears that hunt them.

## POLAR BEARS AND PEOPLE

The polar bear played an important role in the rituals and ceremonies of early arctic inhabitants, but it was also hunted for food and clothing. Most commonly, hunters would follow fresh tracks with a dog team, then let the dogs attack when the bear came in sight. The dogs would distract the bear enough to allow the hunter to use his bow and arrow or spear, but it must have been a desperate battle. Inuvialuit believed that hunters would only be successful if they treated the bear properly after

death.

When American whalers arrived on Herschel Island in the 1890's, polar bears in the area were subjected to new hunting pressure and efficient firearms, which were quickly obtained by the Inuvialuit.

Descendants of the Inuvialuit who once inhabited Herschel Island and the Yukon coast now live in Aklavik and other Mackenzie delta communities in the N.W.T.. These people are licensed to take six polar bears from the Yukon each year. There is no sport hunting season for Yukon polar bears.

Recent oil exploration in the Beaufort Sea has brought artificial island drilling platforms to the area. Since open water leads occur around these islands, seals are attracted to the sites and with them, polar bears. In the event of a spill or blowout, local population of both species could be at risk.

## VIEWING OPPORTUNITIES

If you are determined to see a Yukon polar bear, visit Herschel Island Territorial Park in April. From the bluffs on the north shore you may see polar bears hunting among the ice blocks and leads below. Pilots in Inuvik and Aklavik can easily locate polar bears from the air at this time of year. A birds-eye-view of the ice bear will not soon be forgotten.



# Marten

## THE SPECIES: *Martes americana*

With its sharp, furry face, stand-up ears, black whiskers and long bushy tail the marten looks somewhat cat-like as it moves gracefully across the forest floor. Overhead, a great horned owl circles in the twilight sky. A master at "weaseling" out of harm's way, the marten takes cover in a hollow log. Then, when a red-backed vole scurries past, the marten darts out for a meal of its own.

## DISTRIBUTION

The marten makes its home in mature forests where its favourite food, the northern red-backed vole, is abundant. In the Yukon, climax stands of spruce support marten populations as far north as Old Crow Flats.

A combination of natural barriers such as mountain ranges, large lakes and large burn areas resulted in an

area barren of marten in the southwest Yukon. Suitable patches of forest capable of supporting marten existed in the area, but no marten lived there. In recent years, government biologists have introduced marten into this area with the hope that a viable population will eventually establish itself.

## CHARACTERISTICS

Marten found in the Yukon, Northwest Territories and Alaska are almost twice as large as marten that inhabit southern areas of North America. About the size of a housecat, the average male marten weighs 1,400 grams. The female is much smaller.

A Yukon marten's rich fur can vary from a pale buff to dark brown with a patch of orange fur at the throat. This member of the weasel family has large, furry feet and semi-retractable claws that function equally well on soft snow or hard trees.

Like the wolverine, mink, ermine

and other members of the weasel family, the marten has scent glands which it uses to mark its territory or attract a mate. The scent glands are located under its tail and on its belly.

## A YEAR IN THE LIFE

The marten loves its own company. About the only time you'll see two or more marten in one place is during mating season, or while a mother is raising her young.

Usually, but not always, a marten will stake out a home range. In the Yukon a male's territory covers about six square kilometres. A female requires less space – about four square kilometres. Generally the home ranges of male and female marten overlap, but marten of the same sex never share a territory.

In July and August, when the summer sun circles around the Yukon sky, male and female marten are at their peak of sociability. This is the

mating season and a female marten will venture outside of her home range in the company of a mate. The female's heat period normally lasts for about two weeks. Males are sexually active for several months.

Shortly after the eggs are fertilized, they stop developing. The embryos float in the uterus for five or six months before they implant in the uterine wall and continue their development. This phenomenon is called "delayed implantation," and is common to most members of the weasel family.

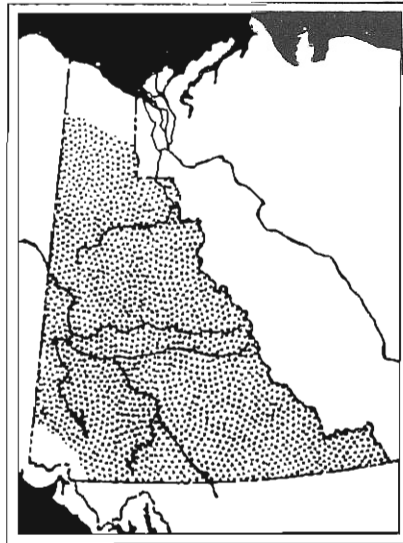
Summertime living is easy for the marten. Predators are few and food is plentiful. The Yukon's spruce forests teem with the red-backed vole. Trees are filled with birds and bird eggs. Crowberries, a staple of the Yukon marten's summer diet, grow in clearings or at the forest edge.

Despite this generous bounty, the marten does not put on extra fat to see it through the winter. So, all winter long, it must continue to search out food supplies. If red-backed voles are not available, the marten will switch to other winter foods including moose and caribou carrion, grouse, ptarmigan and snowshoe hare. When snowshoe hare are at the peak of their cycle, the marten will alternate its diet between voles and hare.

Hares are large animals compared with other marten prey, but they are no match for the marten's superior hunting skills. When a marten stalks a hare, it follows in the hare's zig-zag tracks, then takes a shortcut across trackless snow and closes in for the kill. Fortified with this feast, the marten may hole up in an underground den for days.

The marten's need for food keeps it on the move but it takes frequent rests to conserve energy. Sometimes it will tunnel under the snow to a warm cavity in a hollow log or tree stump. In young forests, where there is no deadfall, the marten will often take shelter for a few hours in a squirrel midden.

Young are born in the spring of the year, in March or April. The female marten makes her natal den in a hollow log or stump, in a pile of brush, or in a rock slide. On average, there are two-to-four kits to a litter. After six to seven weeks they are weaned, and by 16 to 20 weeks the kits are full



*Marten distribution*

grown and ready to strike out on their own. As northern days grow warm and long, mother marten evicts her young from the family home. She's ready to breed again, and the young marten venture off to establish their own home range.

Mature spruce forests are the best marten habitat, but older marten usually occupy these areas. Juveniles that cannot find a vacant territory in old-growth forests may take up residence in areas that are less ideal – at the edge of a forest, for example. Or they may remain transient, wandering for part or all of their lives.

## MARTEN AND PEOPLE

The Yukon's native people have always appreciated the marten's great beauty. They used marten skins to make the fur robes of higher-class persons. "Wealth woman," a mythical figure known to the Tagish, Tutchone and Tlingit peoples, wore such a garment.

Today, high prices and high demand make marten one of the most profitable furbearers to trap. Because it is curious, the marten is also one of the easiest animals to trap, which makes it vulnerable to overharvesting. To avoid this problem and keep populations high, Yukon trappers are using modern trapline management techniques.

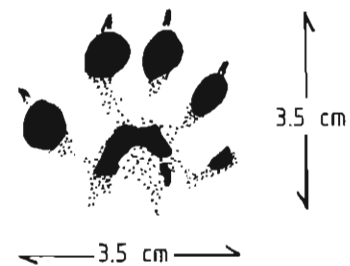
Although present-day marten populations are stable in the Yukon, expanded clear-cut logging operations could affect marten habitat.

Destruction of the forest habitat, more than any other factor, has caused the marten to disappear from much of its historic range in North America.

## VIEWING OPPORTUNITIES

If you go looking for a marten there's a good chance you won't find one. Furtive and secretive, the marten leaves few signs of its presence in the forest. But, if you live in the forest, a marten may find you. It's a bit of a camp robber. It also has a sweet tooth. If you're camped out in the woods, you may find one poking its nose in your jam jar.

Daybreak and twilight hours are best for marten viewing.



**Yukon**  
Renewable Resources



# Fisher

## THE SPECIES:

*Martes pennanti*

Zigzagging through the forest, a lone fisher forages for prey. It climbs up and down a tree, sniffs a porcupine den, then roots through a windfall in the hopes of capturing a meal. When a snowshoe hare bounds away, the fisher captures it in a short rush. Wrapping itself around its prey with all four feet, it quickly delivers a fatal neck bite.

The fisher, a rare mammal in the Yukon, is the least known member of the weasel family.

## DISTRIBUTION

The fisher is present in low numbers across much of southern and central Canada. In the Yukon, it is found mainly in the southeastern corner. Sightings and tracks have been recorded across the southern Yukon, but most often occur in Watson Lake

area. Its present distribution suggests that the fisher may be a recent post-glacial immigrant to the territory. Some biologist believe that the fisher is still expanding its range northward today.

Dense spruce forest with a continuous canopy is the preferred habitat of the fisher. It will cross open areas such as frozen lakes, bogs, or burns, but will not forage under the snow cover in these regions.

## CHARACTERISTICS

The fisher is uniquely adapted to preying on the porcupine. Unlike longer-legged animals which can only strike this quill-covered creature from above, fishers are the same height as porcupines and can fight face to face. Quickness, agility and effective biting help this weasel-shaped animal to avoid a porcupine's back and tail and concentrate on rapidly striking the unprotected face and belly.

A fisher climbing up a tree can swivel around and descend head first, just like a squirrel. Unsheathed claws enable it to grasp the tree trunk. Its extremely mobile hindlimbs are able to rotate 180 degrees. If a porcupine under attack puts his face against a tree trunk in defence, a fisher can climb onto the tree and force the porcupine away. Fishers rarely suffer from quill wounds.

Normally, a fisher travels with the bounding gait typical of weasels. The forelimbs move together and the hindlimbs land squarely in the same tracks of the forefeet. In deep snow or on thin crusts, fishers walk flat-footed to evenly distribute their weight over the snow, but they still use more energy. It is thought that deep snow may be one factor that limits the distribution of fishers.

Male fishers are nearly twice the size of female fishers, ranging from 2-6 kg in weight.

## LIFE HISTORY

The life cycle of the fisher begins every spring when kits are born and adults mate. In March or April, a female will give birth in a protected nursery den. Such a nest may be high in a hollow tree with a woodpecker hole or low in a crevice between rocks. Litter sizes vary from one to five kits.

After four months, the kits are weaned and begin to hunt on their own. In autumn, the family breaks up and each member begins its solitary life.

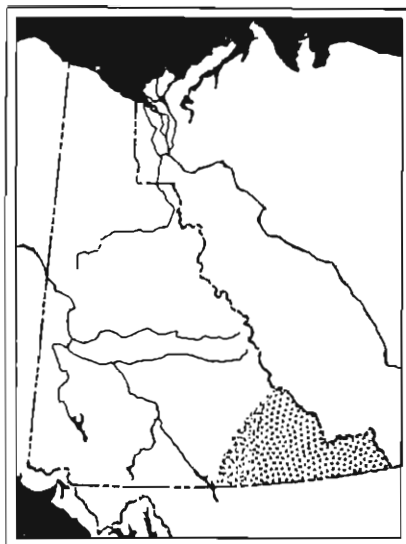
The only time these solitary animals meet up with others is during the mating season. This time is approximately two weeks after mature females have given birth. However, the fertilized egg remains in "storage" in the females uterus for 10-11 months. With increasing day length in the following spring, the egg implants in the uterine wall and begins to develop. Pregnancy lasts approximately 30 days. With this method of reproduction, female fishers are always in a state of pregnancy. While "delayed implantation" is not rare among mammals, the fisher has the longest period.

Fishers can travel long distances in short periods of time. They have been known to move up to 160 km in a single summer, but the normal home range for an adult male is 20 km<sup>2</sup>. With its scent glands, the fisher marks its territory.

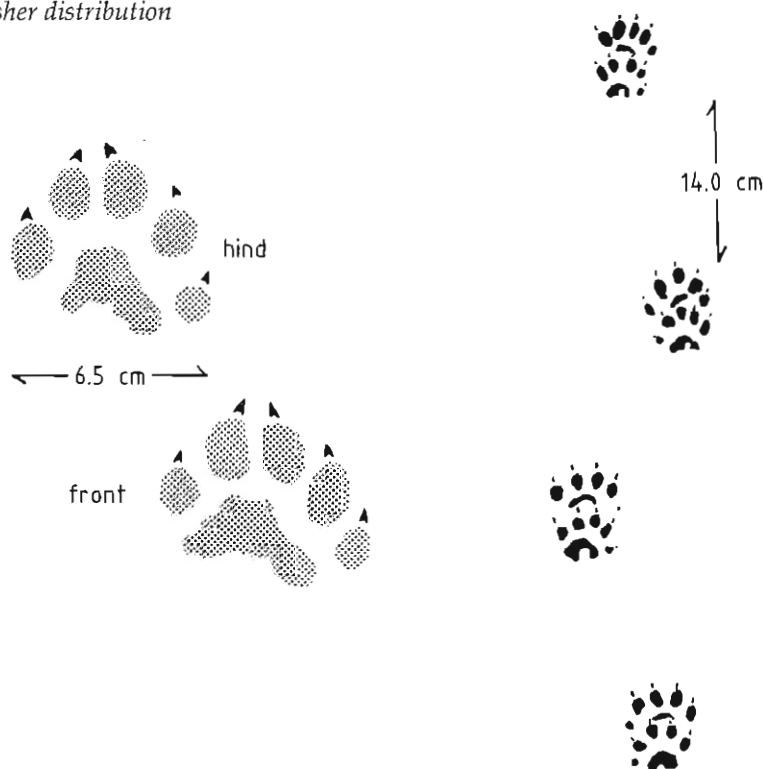
Fishers use a variety of sites for sleeping. These sites include hollow trees, logs, stumps, brush piles, rock falls, abandoned beaver lodges and tree nests. During severe winter weather, fishers may den up for a few days.

In addition to porcupines, the fisher lives on small mammals such as snowshoe hares, squirrels, chipmunks, mice and voles. These are killed with a swift bite to the neck and, depending on their size, may be swallowed whole. The fisher will also feed on small birds, carrion, berries and lichens.

Contrary to popular belief, fishers do not hunt or eat fish. It is thought that early Dutch settlers named this large member of the weasel family after the European polecat known as "fitch" or "fitchet".



*Fisher distribution*



## FISHERS AND PEOPLE

Since the fisher is rare in the Yukon, it is not an important species for the trapping industry. Fewer than five fishers are trapped in the southeast Yukon each year.

## VIEWING OPPORTUNITIES

Fishers are rarely seen in the Yukon, or for that matter, anywhere else. Remember that they are present only in the southeast Yukon and they prefer dense, valley-bottom, spruce forests. By chance you may observe a large weasel-like animal darting after a snowshoe hare or facing off with a prickly porcupine. Consider yourself lucky if you ever see one of these elusive mammals in the Yukon.

**Yukon**  
Renewable Resources



# Ermine & Least Weasel

## THE SPECIES:

*Mustela erminea*

*Mustela nivalis*

A small, white face pushes up through the snow, next black eyes gleaming brightly. Next comes the body, long and slender, ending in a black-tipped tail. Built to squeeze into nooks and crannies, this ermine and its cousin, the least weasel, are two of the world's most efficient mousers. And, as anyone who's seen them will attest, these two weasels are also among the boldest and most agile of all Yukon mammals.

## DISTRIBUTION

The ermine and least weasel inhabit northern countries round the world. In North America, ermine range from the Canadian high arctic to south of the Great Lakes and into the mountainous western states. Least weasels occur throughout most of the same

range, but are absent from the arctic islands and western states.

Both least weasels and ermine range throughout the Yukon, avoiding the depths of mature forests and preferring instead to sniff and snoop in forest edges, meadows, brushy areas, marshes, bogs, and tundra. Based on winter track surveys, Yukon ermine are fairly abundant. However, least weasels are uncommon, though not endangered, throughout most of their North American range.

## CHARACTERISTICS

There are two ways to tell our two weasels apart: size and tail. Ermine reach over 30 cm in length, while least weasels are usually less than 25 cm long. Ermine have black-tipped tails in both summer and winter, while least weasels have short, stubby tails without black tips at all times of the year.

In general, male weasels are larger

and heavier than females. Male ermine are several centimetres longer and, at 70-200 grams, about twice as heavy as females. Male least weasels are also a couple of centimetres longer than females and weigh 60-90 grams to females 35-70 grams.

The striking size difference of male and female ermine makes the best use of available resources. Since raising young is totally up to the female, she needs to save every bit of energy she can. Her small size is not only the best size for hunting voles, her favourite food, it also means that she needs to eat less to keep herself going while raising a family.

On the other hand, being large gives male ermine a better chance of winning confrontations with other males. And, since males are too big to hunt in some rodent tunnels and burrows, their larger size also leaves food available to the female that raises their young.

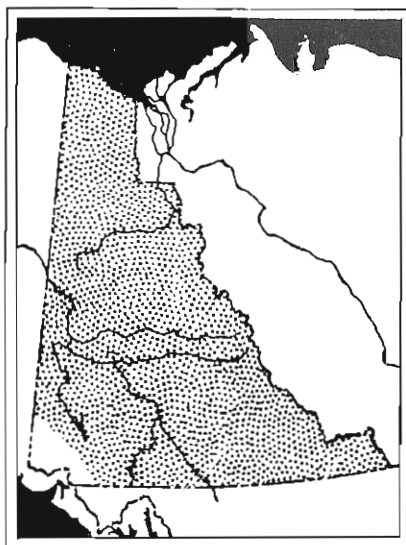
Long and slender, both of our weasels can slip in and out of cracks and tunnels in their search for food and to escape predators. Their movements in tight spaces are made easier by short legs and fur, small ears, and long, sensitive whiskers.

Ferocious hunters, weasels are muscular and quick, sometimes taking on prey much larger than themselves. Indeed, the least weasel is hardly bigger than the small rodents it normally feeds on. Both ermine and least weasels have keen ears and noses, along with good night vision. Though weasels climb trees in pursuit of prey, to escape predation, or even just for a snooze, they are most at home on and under the ground. Ermine hunt by day or night, while the even more agile least weasels are active mostly at night.

## THE HUNTING WAY OF LIFE

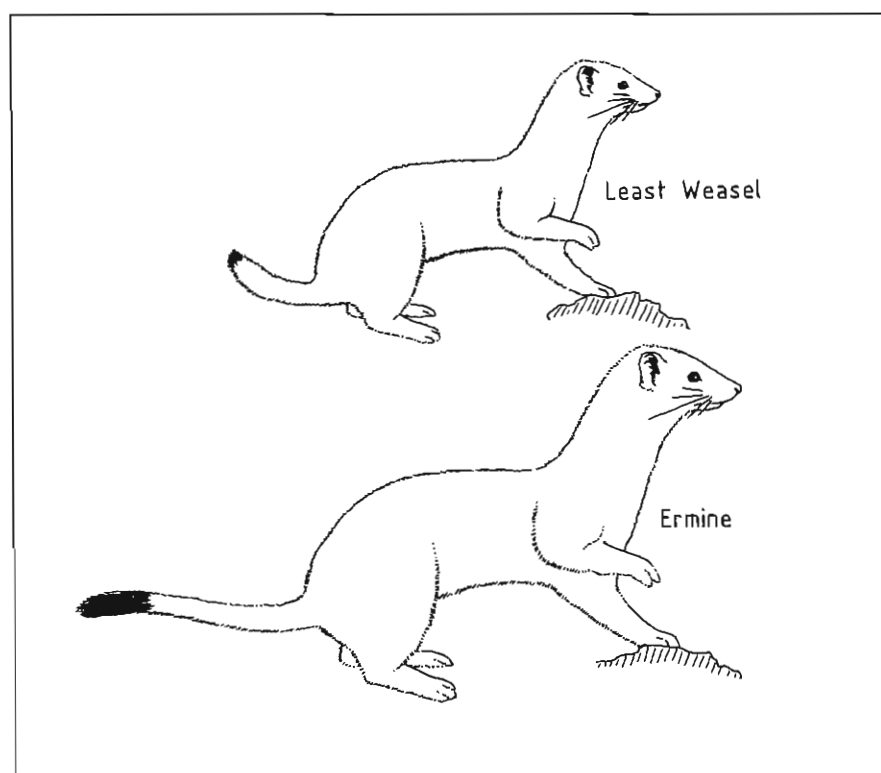
Northern lights dance in the moonlit sky over a dainty trail printed on snow. Twin tracks, small and round, head this way, then that, and often turn back on themselves. Ahead, an ermine pauses in its investigation of holes, stumps, bushes, and logs. It lifts its head, then stands upright to better check out the surroundings.

Then off again, it zigs and zags, its



*Ermine distribution*

erratic movements thought to deter predators. Though its fur is white, an owl may still spot it moving against the snow. If one does, the ermine's black tail tip will draw its attention and may fool it into attacking the tail. This strategy doesn't work for the least weasel, for its tail is so short that a black tip would be close to its body and could actually increase the chances of its being killed by predators.



As the ermine lopes along, her long, thin body humps in the middle like a caterpillar's. Suddenly she dives into the soft snow, leaving only a neat, round hole behind. A few yards beyond, her head pops up through the snow. It swivels like a periscope on a long, snaky neck, then ducks into the snow again.

Most of the ermine's prey are small rodents that live beneath the snow in winter. To hunt them effectively, she must go where they go – into their runways, tunnels, and burrows. She's the perfect size for hunting meadow voles, as her body diameter is almost exactly the same as the voles'. Other vole species and the brown lemming are also favourite foods, as are both brown and collared lemmings for ermine living on the arctic tundra.

Male ermine, being much larger, are less efficient vole hunters. However, like females, they still rely on voles, mice, and lemmings for most of their food. Both sexes also occasionally hunt shrews, chipmunks, pikas, red squirrels, ground squirrels, young hares, and birds.

Because least weasels are less common and more elusive than ermine, their habits are not well known. Both sexes are thought to spend much of their hunting time in the runways, burrows, and nest chambers of small rodents.

When ermine and least weasels live in the same area, they tend to hunt different prey in different habitats – a good thing for the smaller weasel since ermine sometimes eat them. The ermine hunt larger voles in meadows, boggy, or shrubby habitats, while the least weasels hunt deer mice and red-backed voles in forested habitats.

Weasel numbers are greatly affected by ups and downs in numbers of their prey species, particularly voles, lemmings, and mice. Such fluctuations in prey numbers create feasts and famines during which the chances of raising young to maturity range from excellent to zero. Our two very similar-looking weasels have developed two very different strategies for coping with changes in prey availability.

Least weasels, who eat small rodents almost exclusively, breed throughout spring and summer when food is plentiful. They can produce up to three litters a year with four or five young per litter. For them, life is boom or bust and few live to see their first birthday.

Ermine, rather more general feeders, produce only one litter a year with an average of six young. However, with a life expectancy almost twice as long as least weasels, ermine may scrape through the rodent lows to see better hunting times ahead.

## SEASONS OF THE SMALLEST HUNTERS

In April, when crocuses bloom on warm Yukon hillsides, ermine give birth to their young. Blind and naked, the newborns weigh about the same as a penny. Fine, white fur soon covers them and thick, dark manes appear at two weeks. These manes may provide a place for mothers to grasp if emergency evacuations are needed.

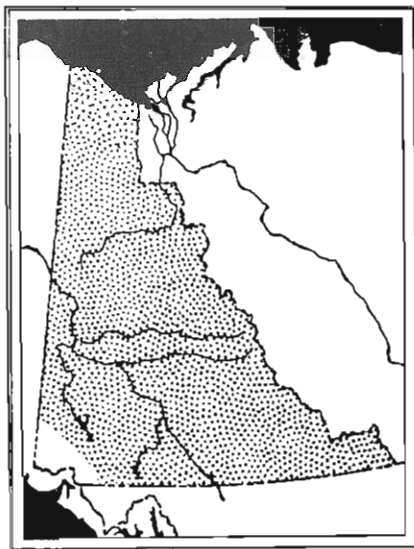
Brown and white coats with black tail tips make an appearance by two months of age, about the same time the young ermine start to play outside their nest. Weaning occurs at two to three months. By this time, or even earlier, female young have already been fertilized, likely by the same male that mates with their mother.

Although mating occurs early in summer, embryonic ermine do not develop in the uterus until the following March, a condition common to other members of the weasel family, and known as delayed implantation.

Least weasels do not have delayed implantation. Rather, when food is abundant, both male and female offspring mature within three to four months. Females produce young 35 days after mating.

During the warm, endless days of summer, young weasels gambol and romp, squeal and trill. They practice hunting by pouncing on each other, or on a vole that their mother brings to the nest. Killers by instinct, the youngsters do not need instruction on how to grasp prey at the nape of the neck and bite into the skull. By weaning time, they can kill their own food, and soon after are on their own.

Come autumn, young weasels disperse from their mothers' territories and may cover many hazardous kilometres before they are able to secure a territory of their own. Weasels lead solitary lives except at breeding time. Both males and females set up territories that exclude members of their own sex. Females avoid males where their territories overlap. Both sexes advertise their presence with the strong, musky odour so characteristic of the Mustelidae,



*Least Weasel distribution*

or weasel family.

Female ermine are mature by late autumn; the males by the next spring. Only two in five ermine will survive their first year, though the odd oldtimer may reach an age of seven years. Lack of food kills most ermine, along with poor snow cover, cold temperatures, disease, habitat disturbance. Predation by hawks, owls, coyotes, foxes, and larger members of the weasel family is another factor.

Since least weasels depend on small rodents for food even more so than ermine, they may suffer local extinctions when numbers of prey species plummet. Other causes of death are the same as for the ermine, with the addition of kestrels as predators.

When temperatures plunge and winter winds howl, weasels have acquired their white coats and get down to the business of staying warm. Being long and thin, they lose heat rapidly due to a large surface area and the inability to tuck themselves into a tight ball when resting. As well, weasels do not store much energy in the form of fat.

To save energy, weasels decrease activity, stay under snow, and arrange nest bedding for the greatest insulation. To make an acquired rodent nest of grasses or shredded leaves even warmer, weasels pluck fur from their prey and line the nest with a fur blanket up to an inch thick.

Even so, to stay warm weasels must eat up to a third of their body weight in food each day and burn energy at

up to four times the rate of more rounded mammals of the same weight. How do they keep up with the demand? Instead of storing fat, they store mice and voles. Thus, the killing sprees of legend are not so much a weasel's lust for blood as the need to stockpile food in case poor future hunting cannot satisfy the voracious appetite of such a slender, active mammal.

## WEASELS AND PEOPLE

Inquisitive and quite fearless, weasels often visit yards in rural areas and stick around to make the owner's acquaintance. They enter cabins and tents even when occupied and, if curiosity gets the best of them, will step right up onto a boot to take a closer look at who's attached to the foot in it. Since weasels are the best mousers in the boreal forest, trappers like to have them around cabins to help keep rodents down.

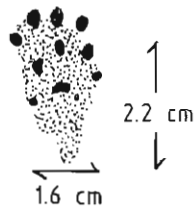
Occasionally, both ermine and least weasels are taken in traps set for other furbearers. Although the least weasel has no commercial value, trapping one is thought to bring good luck. The ermine is used both locally for parka and slipper trim, and exported to Europe where it is dyed and made into jackets and coats.

## VIEWING OPPORTUNITIES

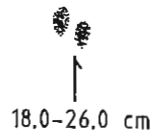
Since both ermine and least weasels are small, solitary mammals that spend much of their time underground, finding one is largely a matter of luck unless you know of a place – like a yard or cabin – where one regularly comes to visit.

In summer, weasels leave little sign, but watch for playful youngsters romping near a nest. In winter, look for a trail of twin prints in the snow. The small, round tracks often disappear into neat, round holes and reappear farther on. A short leap - long leap - short leap pattern is quite characteristic of weasel trails.

If you do spot a weasel in summer or winter, remember that the ermine has a black-tipped tail and is larger than the least weasel. A short, stubby tail without a black tip means you've got a least weasel. Remain still and see if the wee, bold hunter decides to check you out. If not, give it some encouragement by imitating a mouse squeak - then guard your throat!



Ermine



Least Weasel

## DID YOU KNOW?

A Yukon ermine was seen in 1969 on ice-free terrain in the St. Elias Mountains, separated from its usual haunts by miles of ice and rock.

The specific name of the least weasel, *nivalis*, means "snowy", in reference to the northern climates in which it lives.

During winter dispersal, an Alaskan ermine moved 35 kilometres, or over 100,000 body lengths, between August and March.

Least weasels have such small stomachs that they can eat only three grams of food at a time, but they have such high metabolic rates that they must eat 10 times a day!

Ermine are most comfortable at temperatures of  $-10^{\circ}\text{C}$  to  $+10^{\circ}\text{C}$ . They avoid summer overheating by staying underground, and winter freezing by living beneath the snow where temperatures remain near  $0^{\circ}\text{C}$ .

The least weasel is the smallest true carnivore on Earth and has, gram for gram, one of the highest metabolic rates of any mammal.



CATHERINE DEER 1989

# Mink

## THE SPECIES: *Mustela vison*

For some mammals, the arrival of winter means rest and sleep in warm, cosy dens or burrows. But the mink continues to lead an active life throughout the cold weather. By travelling in air pockets under the ice of ponds and streams, the mink is able to pursue prey such as fish and muskrats. With its long, lithe body sheathed in thick fur, this solitary creature is suited to an amphibious lifestyle all year long.

## DISTRIBUTION

Mink inhabit forested areas near ponds, streams, and lakes. They are present in valley-bottoms throughout the Yukon, except for the far northern tundra and the icefields of Kluane National Park. Since muskrats comprise a large percentage of their diet, mink are commonly found in

areas where muskrats are abundant such as the Old Crow Flats.

During its life, a male mink uses many different dens and forages throughout a large territory of up to five square kilometres. His female counterpart ranges in a much smaller area and may only use one or two dens during a year. A male mink may share his territory with a female but never with another male. The mink sprays a strong scent to mark its territory and warn other animals of its domain.

## CHARACTERISTICS

Mink are well adapted to a semi-aquatic lifestyle. Long guard hairs and soft, thick underfur with an oily sheen serve as a perfect insulation against icy cold waters and severe winters. Short, sturdy legs with slightly webbed paws enable mink to bound quickly on land and swim smoothly through water. Unlike otters, their

lungs and eyesight are not designed for underwater hunting. As a result, most mink dives are short and to the point. Mink locate prey from stream banks before plunging into shallow and slow-moving water. They have powerful jaws and long necks which enable them to kill prey instantly and swallow smaller carcasses whole.

A mature male mink may be a half metre long and weigh one and a half kilograms. Females are much smaller.

## LIFE HISTORY

Mink use dens for shelter and for raising young. They do not dig their own dens but prefer to occupy abandoned burrows or naturally formed den sites. They often move into empty beaver lodges or muskrat dens. If none are available, mink will seek shelter under tree roots along stream banks. In the Yukon, these dens are located in permafrost-free areas and are usually hidden by dense

vegetation.

Mink live solitary lives except during the mating season. From late February to April, mink mate with a number of different partners. The young within a single litter can be the result of fertilization by different males. As with other members of the weasel family, reproduction takes place through delayed implantation. This term describes a process in which the females carry the fertilized egg for 10-45 days before it implants in the uterine wall and begins to develop. Approximately 51 days later, the young are born.

In May or June, female mink give birth to an average of five kits. At birth, the young are covered with fine white hair. For the first month, they remain in the den. At five weeks they are weaned, and by the end of their second month, able to fend for themselves, they join their mothers on hunting expeditions.

This carnivorous animal will eat anything it can kill. Its diet includes muskrat, mice, snowshoe hares, fish, frogs, and, to a small extent, birds. Because of their size, male mink feed on larger prey than females. Most hunting takes place at night.

Despite their small size, mink are very aggressive and often fight larger opponents over food. Battles between males during the mating season sometimes result in death.

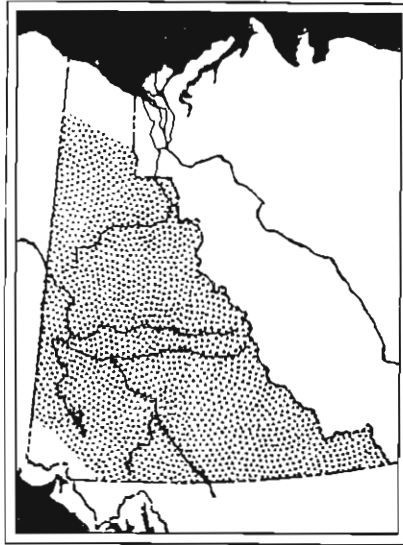
Mink face predation from black bears, wolves, lynx, coyotes, red foxes, great horned owls and river otters.

When autumn arrives, juvenile mink leave their mothers and set out to establish their own territories. Females reach sexual maturity at 12 months, and males at 18 months.

Come snow, cold and ice, mink hardly change their hunting routines. Their lean bodies are well suited to hunting under snow and ferreting out muskrats from their pushups, or feeding stations. On frozen lakes or streams, a gap of air between the ice and water enables mink to search for prey.

## MINK AND PEOPLE

In early Tlingit Indian cultures, women were sometimes "possessed" by mink. To exorcise the spirit, a woman might lay down over a smoldering smudge of rose branches, devil's club, porcupine quills and dog hair — until the smoke became



*Mink distribution*

uncomfortable and caused the spirit to leave.

Mink trapping has a long history in the Yukon. In the 1930's, several mink farms were established in the Teslin, Carmacks and the Dawson City areas. These farms were stocked with mink from the wild. Today, only one mink farm remains, on the Atlin Road. Two to three hundred wild mink are also trapped in the Yukon each year.



## VIEWING OPPORTUNITIES

With its active and nocturnal lifestyle, the mink is seldom seen by people. Look for it near wetlands, lakeshores, forest edges and stream banks in early morning or evening. The mink's tracks can often be found in the mud or snow at the water's edge. Slip marks on river banks or lakeshores indicate where mink have slid down on their bellies.

While canoeing on a small stream, you may spot a mink walking on a log or poised to dive in the shallow water.

## Yukon Mammal Series



# Wolverine

### THE SPECIES

*Gulo gulo*

"... a ravenous monster of insatiate voracity, matchless strength, and supernatural cunning, a terror to all other beasts, the blood thirsty monster of the forest." Elliott Coues, the renowned 19th century naturalist who wrote these words, was describing the general opinion of the wolverine.

Tales tell of grizzlies and wolves backing down from the wolverine in confrontations over food. It has been blamed for breaking into cabins and caches, rendering the contents useless with its urine and musk. But this stocky member of the weasel family has a reputation that is largely undeserved. Although common in the Yukon, the wolverine is one of the rarest of mammals, and perhaps the best representative of all that is considered wilderness.

### DISTRIBUTION

In the Yukon, wolverines occur in all habitats, from forested valleys to alpine and arctic tundra. However they are most abundant in mountainous regions that support a variety of habitats and diversity of prey. Our best wolverine range, the southwest Yukon, supports approximately one wolverine per 180 square kilometres.

### CHARACTERISTICS

The wolverine has been called "skunk-bear", because of the light colored stripe which originates on the shoulders, traverses both sides of the body, and merges into one stripe at the base of the tail. The stripe is usually blonde, and contrasts with the dark brown to near black background fur, but it may be darker or absent in some individuals.

If not for its bushy tail, the wolverine might be mistaken for a

small bear. Males are the larger sex, weighing 11 to 16 kilograms: female weights range from 8 to 11 kilograms.

### THE LIFE OF A SCAVENGER

Despite popular opinion, the wolverine is not a hunter of large mammals. Its relatively small size and solitary habit are not favorable attributes for bringing down an adult moose or caribou. The wolverine obtains much of its food by scavenging, particularly by cleaning up kills of moose, caribou, or sheep after the original hunters (usually wolves) have finished their meal. The wolverine is well adapted for such a lifestyle. Its teeth are robust and the muscles of the neck are large, allowing it to crush bone and tear frozen flesh.

Wolverines breed during May through August, and females have a mode of reproduction known as delayed implantation. Development

## Yukon Mammal Series

stops shortly after the eggs are fertilized. The embryos float in the uterus until November-January, when implantation into the uterine wall occurs. As scavengers, wolverines may be faced with scarce food supplies, and delayed implantation allows a female to continue her pregnancy only if she is in good condition. Some females, especially if they have had young the previous spring and are in poor condition, do not implant and instead resorb the embryos. Litters are normally small, with two to four kits being born during January to March, although most births occur in early spring.

We call the area that a wolverine uses a "home range". Home ranges of adult males vary from 400 to 770 square kilometres in size, while those of adult females vary from 100 to 360 square kilometres. The size of a wolverine's home range depends on the quality and quantity of food in the area. If food is not abundant, the range will be larger because the wolverine will have to cover a larger area to meet its nutritional requirements.

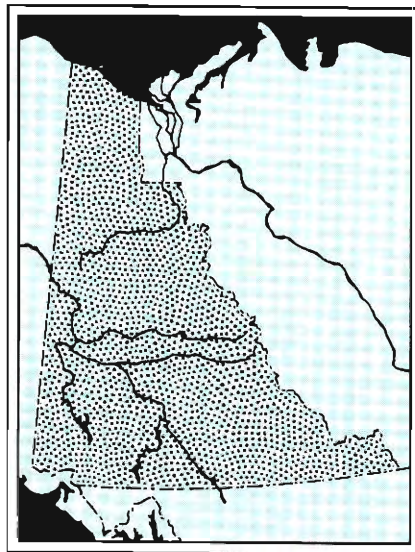
The home range of a male overlaps the ranges of three to six adult females during the breeding period. Home ranges do not overlap among adult females or among adult males. The kits are adult size by fall and early winter, at which time they disperse. Young males may travel hundreds of kilometres before they find an empty range they can claim as their own. Young females are tolerated by adults of both sexes and they establish home ranges next to their mothers, or assume part of her range.

### WOLVERINE AND PEOPLE

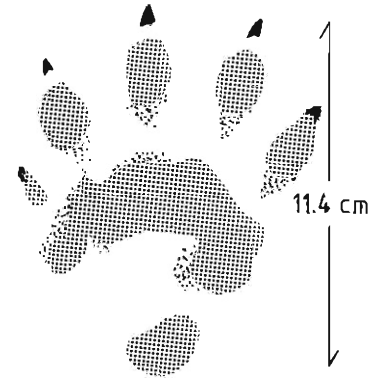
Yukon Indian people respected the strength and determination of the wolverine. Baby boys were sometimes rubbed with wolverine fur in the hope that they would develop these same qualities. Since the wolverine spirit was so powerful, it was acquired as a spirit helper by some shamans.

The relationship between trappers and wolverines is a mixed one. Wolverine pelts, highly valued because of their frost resistant properties, bring good prices on the international markets. But the occasional wolverine that breaks into a cabin or cache when the owner is away or removes the catch from a trapline can be a source of irritation.

Most people are not inconvenienced by the presence of this rare mammal. Wolverine, however, can be seriously affected by human activity. Large wilderness areas are essential to the wolverine's survival, and if these areas are diminished by transportation networks, agricultural clearings, or human habitation, wolverine populations may decline. Excessive trapping can cause local shortages of wolverine, but most Yukon trappers avoid this problem by protecting a breeding population.



*Wolverine distribution*



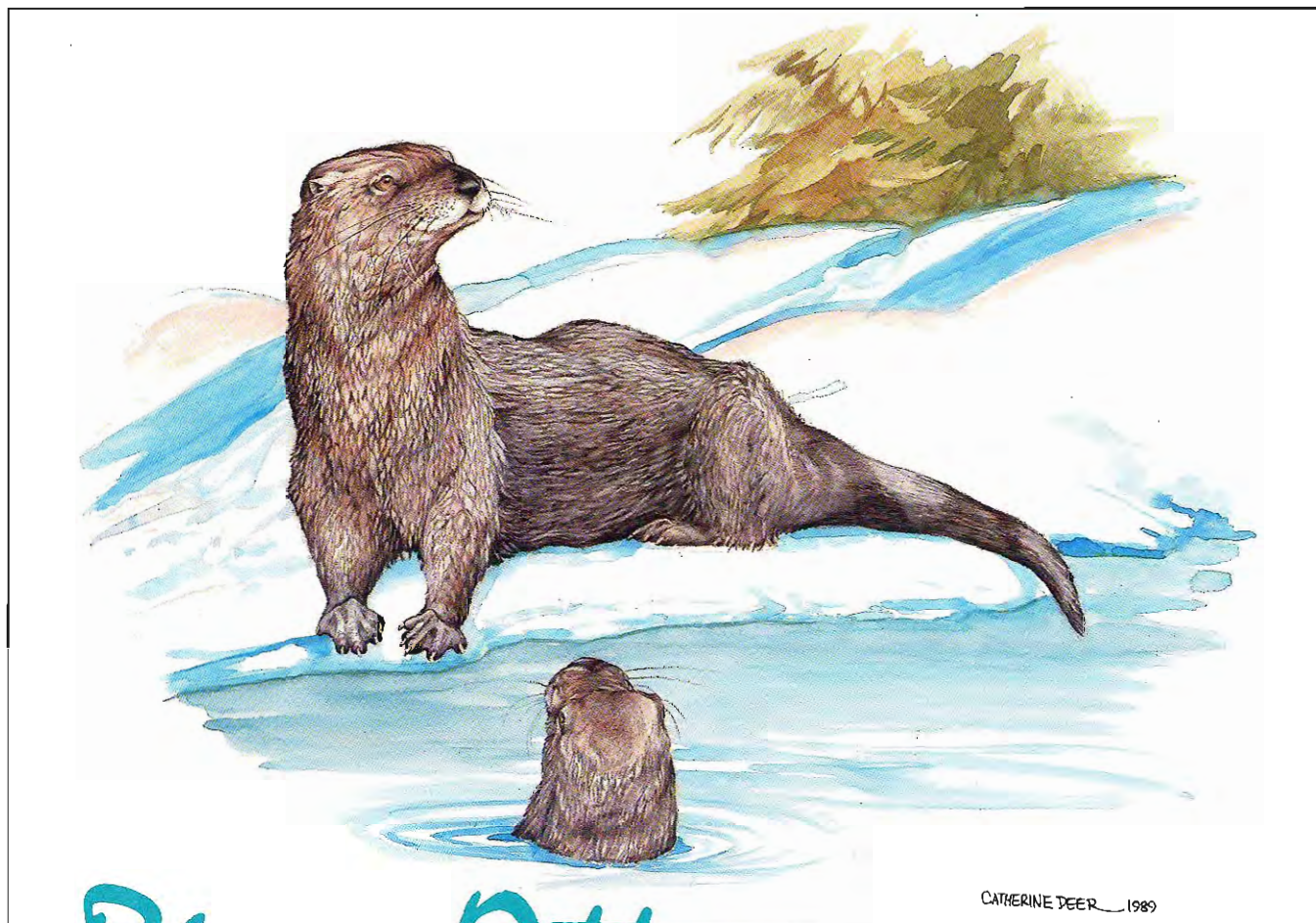
### VIEWING OPPORTUNITIES

In the winter, the lucky skier or snowmobiler may sight a wolverine on an open ridge, alpine slope, frozen river, or even on a glacier. On the return trip, the traveller may be surprised to discover that a wolverine has been following his or her tracks. Although the sighting of a wolverine is a rare occurrence, the chance to follow its wandering trail is an adventure in itself.

The track is large, somewhat rounded, and may be confused with that of a wolf, but the five toes of a wolverine's foot and the length and pattern of its gait provide positive identification. Along the trail, you may find where a wolverine picked up an invisible scent and uncovered a raven's wing; see where it followed the trail of a fox, or discover where it killed a snowshoe hare or ptarmigan. Evidence of the struggle may be limited to the tracks in the snow and a drop or two of blood.

In summer, hikers should carry binoculars and/or a spotting scope, particularly in subalpine and alpine areas where visibility is good. Look in places where wolverine food sources are found, such as ground squirrel colonies or the summer ranges of caribou. Keep in mind that bears frequent the same areas, and be alert for their presence.

## Yukon Mammal Series



## River Otter

**THE SPECIES***Lutra canadensis*

We delight in our image of the otter as a playful, social animal that enjoys sliding down mudbanks and snowslopes in a manner that resembles some of our own recreations. But this behavior is typical of immature otters only. Adults slide and push themselves along snow and ice as a rapid mode of travel, but rarely slide downhill repeatedly in play. The streamlined body that works so well as a toboggan is most efficient in the pursuit of fish.

**DISTRIBUTION**

Population studies have not been conducted in the Yukon, but it is thought that the otter is widely distributed in low numbers across the forested parts of the territory. Densities are probably the highest in the salmon bearing Yukon River

system, and in other places where fish are abundant. A few otters may inhabit the North Slope river valleys that run down the Arctic coast.

Since otter habitat must include waterways of sufficient size and depth to support good fish populations, the range of this species in the Yukon is generally confined to the larger river systems including their lakes.

**CHARACTERISTICS**

The most aquatic member of the weasel family, the otter is well adapted to an amphibious life. The seal-like shape of its long streamlined body and tapered tail is well suited to swimming. Its small eyes and ears are located high on the head, allowing it to remain low in the water. The ears and transparent eyelids close up when the otter submerges.

Underwater propulsion is provided by repeated kicks of its web-

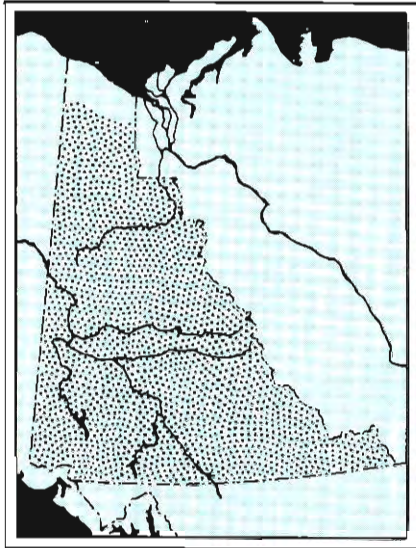
bed feet and a serpentine swimming action. The otter can travel hundreds of yards underwater and remain submerged up to four minutes at a time. In clear waters during daytime, it uses its vision to locate fish; in murky or nighttime waters, its stiff sensitive whiskers help to locate and capture prey.

Rough knobs on the otter's rear heel pads give it good traction on ice. While short legs help to create a streamlined shape, they result in the characteristic hump-backed gait on land.

The sub-species of otter that inhabits most of the Yukon is darker in color than southern sub-species and has a longer, thicker pelage. The dense underfur is whitish grey near the skin and dark brown on the tips. The long, stiff, glossy guard hairs are also dark brown. Additional underwater insulation is provided by air bubbles trapped in the fur.

# Yukon Mammal Series

River otter weights vary between five and fifteen kilograms, with males weighing more than females.



*Otter distribution*

## LIFE HISTORY

When temperatures rise and snow begins to melt in April, a pregnant river otter moves to a small pond away from the main waterways and begins to search for a den. Otters do not dig their own dens. Instead, they use abandoned beaver bank dens or lodges, the burrows of other animals, or natural cavities.

In early May the otter gives birth to usually two or three pups, although litter size can vary. Averaging five ounces at birth, the silky black pups grow rapidly until they emerge from the natal den in July.

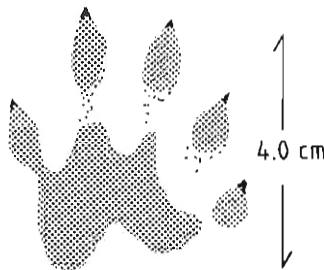
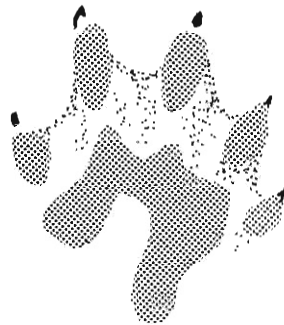
Shortly after the females give birth, otters enter their breeding period. Females breed for the first time at two or three years of age. Copulation normally takes place in the water, away from the natal den. Like most members of the weasel family, female otters undergo a process known as delayed implantation. This means that the embryos lie dormant in the uterus until the following winter.

Otters are more social than other members of the weasel family. A mother and her young form the core of the family group which sometimes includes the father. Bachelor groups of males and other combinations of sex and age groups

may also occur. Such flexibility probably allows otters to exploit habitats with seasonal concentrations of foods like spawning fish.

By August, the young otters are weaned and mobile. The family is able to leave the den site and move to an area of abundant prey.

The otter is highly specialized in its feeding habits. Fish, its main food source, are seized in their hiding places or caught in direct pursuit at which the otter excels. It also forages along river bottoms for aquatic insects and freshwater mussels, and occasionally consumes ducks, marsh birds, muskrats, voles and shrews.



By October, the young otters are able to survive on their own but will likely remain with the family through the winter. Just before the birth of the new litter, the pups disperse in search of their own hunting and foraging areas.

As winter approaches, otters that have occupied headwater streams for the summer may descend to the larger mainstream waterways of the low valleys. Otters are active all winter, fishing under the river ice and popping up for air in the gap between water and ice, and in open water areas. They frequently travel long distances overland between open water areas. During severe weather they may take

shelter for a few days in natural cavities among tree roots and log-jams.

## OTTERS AND PEOPLE

Yukon Indians considered the spirit of the otter to be one of the most powerful characters in the animal world. Before the arrival of commercial trapping, Indians did not kill otters as it was considered bad luck to do so. The Tlingit believed that people who drowned turned into otter men. Because of its power, the otter was a favourite spirit helper of shamans.

Otter pelts are extremely durable and are commonly used to make men's coats. Fewer than 50 otter are trapped in the Yukon each year.

In southern Canada and the U.S., some otter populations have been wiped out by polluted waterways. Yukon populations are largely unaffected by water pollution at this time. Proper waste management practices will ensure that this situation does not change.

## VIEWING OPPORTUNITIES

Otters are not abundant in the Yukon and are seldom seen by the casual observer. Canoeists paddling remote waterways, with interconnected marshes, meandering streams, and small lakes are most likely to see this amphibious mammal. Power boaters in more accessible areas may also be fortunate enough to catch sight of the otter.

In winter, good viewing opportunities will exist near open water areas.

# Yukon Mammal Series



## Lynx

### THE SPECIES:

*Lynx canadensis*

The feline face, black ear tufts, and under-chin facial ruffs of the lynx create one of the most striking images of the boreal forest. The northernmost member of the cat family, the lynx is the only wild feline with a range that extends beyond the Arctic Circle.

The Canada lynx has adapted to northern regions by focusing almost exclusively on the snowshoe hare as a source of food. Waiting quietly in the willows beside a well-trodden rabbit path, or searching slowly along the edges of a spruce-hemmed clearing, a lynx displays the graceful stealth of the solitary feline hunter.

### DISTRIBUTION

Lynx inhabit the entire Yukon

with the exception of the arctic coastal plain. During population highs, they are scattered in fairly large numbers over the territory, occupying coniferous-deciduous forests of white spruce, lodgepole pine, aspen, and willow.

Because lynx are so dependent on snowshoe hare, fluctuations in hare populations (an eight to eleven year cycle) cause lynx numbers to rise and fall also. These cycles affect the distribution of Yukon lynx. When hare populations crash, lynx numbers go through a three to five year low period. During these times, the surviving lynx range over greater areas in search of scarce food. They may even wander hundreds of kilometres away from their original home ranges. When hare populations crest, lynx numbers peak in the summer of the same year. At these times, large numbers of lynx are ranging over smaller areas.

### CHARACTERISTICS

The lynx's short, compact body is insulated with thick, buff-coloured underfur and long, grey guard hairs which give it a silver sheen along its back. The tail is small and black tipped.

In winter, its long legs and unusually large, well-furred, snowshoe-like feet allow the lynx to move over deep snow with ease. The stereoscopic vision of the cat helps it detect movement and judge distances when hunting the snowshoe hare.

Mature male lynx weigh between eight and eleven kilograms, while females are slightly smaller.

### LIFE HISTORY

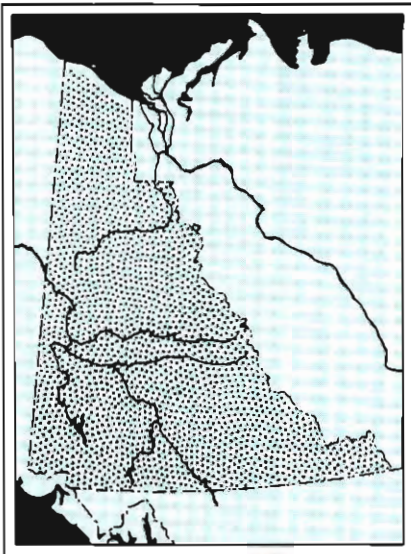
Through the darkest and coldest part of the year, sometimes in temperatures lower than -30 degrees Celsius, a lynx roams over its home range in search of snowshoe hare. Hare constitute 90 to 95 percent of

# Yukon Mammal Series

the lynx's winter diet, and when these small mammals are plentiful, a lynx may consume an average of one a day.

To conserve energy in cold temperatures, lynx spend much of the time bedded down, and often hunt using a stationary ambush tactic. When a hare passes by, the lynx leaps from its hiding place, and after a short chase of not more than ten bounds, it pins the hare under its forepaws and kills it instantly with a bite to the neck. Another hunting method involves walking in a zig zag pattern through areas where hare are present in an attempt to flush them out of hiding.

When few hare can be found, lynx try to survive on grouse, ptarmigan and the few small mammals that are active and accessible in winter.



*Lynx distribution*

Ordinarily single and unsociable, lynx form temporary bonds during the mating period of March and April. The young, usually four to a litter, are born from May to June under brushpiles or tree roots in remote areas of dense spruce forests. At twelve weeks old, the kittens are weaned and able to move away from the safety of the den. They are now open to attack by wolves, wolverines, and even eagles.

The ability of lynx to successfully raise their young is closely tied to snowshoe hare abundance. Although adult lynx continue to breed when snowshoe hare are scarce, fewer kittens are born and these usually die of starvation shortly after birth. But as hares become more plentiful, lynx begin to breed more successfully, litter sizes increase, and fewer young perish.

Young lynx spend the short northern summer sharpening their hunting skills. Teamed up with their mother, they fan out to flush snowshoe hare from the willows. If the hunting is good, surplus food will be cached under mounds of grass marked with droppings.

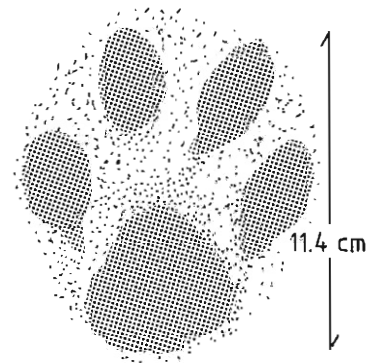
Lynx forage throughout the long daylight hours of Yukon summers, but avoid periods of bright sunlight. With small animals abounding, the lynx diet includes more voles, mice, ground squirrels and beaver in the summer. Juicy young sedges and grasses are also eaten and, depending on hare abundance, lynx may scavenge off the carcasses of wolf-killed moose or caribou. A few lynx may add variety to their diets by feeding on salmon carcasses later in the season.

Before the first snow flies, usually in late October, young lynx have attained their adult pelage. With their lighter, less dense summer coats replaced by thick winter pelts, they are ready for the cold. Their hunting skills well-honed, young lynx are almost ready to leave their mother, and come winter, at nine to ten months of age, they will move out and establish their own home ranges.

## LYNX AND PEOPLE

Lynx fur was traditionally used by Yukon Indians for ceremonial cloaks and robes. A ritual treatment of the carcass ensured that the animal's spirit was content.

To the Yukon trapping industry, the lynx has always been one of the most valuable furbearers. Thick winter pelts of Yukon lynx command top prices on the international market, and this can make lynx management a difficult task. Trappers and government harvest managers have recently begun to work together to ensure the long term health of lynx populations. When lynx numbers are down, trappers are expected to cooperate by cutting back on their trapping effort. This makes sense in the long run, because the more animals that survive through a population low, the quicker and higher lynx numbers will rebound.

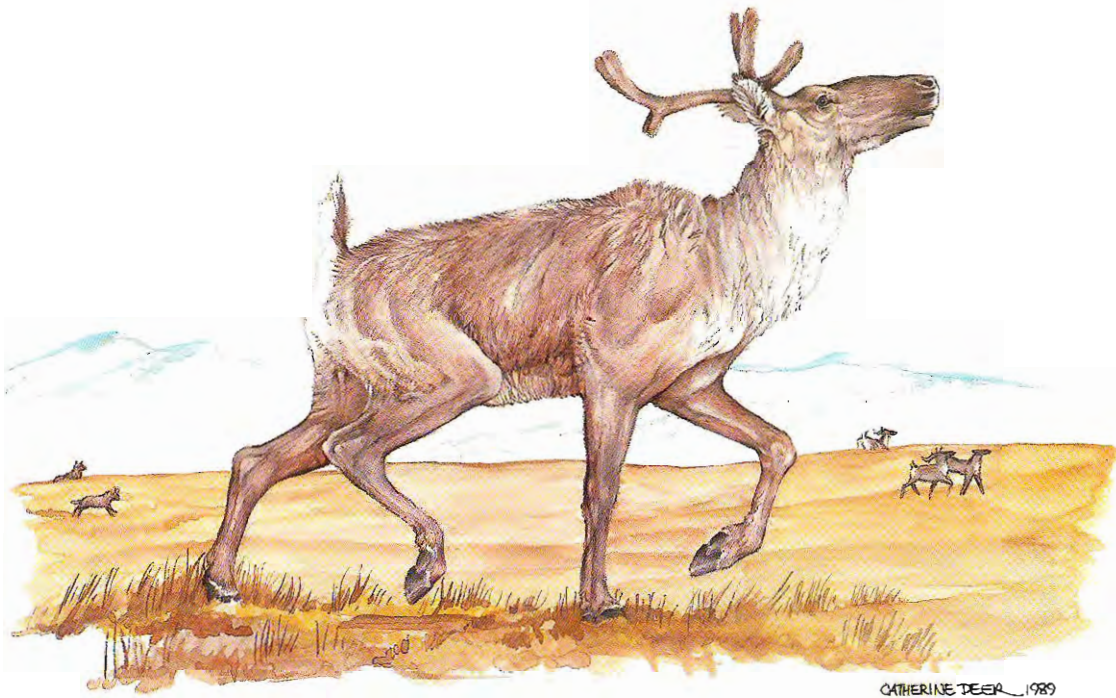


## VIEWING OPPORTUNITIES

Prospective lynx viewers and photographers should first look for snowshoe hare. Where they are found, lynx are likely to be present. When hare populations are high or rising, the opportunities to observe lynx will be greater. Look for the large, round tracks in the snow in a near single-file pattern.

River travellers occasionally see lynx hunting along the shorelines or sitting under riverside stands of spruce. A canoe, which the lynx may mistake for a floating tree, can be an excellent viewing platform.

## Yukon Mammal Series



# Caribou

### THE SPECIES:

*Rangifer tarandus*

Sometimes called "the deer of the north", the caribou more than any other animal is a symbol of the north country. No other large North American mammal carries out such extensive and spectacular migrations or occurs in such vast herds as does the caribou. This gregarious creature of the wide-open spaces is equally at home on the tundra, taiga, or in the boreal forest. For centuries, entire cultures have relied on caribou as a source of food and clothing. An abundance of caribou meant feasts and good times while a shortage meant famine and real hardships. For while traditional behaviour often determined the migration routes and seasonal ranges used by caribou, the species was and still is no more predictable than the wind.

The caribou is a circumpolar animal. In Scandinavia and the Soviet Union, the species occurs as wild or semi-domesticated reindeer. It is in Canada and Alaska that the last great herds of free-ranging caribou are still present.

There are three types, or subspecies, of caribou in North America. The least plentiful is the Peary caribou — a small white caribou that spends the entire year on the treeless tundra of the Canadian high Arctic. In contrast, the barren ground caribou is the most plentiful and the one forming the large herds that each year migrate between the tundra and the trees. The third subspecies is the woodland, or mountain, caribou. It does not form vast herds or make extensive migrations. Rather, woodland caribou spend most of the year in smaller groups that move between the boreal forest and open mountain habitats.

### DISTRIBUTION

Both barren-ground and woodland caribou are found in the Yukon. The large Porcupine caribou herd migrates between its calving grounds on the Yukon and Alaska north slope and its wintering areas in the Richardson and Ogilvie Mountains. Although the size of the herd changes from year to year it now numbers about 165,000 animals, making the caribou the most abundant large mammal in the Yukon.

Woodland caribou are scattered in some 18 isolated herds across the Territory. The total Yukon population of woodland caribou is about 25,000 animals. Some of the larger herds include the Redstone (5,000-10,000) and the Bonnet Plume (5,000) herds shared with the Northwest Territories, and the Finlayson herd (3,000) in east-central Yukon, between Ross River and Watson Lake.

# Yukon Mammal Series

## CHARACTERISTICS

Caribou are the only deer of which both males and females have antlers. Antler shape varies greatly and it is said that no two are the same. The large antlers typical of adult bulls are shed in early winter while the cows keep theirs until calving time, the following June. This allows the pregnant females to claim and defend the best feeding areas in late winter when they need high quality food to nourish their rapidly growing fetuses.

There are several important adaptations that allow caribou to survive and even thrive during the long and cold Yukon winters. In fact, they are so highly adapted to life under winter conditions that they have been termed "chionophiles", or snow loving animals.

The compact body is covered by a warm, hollow-haired coat that

snow when caribou crater for food. Indeed, the name caribou comes from the Micmac Indian word "xalibu", meaning "the pawer", which describes the habit of digging through the snow for food.

Caribou have a keen sense of smell that they use for detecting danger as well as locating food under the snow cover. In winter, caribou are the only animals that can live almost exclusively on lichen. In summer, their diet is more varied and includes forbs, grasses, sedges, and willows. Mushrooms become a favourite with this hoofed gourmet when they are available in August.

In the Yukon, caribou become smaller as you travel north. For example, woodland caribou from the Burwash herd in Southwestern Yukon average 120 kg. (cows) and 180 kg. (bulls) in the fall while similar weights of Porcupine

range in the boreal forest. Through the darkest and coldest part of the year, the caribou continue to crater through the snow cover in search of lichens or winter-green vegetation.

After feeding among the trees, the caribou move out into the open to rest and ruminate, usually on frozen lakes, meadows or hill tops where visibility is good. Moving into open areas is a strategy caribou use against wolves. Since their only defense lies in running away, the caribou must see predators approach in time to escape. Once disturbed, caribou show their typical curiosity towards the approaching object by circling downwind in a characteristic trot with tails up, heads held high, and testing the wind. Usually they run off after catching the scent of a predator, rearing on their hind legs just before they disappear.

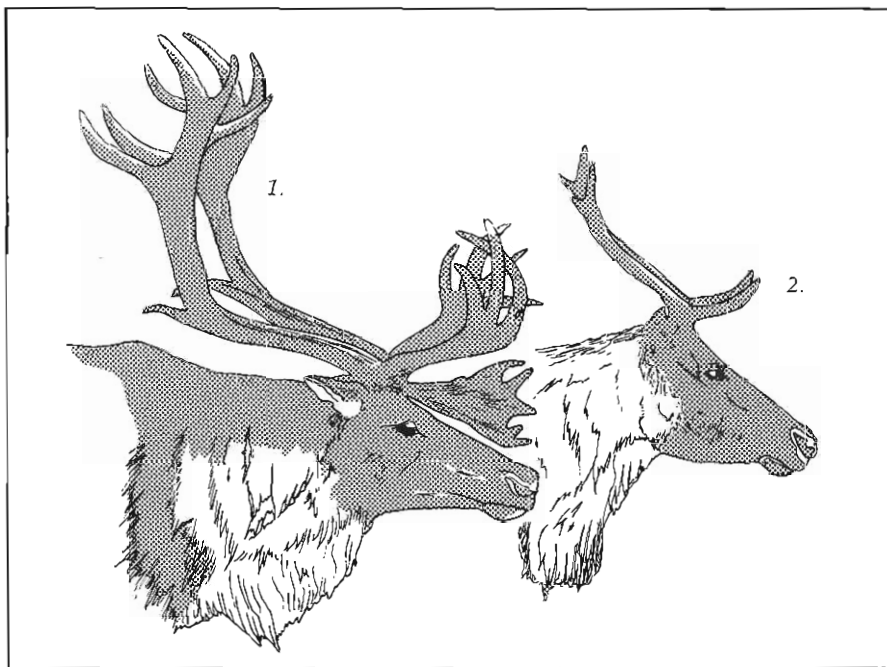
## Spring and Calving

With pregnant cows leading the way, the northward migration begins some time in April, towards the traditional calving grounds on the coastal plain and adjacent foothills of the North Yukon National Park and the Arctic National Wildlife Refuge on the Alaskan side. Several hazards face the caribou during their spring migration, including fast-flowing rivers which must be crossed during break-up. However, the cows push on relentlessly and by the time they reach the calving grounds, tens of thousands of pregnant females are scattered across the coastal plain.

Most cows give birth to a single calf in early June. The newborn calves are able to stand and walk within hours of birth and, soon thereafter, can follow their mothers across the tundra. Their first taste of life is not always sweet: almost half of all the calves die during their first year. Predation by wolves, grizzly bears, and golden eagles account for most of the deaths while the remainder are caused by pneumonia, drowning, or abandonment.

## Summer

After calving, the bulls and other caribou catch up with the cows and calves on the coastal plain. This is also the time when mosquitoes and flies emerge and begin their summer-long harassment



Antler difference between male(1) and female(2)

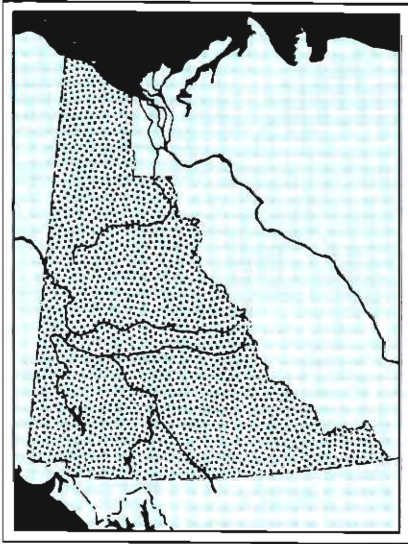
protects the caribou from extreme temperatures. Even the muzzle, tail and feet are well-furred. The large feet of the caribou almost act as snowshoes and help the animals to "float" on soft snow. The characteristic clicking sound made by moving caribou comes from the tendons slipping over the bones in their feet. The broad, sharp-edged hooves easily break and clear the

caribou are only 90 and 130 kg. respectively.

## A YEAR WITH THE PORCUPINE CARIBOU Winter

Most Porcupine caribou winter below treeline, in the Richardson and Ogilvie Mountains. From November to March, they move slowly through their wintering

# Yukon Mammal Series

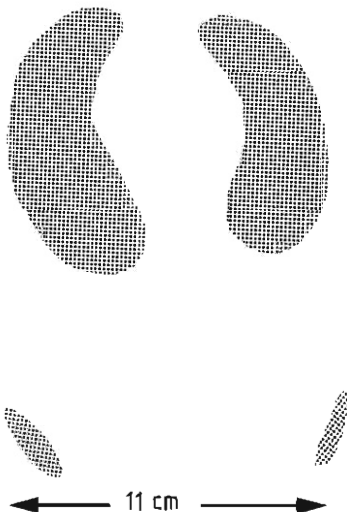


*Caribou distribution*

of other living things in the Yukon.

To caribou, insects can mean madness. During severe harassment, the Porcupine herd forms large aggregations, sometimes 1 or 2 huge groups totalling 70,000 - 80,000 caribou that move across tundra in search of cool and wind swept areas that may provide relief from the insects. No one can ever forget the sights or sounds of such a mass of moving animals: the grunting of cows answered by the bleating of their calves, the snorting and the sneezing, and of course, the clicking of countless hooves.

Throughout the summer, caribou are on the move, either from insect harassment, or in search of high-quality food to build up strength for the coming winter.



## Fall

On their return to the boreal forest, the herd traditionally crosses the Porcupine River some time in September. To the Vuntut Kutchin people of Old Crow, this has always been an important time for caribou hunting. The animals are in prime conditions with large amounts of fat and hides free of warble fly holes. During a few short weeks, a winter's supply of caribou must be harvested and everyone helps out. Downriver from the village, archeological diggings have shown evidence - a fleshing tool made from caribou antler - that this relationship between man and caribou has lasted for as long as 27,000 years.

As the fall progresses, physiological changes alter the appearance and behaviour of the mature bulls. Their necks swell to twice their normal size and they almost completely stop eating. As the big bulls spar with each other to establish dominance and earn the right to breed, the rut nears its peak. At time, the contests can be violent enough to injure, or even kill, individual bulls. Others head into winter in poor physical condition with most of their fat reserves depleted. However, their job is done and the needs of the species have been served as the embryos growing within the cows have been sired by the largest and most fit of the herd's bulls.

## CARIBOU AND PEOPLE

For thousands of years, caribou have provided food and clothing for Yukon Indian people. All parts of the caribou were traditionally used including the bones (utensils), sinews (thread), and fat (light and heat).

The methods of catching caribou were many but the most common way to get large numbers of animals was by building a caribou fence. Built of poles and brush, the fence could be 1.5 kilometres long, or more and have numerous openings with snares set at each opening. Caribou were chased into the fence where hunters waited with bows and arrows or spears. Remains of old caribou fences can still be seen in the Yukon today. A straight brush fence near Haines Junction was used to snare small bands of caribou coming off the ice at Pine Lake dur-

ing winter. Broken down fences high above the Fortymile River can still be seen from the road between Dawson and Eagle, Alaska.

Times have changed as have the methods of hunting caribou. Today, caribou are easy prey to hunters with high-powered rifles on snowmachines. In the quest to develop Northern resources, road access has compromised the caribou's need for vast open spaces.

The story began with Fortymile Herd which should have been called "the Goldrush Herd" as it fed many goldseekers along the Yukon River from Whitehorse all the way to Klondike, and beyond to Fairbanks. This was once the largest caribou herd in Alaska and Yukon, numbering several hundred thousand animals. It came to winter as far south as Whitehorse and Atlin B.C.

## DID YOU KNOW?

*The caribou is the only North American deer species that has established year-round populations north of the treeline.*

*The earliest fossil evidence of caribou comes from Germany and has been dated to about 440,000 years ago.*

*The breeding and calving periods of caribou are highly synchronized: 80-90% of all calves are born within a 10 day period in early June.*

*While single calves are the rule, a rare case of twin calves was seen among the Porcupine caribou in northern Yukon.*

*Mosquitoes and parasitic flies plague caribou each summer; up to 2,000 warble flies have been found on a single caribou.*

It also became one of the most exploited caribou herds in North America as it went through several sharp declines and slow recoveries during the last century. Its story is largely one of hunters and highways and its former range now includes the Alaska, Top of the World, Steese and Taylor Highways, and a network of mining roads.

Today, many small, isolated populations of woodland caribou are equally vulnerable to overhunting as new roads provide access into their winter range. On the bright

## Yukon Mammal Series

side are new management programs that bring Indian bands, non-Indian hunters and governments together in protecting the resource from overuse. Herds that have benefited from this approach include the Finlayson herd near Ross River and the Porcupine herd. The Porcupine Caribou Management Board has involved government agencies and user communities in the Yukon, Northwest Territories, and Alaska in the joint management of that herd.

While caribou are well adapted to survive the rigors of a harsh environment, they need our cooperation to ensure populations continue to thrive in their natural habitats. Hopefully, the recent efforts in sharing the management responsibility for caribou will ensure the continued survival and wise use of this valuable resource.

### VIEWING OPPORTUNITIES

One of the best places to view caribou in the Yukon is the Dempster Highway during winter, when the traveller may catch a glimpse of caribou or see the tracks and feeding areas along the road side. Other good places are along the Robert Campbell Highway where parts of the Finlayson herd winter, and on the Nahanni Range Road where caribou from, you guessed it, the Nahannie herd may show up.

River travellers, if lucky, may see large number of Porcupine caribou crossing the Firth River in July or the Porcupine River in September. Paddlers on other Yukon rivers might see single or small groups of caribou as they cross the valley on route from one alpine area to another.

During mid-summer, small groups of woodland caribou can be seen in subalpine areas above treeline, where they seek relief from insect harassment. For example, hikers in the Burwash Uplands area of the Kluane Game Sanctuary have a chance of spotting members of the small Burwash herd (400) during that time.

### IDENTIFICATION

Once you have seen your first caribou, it is difficult to mistake it for any other mammal. The caribou is the only species of deer that regularly uses the tundra. In Southern Yukon, woodland caribou may occur in the same area as moose, mule deer, or even elk. However, the short furred ears, the long nose and the thick fur usually distinguish caribou from other deer. The large curved, and partly palmated, antlers of the adult bulls are characteristic as is the fact that cows also carry antlers. If you also hear a clicking noise as the animals approach, you know you are on the right track!



## Yukon Mammal Series



# Moose

### THE SPECIES:

*Alces alces*

In the boreal forests of the Northern Hemisphere, the moose is one of the most important links in the food chain. The largest member of the deer family, this massive vegetarian is a source of food for a range of large predators including the wolf, grizzly, black bear and human. Smaller predators and scavengers such as the wolverine, coyote, red fox, lynx and even the raven depend on the remains of moose killed by wolves and bears.

Moose range from the Arctic coasts of North America, Europe and Asia down to the southern limits of the worldwide boreal forest. In North America they reach their southern extent in New York State to the east and Utah to the west. But today, few areas in the world support large, naturally

regulated populations of moose and their predators, and even in the Yukon the situation is changing.

### DISTRIBUTION

Moose inhabit the entire Yukon but are most numerous in the southern parts of the territory. In recent years biologists have conducted airborne population counts over about 15 percent of the Yukon landscape. Based on these continuing studies it is estimated that approximately 50,000 moose live within the boundaries of the Yukon Territory.

Moose are not evenly distributed over the land, but tend to be clumped together in certain habitats. The few moose that inhabit the Yukon's north slope are concentrated in narrow strips of forest along the rivers that run down to the Arctic coast. In the southern Yukon, about two thirds of all moose are found at treeline in

the subalpine shrub zone, which represents only 15 percent of the land area. In locations with low snowfall, moose will remain in this shrub zone most of the year. Other moose concentrate in recent burn areas, and along waterways with interconnecting marshes, ponds and meandering streams.

### CHARACTERISTICS

Two subspecies of moose are recognized in the Yukon and their origins date back to the Wisconsin glaciation. For thousands of years an ice-free portion of northern Yukon and Alaska known as Beringia, was separated from the rest of North America by huge continental ice sheets. When the ice melted away about 12,000 years ago, moose that had been isolated in Beringia, slowly moved southward to occupy the new landscape. At the same time, moose from the lower continent expanded their range

## Yukon Mammal Series

northward, eventually reaching the southern Yukon. When the two species met they began to interbreed, and today the Yukon is considered a transition zone between the Alaska Yukon, or tundra moose (*Alces alces gigas*), and the woodland moose (*Alces alces andersoni*). With adult males approaching 700 kilograms, the Alaska Yukon moose is the largest subspecies in the world.

Bull moose antlers, which are grown and cast off each year, are a dramatic characteristic of this species. Two types of antlers are found in yearling bulls. The cervicorn type varies from a single spike to a small fork, with or without additional points. The palmicorn type have small palms

which can capture the faint sounds of a stealthily approaching predator. Its large overhanging snout is equipped with self-sealing nostrils which allow the animal to submerge its head when feeding on aquatic plants. A flap of skin hangs from its throat, but serves no known purpose.

The long legs and splayed hooves of the moose can carry it through a variety of rough terrain; over windfall in thick forests and burn areas, through the deep snow of winter, across rivers and ponds, and through boggy swamps and marshes.

### A YEAR IN THE LIFE Spring

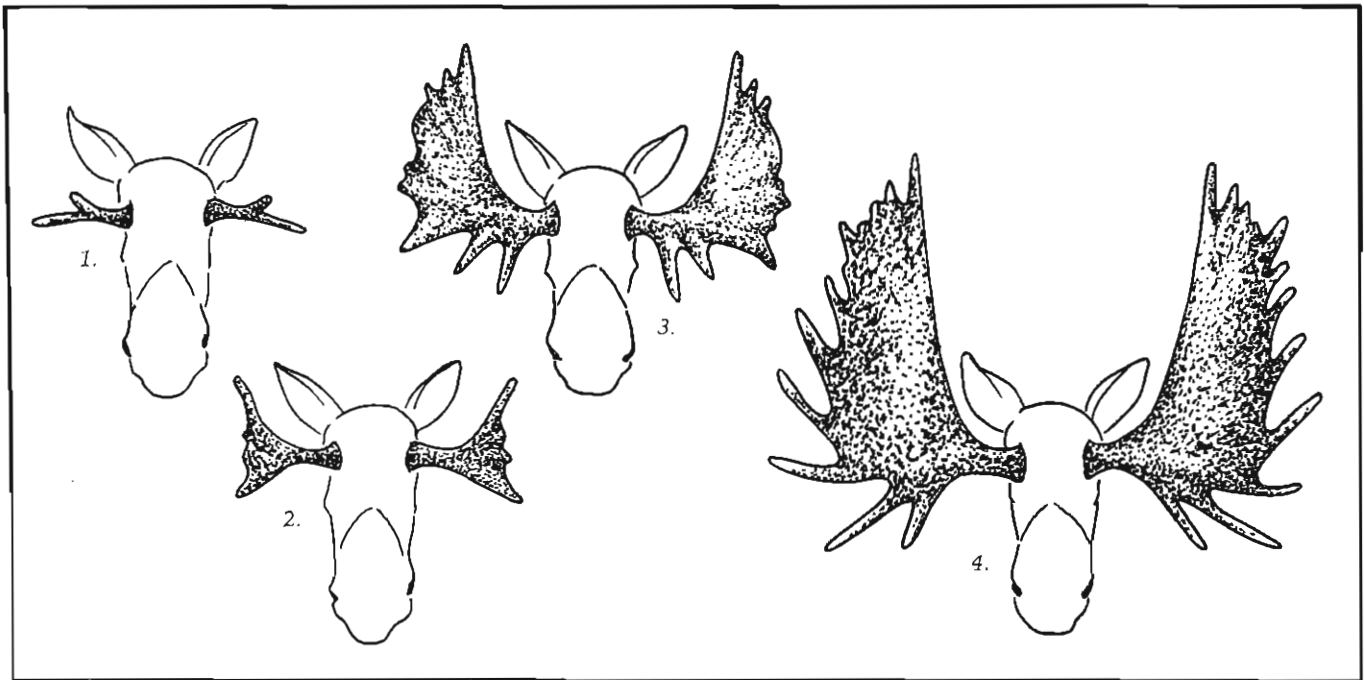
As the snow cover begins to melt

Wolves take fewer newborn calves than grizzlies, but continue to prey on the older calves year round.

Moose have one of the highest reproduction rates of all the Yukon large mammals. Many cows breed for the first time at 1½ years of age and every year or two afterwards. Where food is plentiful, twins are common and triplets are occasionally born. In the Yukon, about 30 percent of pregnant cows give birth to twins.

From late spring through the summer, moose feed on the new buds and fresh growths of willow. Aquatic plants like the yellow pond lily draw the long-legged moose out into ponds and lakes at this time of year.

Antler development begins in



1. Yearling - cervicorn antlers; 2. Yearling - palmicorn antlers; 3. Three year old; 4. Six year old.

with several points or protuberances. At two years of age nearly all bulls in the Yukon have small, but well developed palms on their antlers. The size of the palms, antler spread and number of tines increase each year until the bulls reach their prime at about six years of age. After the prime years, antlers may become slightly smaller and begin to deform.

Although the moose has relatively poor eyesight it has a keen sense of smell and mule-like ears

and flow downslope to the frozen stream beds, pregnant cow moose look for safe and secluded places to give birth. Calves are born from mid-May to mid-June. Some cows birth at tree line in the subalpine zone, while others birth at river level in the valley bottoms. In the southwest Yukon, grizzlies which spend much of their time in the subalpine in spring, kill about 50 percent of each years' calf crop. Most of these kills are made before the calves reach eight weeks of age.

April or May, first in older bulls and last in yearlings. During the growth period, the soft spongy antlers are covered with a dark brown, velvety skin.

### Summer

Waterways are important feeding areas for moose, but they also provide escape routes from the ever-present danger of predator attack. When pursued by wolves or bears in the summer season, moose head for water where their long legs give

# Yukon Mammal Series

## DID YOU KNOW?

*In the rutting season, bull moose create wallows (shallow depressions in the earth) about one metre in diameter. They urinate in the wallows, then roll in them, giving themselves a high odor that cows in breeding condition can detect at great distances.*

*To get at the fresh leaves near the top of young aspen trees, moose will sometimes straddle the sapling and walk forward, pushing with their chests until the sapling leans down within reach.*

*When threatened, moose strike out with their front hooves. Bulls may also charge with lowered antlers.*

*Until recently, Yukon Indians used moose hide boats for river and lake travel. The remains of such boats can still be seen on the banks of some Yukon rivers.*

*In the southwest Yukon, between Teslin and Haines Junction, it is estimated that grizzlies kill 940 moose, and wolves 570 moose, each year. The average annual harvest by non-Indian hunters in this area is 166 moose. The total moose population for the region is estimated to be 4,700.*

them an advantage.

The moose is a browser; "eater of twigs" as the Algonkian Indian name translates. In a single day, an adult can consume about 20 kilograms of twigs, leaves, shrubs and other land and water plants. A ruminant like the domestic cow, it has a series of stomachs to help digest its woody diet and can sometimes be seen chewing its cud.

Those calves that survive through the heavy spring predation, grow dramatically over their first summer. Adding as much as two kilograms per day, they weigh about 180 kilograms (400 pounds) by the time autumn arrives.

## Fall

Cow moose can experience three estrous or breeding periods in the fall. The second estrous, which occurs between the last week of September and the first week of October, is the period of greatest fertility.

Rutting, which commonly occurs at treeline in the subalpine zone, brings new sounds to the landscape. The coughs, grunts, and bellows of bull moose are heard along with rubbing of antlers against trees and the calls of the cows. Finally the clash of antler to antler resounds as two bulls collide and begin their shoving match.

Dominant bulls try to keep lesser bulls away from their group of cows, which can number up to ten or more. At the same time, the bulls continually monitor their cows, ready to mate with any that come into estrous. All in all it's an incredibly demanding time for these bulls. They stop eating for a month or so during the rut; their necks swell and they become unusually aggressive. But it's short-lived power they wield. When the rut is over in October, many of the dominant bulls are exhausted, undernourished, and have lost up to 20 percent of their weight. Sometimes the price for perpetuating his genes is a weakened state that leaves the bull more vulnerable to potential causes of mortality.

Prime bulls drop their antlers from late November through February, while young bulls lag a month or more behind.

## Winter

Winter is a season of reduced food supplies for moose, and increased predation by wolves.

Fresh willow buds, leaves and aquatic plants are no longer available. Forage is restricted to the woody twigs of poplar, birch, alder and willow. In late winter when food supplies are at their lowest, some moose move into aspen stands and use their front teeth to scrape the bark down to the nutritious layer of cambium underneath. In parts of Kluane National Park and other areas of heavy snowfall, many moose will move down to the lower valleys as winter progresses.

An average Yukon wolf pack (seven to nine wolves) will kill one moose every five or six days through the winter. Although the wolves tend to concentrate on calves and older age moose, any moose can be vulnerable to wolf predation, depending on the terrain, snow conditions, and its response to attack. Generally, a moose that re-

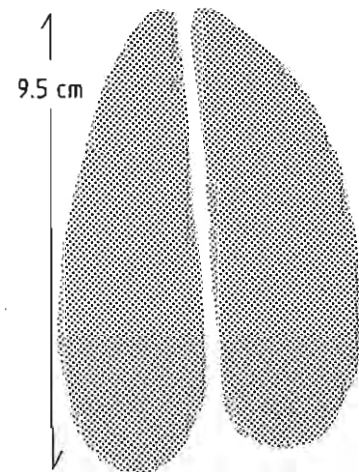
mains stationary can successfully defend itself from wolves, while a moose that flees is attacked from the rear and often brought down. By backing into a thicket of trees, a moose can fend off wolves with its powerful front hooves.

## MOOSE AND PEOPLE

Moose meat has helped to support the lives of Yukon Indian people for thousands of years. There have been periods, however, when moose were virtually absent from the Yukon. Apparently, during the early 1900's few moose were present in the territory and Indians of the time relied mainly on caribou for food.

When moose were present, like caribou, they were guided into snares or killing corrals by long brush fences. The snares were made from strips of half-tanned hide. A dozen or so strips would be braided together to make a strong cable about one or two centimetres in diameter. When set in an opening in the brush fence and tethered to a heavy drag pole, the snare would catch a moose around the neck and hold it until it became exhausted. Moose were also killed with bows and arrows, but the hunter often had to trail the animal for days before it dropped — not an easy task.

Today, moose hunting provides many Yukoners with recreation as



well as lean, chemical-free meat. For Indian people, it also helps to maintain their link to the land and their culture.

Two thirds of resident big game hunting effort in the Yukon is aimed

## Yukon Mammal Series

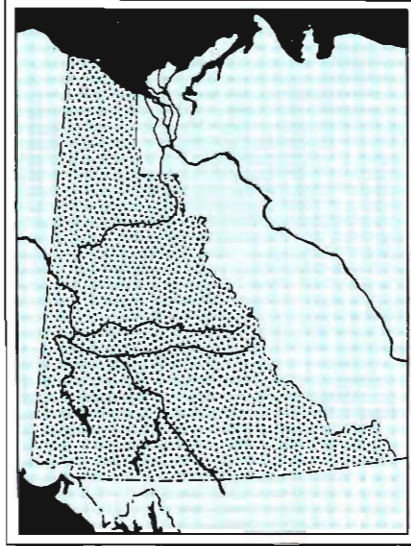
at moose. Residents take 500 to 800 moose each year, most of which are killed in September when the rut begins.

Much of the moose hunting effort is concentrated along roadways, and in some areas this has led to declining hunting success in recent years. Hunters are encouraged to spread their effort into more remote areas where the chances of success are greater and the effects on moose populations are lesser.

### VIEWING OPPORTUNITIES

Many Yukoners can remember when moose were commonly seen along roadways. Today, road travellers are occasionally fortunate enough to see a moose crossing the roadway or feeding on the edges of nearby ponds or meadows. But the determined viewer or photographer is best advised to leave his or her vehicle behind and paddle, hike, or travel by horseback or river boat into the wilderness.

Travellers on the less popular Yukon rivers are almost certain to see moose, especially in spring and early summer. In the fall, when rutting groups are at treeline, a hike up the mountainside can be very rewarding. Caution is advised as bull moose in the rut can be dangerous. Bring your binoculars, and remember that moose are most active at dawn and dusk.



*Moose distribution*

### IDENTIFICATION

A bull moose with antlers is difficult to confuse with any other animal. It is much larger and darker than a caribou, mule deer or elk. Its antlers have broad palms while those of the other deer have generally narrow beams. A cow moose is also larger than a caribou, mule deer or elk. It is darker in colour than the other deer and its legs are longer.

To distinguish between a bull moose and a cow during the antlerless period, look for antler scars on the bull's forehead (dark round buttons), and a white vulva patch under the cow's tail.

# Yukon Mammal Series



## Wood Bison

### THE SUBSPECIES:

*Bison bison athabasca*

Until recently, one had to dig deep to find evidence of bison in the Yukon. This is because bones and skulls unearthed in archaeological investigations or by accident are the only evidence that bison once inhabited this region. From these findings, it seems that bison disappeared from the Yukon about 800 to 1000 years ago — long before the grim story of the near-annihilation of the bison of the plains by man. But, if a recent wood bison introduction is successful, the Yukon will once again be a wilderness home for the same subspecies which lived here centuries ago.

### DISTRIBUTION

The entire Yukon population, consisting of nearly 50 wood bison, can be found in the Nisling River — Aisihik Lake region west of Car-

macks and north of Canyon Creek. Potentially capable of supporting about 400 bison, the area is a broad valley containing wet sedge and grass meadows interspersed with spruce and poplar groves. It is quite similar to the wood bison habitat of the Wood Buffalo National Park region, the original home range of this subspecies.

### CHARACTERISTICS

Wood bison are very similar to plains bison — so similar that there has been considerable dispute among biologists about whether or not they are a distinct, recognizable subspecies. Presently, however, it is felt that the subspecific status is justified. Slightly larger in size than the plains bison, with a more massive skull, longer horns, and more heavily haired body and tail, the wood bison is more adapted to northern living.

The largest of North America's

mammals, wood bison bulls weigh nearly a tonne (1000 kilograms) and stand almost two metres high at the shoulder. Cows are somewhat smaller. Like their prairie counterparts, they are primarily grazers but have adapted to their woodland environment in which wet meadows and sloughs are the rule, rather than vast, dry grasslands of the prairies. As a result, the diet of wood bison in Slave River lowlands contained about 70 percent slough sedge and reed grass. Other bison may spend a part of their year browsing on shrubs such as willow.

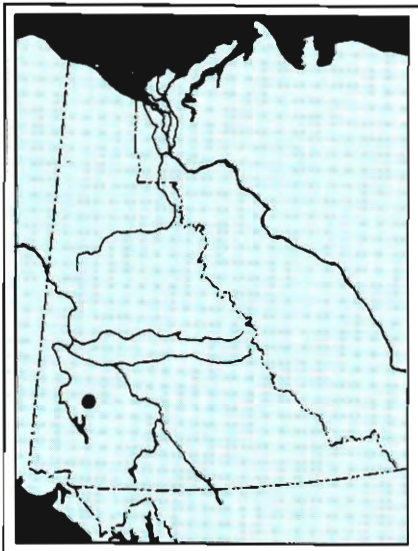
Bears and especially wolves are known to prey on adult and young bison, but they have not yet been a problem to the Yukon bison. The long term effects of predators on the free-roaming herd will probably take a number of years to determine. However, the wolf population in the region is known to be low at present.

# Yukon Mammal Series

## A TROUBLED HISTORY:

Like the bison of the North American plains (*B. bison bison*), the wood bison was hunted to the edge of extinction until the turn of the century. Living at the northern end of the bison territory, wood bison occupied the northern parklands of Alberta and north-eastern British Columbia to the southwestern Northwest Territories. But, despite its more isolated location, overhunting reduced the population to only a few hundred animals by the early 1900's. These few were limited mainly to the Slave River lowlands and Peace-Athabasca delta of northern Alberta and southern Northwest Territories.

Although Wood Buffalo National Park was established in 1922 to preserve the wood bison, it nearly failed because of a government decision three years later to introduce nearly 7,000 plains bison. These were moved from Buffalo National Park near Wainwright, Alberta - a sanctuary that later became a military reserve. The plains bison bred with the wood bison and introduced the diseases of bovine tuberculosis and brucellosis. There seemed to be no hope for the survival of wood bison as a distinct subspecies.



Wood Bison distribution

In the early 1960's however, a small herd, thought to be pure wood bison, was discovered in the Nyarling River and Buffalo Lake regions of northwestern Wood Buffalo National Park. Eighteen of these animals were moved to a site 25km northwest of Fort Providence, NWT. The site later became known as the Mackenzie Bison Sanctuary.

Another small group of 24 animals was moved to Elk Island National Park near Edmonton where it flourished to the point that there are now over 200 pure wood bison in the limited, fenced habitat.

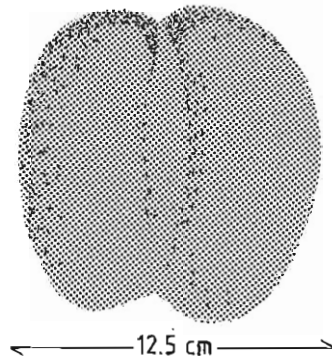
A decision was made in 1975 to increase the chances of the subspecies' survival by establishing three new herds elsewhere that would hopefully become free-roaming and self-perpetuating. If successful, these and seven captive herds in zoos and wild animal parks in North America would serve to remove wood bison from the "threatened" category assigned by the "Committee on the Status of Endangered Wildlife in Canada" (COSEWIC).

## THE YUKON HERD

Following an expression of interest by the Yukon Government in 1978, the Canadian Wildlife Service (CWS) and Yukon Department of Renewable Resources cooperated in selecting a wood bison introduction site near the Nisling River, about 80km west of Carmacks. It had been chosen from 26 other Yukon locations as the most suitable, based on range quality and absence of land use conflicts. After further vegetational analyses and the construction by government and volunteer groups of nearly ten kilometres of buffalo-proof fencing, 34 wood bison were introduced in March, 1986. Of these, 19 were females and 15 were males, all from Elk Island National Park.

Since the 1986 introduction, the Yukon herd has been one of the most successful in Canada. A total

of 22 calves had been born up to February of 1989. In March of 1988, a small, free-roaming herd of 18 animals were released from the fenced enclosure. It is hoped that the Yukon will eventually become one of the key strongholds for Canada's wood bison.



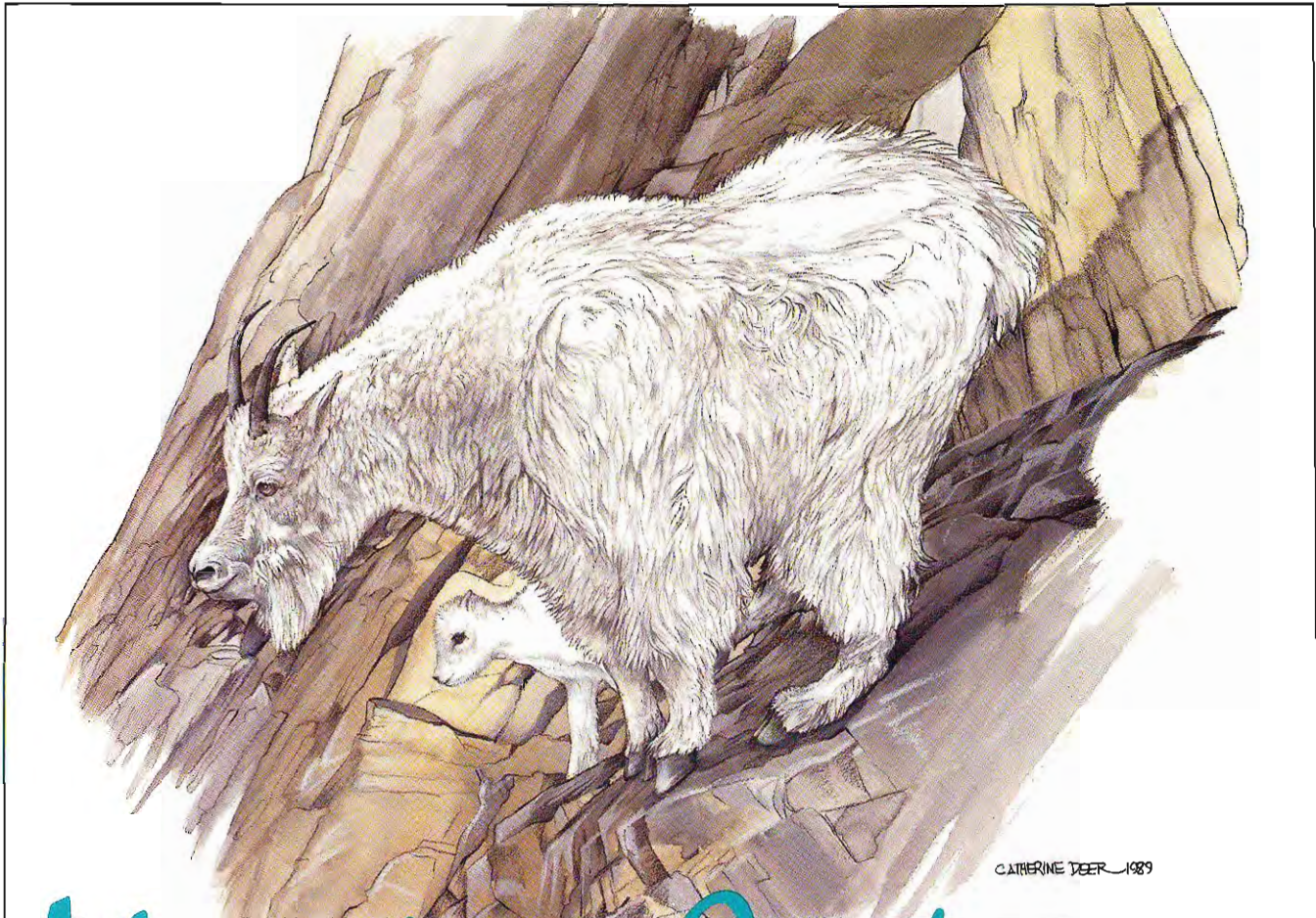
Through legislation, Yukon's wood bison are well protected from hunting by any person and will remain so until the population is sufficiently large to allow for harvest of animals above the number necessary for self-sustainment. The management objective of the Yukon Government is to attain a free-roaming herd of at least 200 animals. Once this level is reached, the Yukon will have fulfilled its responsibilities and the species will then be managed like all other native wildlife.

## VIEWING OPPORTUNITIES

Although members of the free-roaming herd have already travelled as far west as the Alaskan border, they are most likely to be seen in the Aishihik Lake — Nisling River area. This area is reached by driving the Aishihik Road. Generally, bison can be watched with reasonable safety from a few hundred yards. Bulls are especially unpredictable during the rut and cows with calves should be avoided. A good pair of binoculars, a strong telephoto lens and considerable respect for this wild species should allow for safe viewing and good photographs.

**Yukon**  
Renewable Resources

## Yukon Mammal Series



# Mountain Goat

### THE SPECIES:

*Oreamnos americanus*

The mountain goat lives out its life on tiny windswept ledges, far above treeline. It is an environment that would terrify most of us, but for the mountain goat it is a safe, predator-free home. The name of this animal is a misnomer as the species is more closely related to the antelope than it is to the goat.

Mountain goats are found only in western North America, including Alberta, British Columbia, Alaska and the Yukon.

### DISTRIBUTION

The distribution of the mountain goat begins to thin out as it reaches the northern limit of its range in the Yukon. The Yukon's 1,700 goats are found only in the lower third of the territory, mainly in isolated pockets in the southwest and in the Logan

Mountains north of Watson Lake. More than half of the Yukon's mountain goats live in Kluane National Park and the adjoining Kluane Game Sanctuary.

The mountain goat is rare here because so few habitats are suitable. In addition to mountainous terrain, ideal goat habitat features a high precipitation level that encourages forage growth. Cliffs are steep and exposed so the snow blows off, revealing winter food sources. The mountains themselves tend to be composed of rugged metamorphic or igneous rocks which provide better footing than softer sedimentary rocks.

### CHARACTERISTICS

The hooves of a mountain goat have hard outer shells and rubbery, concave foot pads which act like suction cups when weight is applied. This feature helps the goat to negotiate its vertical environment

with ease and agility. It is not uncommon for a goat to leap 10 feet from one ledge to another, turn around on a narrow platform only inches wide, or pull itself up from ledge to ledge with its front feet. Keen eyesight complements this animal's daring mountain skills. It can spot moving objects up to a mile away.

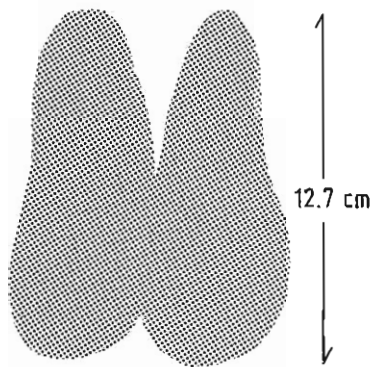
The mountain goat's legs are relatively short and its body heavy-set. Thick white wool covers all of the body except for short sections above its hooves, where the hair is shorter. The goat's black lips, nostrils, horns and hooves, as well as its brown pupils, stand out in stark contrast to the rest of its body.

Both males and females have slender, pointed horns which extend up and away from the long, narrow face. The horns, which grow continuously and are never shed, can be up to 25 centimeters long. Females have a noticeable curve at the tip of

# Yukon Mammal Series

their horns while males have a gradual curve along the entire length.

The mountain goat's long wool is shed in spring and summer, leaving it patchy and dirty-looking until the shorter summer coat is fully exposed. The thick winter coat is part of an important survival mechanism. Good insulation is needed because the goat's strategy in winter is to move as little as possible, saving valuable energy. Sometimes animals are so sedentary they are considered to be in a semi-dormant state.



## LIFE HISTORY

Mountain goats usually give birth in sheltered areas, such as caves or rock overhangs. Newborns sport a white woolly overcoat to aid in survival, as the weather can still be harsh in May and June. Horns can be noticed by three days of age. At 10 days old, youngsters begin to romp and play with other kids and nannies. This helps them become familiar with their mountain environment. By three weeks, kids average about 18 kilograms in weight.

Although mountain goats have an average lifespan of 12 years, fewer than half of each season's kids survive their first year of life. Death is usually caused by an accident on the mountain or severe weather. Eagles have been known to carry off kids on occasion.

At maturity, males weigh about 85 kilograms and females about one-third less. Unlike sheep, mountain goats lead a solitary life. Adult males, or billies, keep to themselves during the spring. Yearlings that have remained with their dams throughout the winter are forced out on their own with the arrival of

younger siblings. Females are sexually mature in their second year while males mature after three years.

Grasses, sedges and rushes dominate the goat's summer diet. Foraging occurs mainly at dawn and dusk. Like other ruminants, the goat spends much of the time chewing its cud. Occasionally it will venture down into the valleys in order to visit natural mineral licks, while keeping escape terrain nearby. Winter brings a change in diet to conifers and flowering plants.

The mountain goat's mating season occurs between November and December. Males compete as they try to establish dominance, but fights are generally rare. Unlike other horned and antlered animals, male mountain goats do not butt heads. Instead they aim for each other's hindquarters and bellies. Most fights are shams but occasionally internal organs are pierced, with fatal results. Females use their horns to keep the males in line, a feature of the mountain goat's matriarchal social order. Except during the mating season, females dominate males.

## GOATS AND PEOPLE

Traditionally, the mountain goat's fleece has been used by aboriginal peoples to make clothing, particularly trousers. The Chilkat Tlingit people on the coast used the wool to make their famous Chilkat blankets. Goat meat is considered unpalatable by most people, although relished by some.

Because of the peril involved, strict rituals were observed by hunters' wives. For example, women of the Inland Tlingit did not touch their hair while men were out hunting goats or sheep, for fear of "combing" the hunters off the cliffs.

Today's efficient hunting methods, as well as the high trophy value of the mountain goat, have put pressures on the North American population. The mountain goat is the rarest large mammal hunted in the Yukon. Males and females are so similar that protecting females is difficult. This has led to severe hunting restrictions to protect the species.

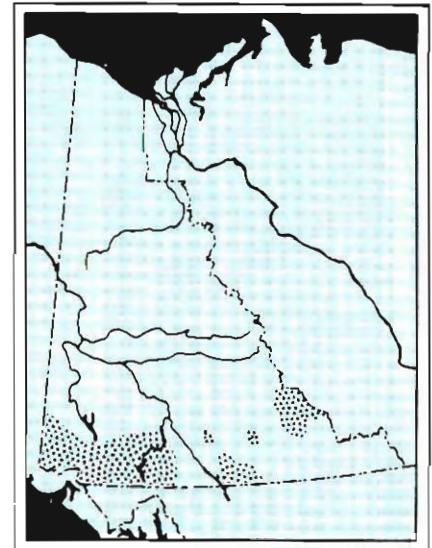
A transplant project in 1983-84 re-established the Mount White goat population near Whitehorse. It is an

experiment that may be copied in other areas where goats have been eradicated.

## VIEWING OPPORTUNITIES

Highway travellers on the lookout for goats should train their binoculars on Mount White at Jakes Corner and the peaks of the Coast Mountains along the South Klondike Highway. Hikers can glass the mountainsides along the St. Elias Trail in Kluane National Park. Ambitious wilderness hikers and Alsek River rafters/kayakers can watch goats on Goathead Mountain, which looms over the Lowell glacier in Kluane National Park.

At a distance, goats can easily be confused with female sheep, so keep the following points in mind. Sheep horns are amber-colored, while goat horns are black. Sheep have short woolly coats while mountain goats have long hairy coats that reach halfway down their legs. Mountain goats have a pronounced hump over their shoulders that is absent in sheep.



*Mountain Goat distribution*

## Yukon Mammal Series



# Thinhorn Sheep

### THE SPECIES:

*Ovis dalli*

Dashing across alpine meadows, clinging to sheer rock faces, or grazing sedately at treeline, thinhorn sheep are true mammals of the mountains. If you've ever seen a band of thinhorns, be they majestic rams or ewes with playful lambs, you'll know why these graceful mountain sheep are one of Yukon's best-loved wildlife species.

Thinhorn sheep are a New World species found only in Canada's northwest and in Alaska. They're close cousins to Siberian snow sheep and were once thought to be the same species. Two types of thinhorns inhabit the backbone of the northwest today. Pure white Dall sheep occur in Alaska and parts of Yukon, Northwest Territories and British Columbia. They're the only wild white sheep in the world.

Darker Stone sheep occupy a smaller range in Yukon, but occur throughout much of northern British Columbia.

### DISTRIBUTION

From the southern border to near the Arctic coast, Yukon peaks are home to 22,000 thinhorn sheep. Of these, there are about six times as many Dall sheep as Stone sheep. The white thinhorns are abundant southwest of the Yukon River, but are spread more thinly in scattered northern pockets and within a broad band that arcs across central Yukon.

Stone sheep occur in small pockets in the south, but are more widely dispersed in the northern part of a range that stretches like a tongue from the British Columbia border to central Yukon. More and more sightings of colored sheep are being reported in areas that used to have only white sheep.

One of the reasons why northern Yukon sheep populations are sometimes only half as dense as southern ones may be that critical habitat features are fewer and farther between in the north. Such features include lambing cliffs, mineral licks, safe migration routes and good winter range.

### CHARACTERISTICS

Dall sheep are typically pure white, whereas Stone sheep have grey, brown or black coats with white muzzles, bellies and rump patches. It may seem odd that there are such differences in color within the same species, but it makes sense when you think about Yukon's history. The last time glaciers pushed their way out of the icefields they split up sheep populations and left them in very different habitats. Some lived high on snowy alpine slopes close to the massive rivers of ice, while other sheep lived lower on

## Yukon Mammal Series

more heavily treed mountains. White sheep blended in with the snowy alpine environment, while dark sheep blended in with treed surroundings. Animals that did not blend in with their environment were more likely to be targeted by predators, and so the two forms diverged.

Today, Yukon thinhorns run the gamut in color from white to black, with almost every conceivable combination between in central Yukon. This is where the true Dall and Stone sheep overlap and interbreed. One very striking example of mixed colors is the Fannin or saddle-back sheep of the Faro area, with its dark "saddle" on an otherwise white coat. All these color variations make life difficult for people trying to classify sheep into one of the two basic categories. Right now, all Yukon colored sheep are lumped together with Stone sheep, which is why Stone sheep range seems to be expanding.

Both thinhorn ewes and rams have curved, amber horns. Ewes' horns are gently backswept and quite short. Mature rams' horns curve first back and down, then forward and up in a flaring spiral. The length along the curve of a ram's horn can be more than one metre. Rams have much thinner horns than those of Rocky Mountain bighorn sheep, hence the name "thinhorns".

Our northern mountain sheep are also lightweights compared to bighorns, with thinhorn rams weighing in at up to 115 kilograms, about two thirds the weight of bighorn rams. Stone rams are usually somewhat heavier than Dall rams and also have slightly longer horns. Ewes are a fifth smaller than rams and weigh only half as much.

### MOVING WITH THE SEASONS

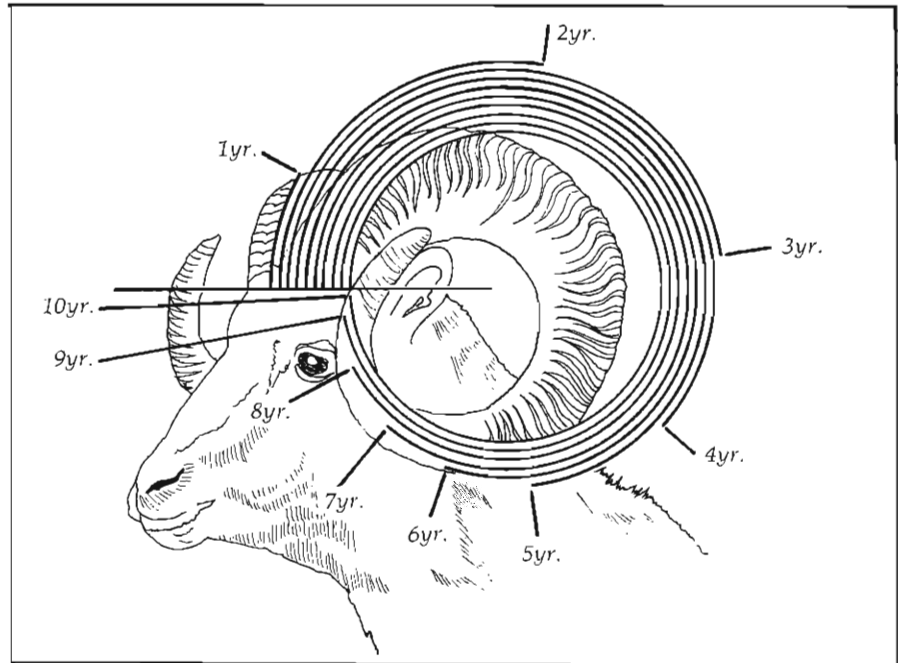
Thinhorn sheep spend the short northern summer grazing in alpine meadows atop the peaks. During July and August they crop the choicest bits of grasses, sedges and juicy, broad-leaved forbs, building up fat stores to help them through the winter, when high quality forage doesn't last as long as the snow and cold do.

Come late August and September, thinhorns begin a leisurely move toward winter range

that can be few or many kilometres away. They use the same migration routes generation after generation, drifting slowly through the high country, but hurrying across valleys that must be crossed. Once sheep leave the safety of rugged mountain terrain, they are open to attack by wolves, coyotes or grizzlies.

sheep often visit mineral licks to restock their supply of micronutrients lost during the long winter. They spend days or weeks near the licks before following the line of snowmelt and newly sprouted green shoots back up to alpine summer ranges.

Spring also brings lively new life



Yearly horn development in Thinhorn Rams

Wind-swept, south-facing slopes at fairly low elevations are typical thinhorn winter range, and sheep spend up to nine months there. Dall sheep usually stick to open grasslands above treeline while Stone sheep also make use of treed and shrubby areas. For both kinds of thinhorn, winter range must have scree slopes and broken cliffs nearby for escape routes and for spring lambing grounds.

Since sheep are grazers, they need to get at grasses and other favorite plants buried by winter snowfalls. They will dig in snow up to 30 centimetres deep, but rely on strong winds to sweep the slopes clear of deeper snow. Freeze-thaw weather and heavy, wet snowfalls can lock sheep foods beneath a crusty barrier, which can have serious consequences. If ewes don't get enough food energy during the winter, they don't produce lambs and the population declines.

In spring and early summer,

to the mountain slopes. Pregnant ewes head for the lambing grounds' steep cliffs in May and early June. There they stay for three to four weeks until all new lambs are born, then together with their young, they climb to summer range once more.

### THE SOCIAL SIDE OF LIFE

Thinhorn sheep are social animals that minimize squabbles within their ranks by sticking to a rigid dominance scale based on horn size. The ram with the largest horns tops the scale and treats all other sheep, regardless of sex or age, as subordinates. Every thinhorn has its place and things run smoothly as long as sheep don't try to jump rank.

### The Ram Band

Rams aged three years and older band together and go their own way for most of the year. They often seek out higher summer pastures than ewes and young sheep, and

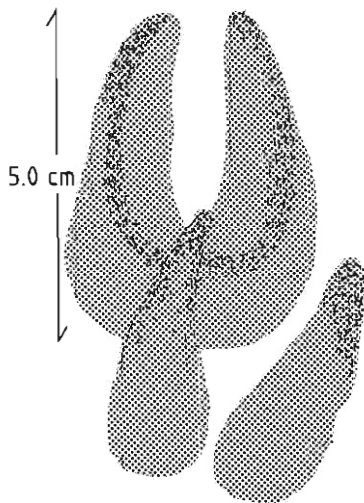
## Yukon Mammal Series

mix with other sheep on winter ranges for only a month or two. Leadership clashes within the band can happen any time of year, but are fiercest during the rut in November and December. Young rams move up through the ranks very slowly and are five to seven years old before they have large enough horns to challenge a leading ram. Thinhorn rams aren't as aggressive as bighorns, but top rams still put a lot of energy into defending receptive ewes from other rams challenging their dominance. These rams rarely live to 12 years, whereas ewes may reach 16 years of age.

### The Nursery Band

Ewes, young rams and brand new lambs remain together throughout the year and have little contact with the ram band except during winter months.

Newborn lambs weighing about three kilograms race and frolic within days of birth, but may fall prey to cold weather, accidents, or eagle attacks. They quickly learn to nibble choice grass shoots and to rely on their own fleet feet to escape danger. While watchful ewes graze and rest in a loose circle, the lambs within scramble up cliffs and slide down scree slopes, building strong bones and muscles and practicing for the real escapes. Through playful jousting, lambs find their place in the thinhorn scheme of things, which is far below the band's leading older ewe.



As the nursery band moves onto summer range, lambs learn traditional travel routes and begin to eat

more grasses, sedges and herbs. By the time they are weaned in autumn, they weigh 10 times as much as they did at birth.

### THINHORNS AND PEOPLE

In the old days, as now, thinhorn sheep were prized for their delicious meat. Yukon Indian hunters stalked the sheep with bow and arrow or set rawhide snares in narrow places, then drove their quarry into the snares.

Hunting the mountain dwellers was difficult and dangerous work, so long-ago hunters and their wives followed strict rules before and during a hunt. Some hunters ate only cold food the day before a hunt. And while they stalked sheep among the peaks, their wives did not comb their hair for fear of "combing" the hunters over the cliffs. Other women did not eat hot food or heat water during a hunt, in case they should cause the ice and snow to melt and slide down upon their husbands.

So vital was the wild sheep to the livelihood of these peoples that a legend is told of the great flood and how the first couple to survive it set a snare and caught a mountain sheep as the waters ebbed. As well as eating sheep meat, Indian peoples made blankets, jackets and winter pants from sheep fleece, and ladles and dishes from horns of the great rams.

During the gold rush years a flood of prospectors and hunters supplying meat to new settlements nearly destroyed entire populations of the wild mountain sheep. Later, road crews building the Alaska Highway also took a heavy toll of sheep in southwestern Yukon.

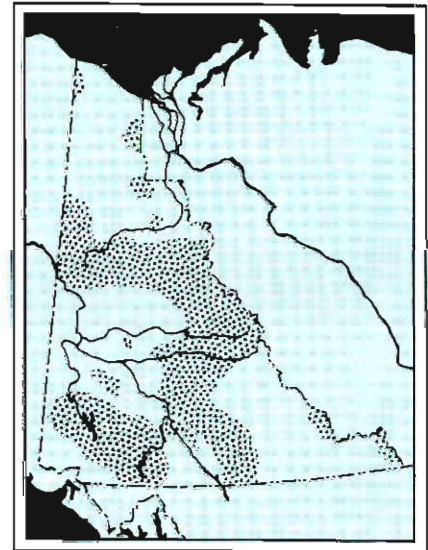
Today the thinhorns have recovered from past ravages and thousands live protected in game sanctuaries and Kluane National Park. However, since these mountain sheep use the same migration routes and seasonal feeding grounds generation after generation, unprotected populations remain vulnerable to habitat destruction and disturbance.

Thinhorn sheep, especially the Fannin sheep, are perhaps the most prized trophy animals in North America and the mainstay of Yukon's big game outfitting industry. As well, more and more

people stalk them with only a camera or the naturalist's eye, thrilled simply to capture some of the magic of the mountains that these wild sheep evoke in us.

### VIEWING OPPORTUNITIES

Highway travellers have some excellent chances to see thinhorn sheep traditional feeding grounds. A favorite spot is Sheep Mountain in Kluane National Park, home to about 200 Dall sheep that wander over its south face from September through May. The Alaska Highway skirts the base of the mountain, offering superb viewing. The sheep are easy to spot when the ground is bare, but harder to see after snowfall. Look for yellowish lumps on ridges and open slopes.



*Thinhorn Sheep distribution*

Several secondary roads provide access to another "Sheep Mountain" just east of Faro. It's the winter range of about 90 Fannin sheep and is the only Yukon location where colored thinhorns can be easily seen at close range. During the summer months you can use binoculars to spot Dall sheep on the hills behind the Kusawa Lake campground, off the Alaska Highway. On the Dempster, a mineral lick near Engineer Creek is a roadside attraction for Dall sheep in June, making for easy viewing of majestic rams.

Rafters can see Dall sheep from the Firth River in northern Yukon. Other river travellers may be able to spot sheep at a distance on high

# Yukon Mammal Series

ground, so keep binoculars on hand and glass the slopes once in a while.

Hikers have the best chance of spotting thinhorns during the summer months when they are grazing high in alpine meadows. Low ground cover and open vistas above treeline make viewing both easy and spectacular. Unprotected sheep are very wary and spook easily, but protected thinhorns often become quite tame and may pose for the picture of a lifetime. Hikers should take care to not disturb nursery band ewes and lambs since they operate on a tight energy budget. Kluane National Park is your best bet for good viewing when on foot.

## IDENTIFICATION

A full-curl ram in plain view is easily identified as a thinhorn sheep, but it's tougher to be sure about something away up there in the rocks. If it's white and you're in southwestern Yukon or the Logan Mountains, it could be a mountain goat.

To be sure it's a thinhorn sheep you're seeing, check the following features:

- Horns -** Sheep horns are amber-colored and curl backwards. Goat horns are black, daggerlike, and curved backwards only near the tips.
- Coat -** Sheep have short, woolly coats that may be white, grey, brown or a combination of these colors. Mountain goats have long, hairy white coats that reach halfway down their legs.
- Hump -** Sheep do not have a pronounced hump over their shoulders. Mountain goats do.

## DID YOU KNOW?

*Yukon has more wild sheep than any other part of Canada.*

*The age of thinhorn sheep can be calculated from the number of growth rings on their horns.*

*The wide Yukon River is a strong barrier to the interbreeding of Dall and Stone sheep.*

*Thinhorn sheep have dish-shaped hooves with roughened pads that clinging to cliff edges and broken ledges.*

*Mountain sheep are high strung and may abandon parts of their range if repeatedly disturbed.*



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## Yukon Mammal Series

### LEAST CHIPMUNK

#### THE SPECIES: Eutamias minimus

Stripes of black and grey blend with shadows as a least chipmunk crouches by a stump. Its agile forepaws gather seeds and stuff them into its mouth. When cheek pouches bulge, this grey-gold gleaner scampers off to add the new seeds to its hoard. Pint-sized and perky, this smallest of chippers is among the best-loved Yukon mammals.



#### DISTRIBUTION

The least chipmunk is the most widespread and northern of New World chipmunks. It lives in many habitats within a broad belt from southeastern Alaska to western Quebec, and in the Rocky Mountains south to Arizona and New Mexico.

Up here, these small members of the squirrel family inhabit only the southern half of the Yukon Territory and occur in a wide variety of dry habitats -- from spruce, pine, and poplar woods to willow or soapberry scrub and dryas plains.

Like least chipmunks elsewhere, Yukon chipmunks prefer to live in open forest and shrubland rather than dense forest. They are often found darting about among protective tangles of logs, rocks, and underbrush. With densities of up to two chipmunk per hectare, Yukon populations of least chipmunks are lower than in more southern localities, where densities of six to twelve chipmunks per hectare are common.

#### CHARACTERISTICS

Only one "chipper" makes its home in the Yukon, so you can bet that any small, striped rodent you see scooting about on the ground or among low branches is a least chipmunk.

Though eye-catching in even light, the chipmunk's stripes are excellent camouflage in sunlit, tree-shadowed ground. To take full advantage of its camouflage coat, the least chipmunk is active only during daylight hours.

Yukon chipmunks are about 20 cm long and weigh about 50 g. Those in our extreme

southeast corner are a more yellowish race than the greyer chipmunks inhabiting the southern Yukon and northwestern British Columbia.

## BURROWS AND SCATTERHOARDS

During the warm days of summer, least chipmunks make their homes in simple tunnels or crevices in the ground, or in tree nests and abandoned woodpecker holes. However, when arctic winds bring the promise of snow, the chipmunks move underground. There they inhabit twisting burrows up to four metres long and a metre beneath the ground surface. Deep within the burrows are the sleeping chambers that hold chipmunks' winter nests.

In addition to nests, burrows contain storage tunnels and an extra entrance or "work hole." It is through this hole that chipmunks remove excavated dirt by packing it into their cheek pouches and carrying it to the surface. There they scatter it among plants, leaving no telltale pile of dirt to alert predators to their burrows' presence. When construction or yearly renovation comes to a halt, the "work hole" is plugged and chipmunks come and go through entrances hidden by leaves and duff.

As well as security against the icy onslaught of winter, a chipmunk's burrow is its pantry. Throughout the summer and early autumn, it collects thousands of seeds of fruits and grasses, then carries them to the winter home.

Some of these seeds are raided from neighbours' burrows. A dashing thief, the least chipmunk darts into a neighbour's burrow, stuffs its large cheek pouches with seeds and races away to stash its stolen booty.

Then, as insurance against other thieves robbing its own seed bank, the striped seed snatcher scatters small hoards in well-hidden spots within sight of its burrow. As it works, the chipmunk keeps an eye on its burrow hoard and rushes back to scold and chase any thief that approaches. When robbed, a chipmunk retrieves seeds from its scatterhoards to replenish the stolen burrow supplies in readiness for winter.

## SCOOTING THROUGH THE SEASONS

Gilded by autumn sunshine, a chipmunk perches among willow stems, gathering catkins to line its winter nest of shredded grasses and bark. Bits of fur and feathers may also be added to the nest placed conveniently atop a pile of seeds within its sleeping chamber.

Unlike other ground-nesting squirrels, least chipmunks do not put on a thick layer of fat, nor do they sleep the deep sleep of true hibernation. Instead, they plug the entrance to their sleeping chambers in early October, curl up on their haunches, and toss their tails over their heads. Then they drift into a state of torpor, or deep sleep. Although their metabolic rate drops, they arouse periodically to feed on stored food supplies. In mild weather, they may even emerge from their burrows for a scamper in the snow.

Lively mating chases announce the onset of breeding soon after chipmunks emerge from their winter quarters in April or May. Thirty days after mating, an average of five blind and naked young are born in each litter. After only five weeks of rapid growth, the young chipmunks start to explore the world beyond their mothers' burrows. They are weaned in early August, with less than half of those born surviving to see summer's end. Those that do may live two to five years.

Awake after sunrise and asleep before sunset, the least chipmunk spends most of its in a hectic search for the seeds of berries, rosehips and many grasses, sedges and weeds. Living up to its scientific name of *Eutamias*, meaning "a good steward," the chipmunk may store up to 3700 blueberry seeds alone. It also consumes beetles and eggs, larvae, and caterpillars of a variety of invertebrates, as well as the occasional bird's egg or nestling.

At rest, sun-loving chipmunks sit on rocks or logs and soak up rays. When active, they creep along with level tails or race with tails straight up. Always alert, they're quick to announce the presence of their many predators -- hawks, owls, and every mammalian carnivore from weasel to grizzly bear.

Home ranges of Yukon chipmunks vary in size from one to ten hectares, and may overlap with those of as many as 15 or more other chipmunks. Although these chipmunks may have burrows within 15 metres of each other, they usually get along peacefully simply by avoiding each other. All of them use seasonally abundant food sources present in first one part, then another, of the group's shared area. If intruders should appear in this area, the normally peaceful chipmunks will fight with and chase out the interlopers.

## VIEWING OPPORTUNITIES

Shy by nature, least chipmunks become bold when accustomed to people. To the annoyance of some, they raid storage sheds and campsites. Most people, though, find these spunky seed-gatherers hard to resist and enjoy their lively antics.

Some sure chipmunk signs are little piles of fruit pulp, opened dandelion heads, or dismembered grass seed heads on rocks, stumps, logs, or ground.

Look for the least chipmunk itself darting about under shrubs and around logs, or hitting it across roads and highways. Listen for its hard-to-locate rasping, chattering chirping sounds. Then look for a tail twitching in time to the calls to confirm the "chipmunk's" location. If you sit quietly and are patient, it may literally eat out of your hand.

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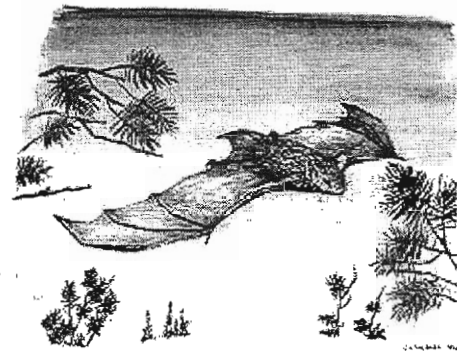
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## Yukon Mammal Series

### LITTLE BROWN BAT

#### THE SPECIES: Myotis lucifugus

Under the weak light of a new moon, a little brown bat flies low over the shoreline of Kathleen Lake. The bat scans the air with a slow series of squeaks, listening for the echo to reveal a moth or flying beetle in its path. When a squeak finally bounces back, the bat emits a rapid series of sounds and quickly homes in on the insect. In one quick motion, the bat folds its wing-to-tail membranes forward to form a pouch, scoops the moth from the air, then dips its head and eats the insect.



#### DISTRIBUTION

Ranging from the east coast to the west, and from the Mexican border to Alaska, the little brown bat is the most widely distributed bat in North America.

A migratory species, it arrives in the southern Yukon in early June and commonly reaches as far north as Dawson City. It is believed that some lone males may venture north of the tree line where they are able to survive the summer. But when autumn arrives, having ventured too far from their winter hibernation sites, they expire.

Maternal colonies use the same attics, abandoned buildings, culverts or hollow logs year after year. These sites are usually located close to water where abundant supplies of insects are available. On the Liard drainage of northern British Columbia, about 100 km from the Yukon border, an unusual colony of little brown bats is known to use a hotspring-heated cave as a maternal colony site.

By late August, most little brown bats have left the Yukon. Although it has not been confirmed, biologists believe that Yukon bats probably spend the winter in snug hibernation sites on the Alaskan coast.

#### CHARACTERISTICS

In southern bat populations, females and males are the same size. But an Alberta study revealed that among northern populations, females are larger than males. This is explained by the fact that northern bats are born larger than southern bats, which gives

them a head start in preparing for their first winter. To give birth to a larger offspring female must be larger herself.

Although the bat is not the most physically attractive Yukon mammal, its body is wonderfully adapted to flight. The digits, or finger bones, have become long and hollow to support the wings with maximum strength and minimum weight. The thin membrane that forms the wing is continuous between the forelimbs, the hind limbs and the tail, providing enough surface area to lift a body weight averaging nine grams.

Bats need a height advantage to become airborne, which is one reason why they hang upside down. From this position, all they have to do is release their grip, dive into a swoop and fly away into the night.

By feeding at dusk and throughout the night, a bat avoids competition with insect-eating birds and escapes predation from all birds of prey except owls. But, unlike the owl, the bat does not have a highly developed sense of sight. Instead, it relies on echolocation, or bat radar, to navigate and to locate insect food. In flight, the bat emits a continuous series of sounds that bounce off nearby objects and back to the bat's sensitive ears. Although unique among land mammals, this ability is shared with dolphins and a few other sea mammals.

An important characteristic of the bat is its low rate of metabolism. Most mammals of similar size, such as shrews and voles, have rapid heartbeats and short life spans. But the heartbeat of the little brown bat slows dramatically whenever it is inactive, which is most of the time. This bat hibernates for as long as eight months during the winter, sleeps all day in the summer, and takes frequent rest breaks throughout its nighttime feeding period. With this "take it easy" lifestyle, it is no surprise that little brown bats can live as long as 30 years.

## **A YEAR IN THE LIFE**

Responding to the changing temperatures of spring, female bats are the first to emerge from the hibernation cave, mine shaft or building. The females ovulate, or release their eggs, as soon as they rouse from their winter sleep. If they mated the previous fall, their pregnancy finally begins. In a unique form of reproduction, the male's sperm survives in the female's uterus throughout the winter, waiting up to six months to fertilize an egg.

As soon as they emerge, females begin their migration to the summer maternal colony site. Following the broad river valleys, they fly several hundred kilometres from the Alaskan coast and arrive in the Yukon, at their familiar colony sites, in early June. Located in caves, buildings, culverts or hollow trees, the colonies are found near water bodies that support abundant insects.

A maternal colony contains anywhere from 30 to 1,000 bats, but no adult males. The males roost apart from the colony, singly or in small groups under tree bark, behind house shutters or in other hiding places.

About one hour after sunset, little brown bats awaken and fly to their feeding areas that are usually within three or four kilometres of the colony site. Although these bats sometimes feed over land, in the insect canopy just above the tree tops, they more commonly feed on the aquatic insect blooms that are found over water. The bats eat a variety of insects -- moths, flying beetles, mosquitoes -- switching from one species to another as their abundance varies.

It has been calculated that a colony of 100 bats will consume 19 kg (42 lb.) of insect over the course of four months of summer activity. Most feeding occurs along the shorelines of lakes within two metres of the water surface. Insects are captured in the air or plucked from the water. Shorelines are favoured because insect blooms are often found in the quiet air along the lee shore.

Bats pause to roost two or three times during their night of foraging. They roost more frequently and longer when temperatures are below 10 degrees C. Below 5 degrees they may roost through the entire night.

It is thought that roosting allows the bats to digest their food before returning for another stomach-full. Males roost singly in trees, but pregnant females return to sheltered nooks and crannies where they can cluster together for warmth. A high body temperature speeds gestation, and the earlier the young are born, the better chance they have to survive their first winter.

Most births occur in late June or early July. When a birth is about to take place, the female changes its normal head-down position and hangs from its thumbs. The newborn bat emerges tail first, drops into the same membrane-formed pouch that scoops insects, then climbs up its mother's body to nurse. For two or three days, the new mother flies on her nightly feeding forays with the young clinging to her underside. Later, the young remain together in their communal nursery while their mothers forage.

In late August, the bats prepare to migrate to their hibernation sites. Hundreds or even thousands of bats may swarm around the entrance to the maternal colony before the migration begins. The same hibernation sites are used every year. They are characterized by temperatures a degree or two above freezing and a constant humidity. Although bats may rouse to change position or to drink during the winter, they do not eat, but instead survive on stored body fat.

Before settling in for the winter, the bats mate in the hibernation cave. Mating successfully occurs between active males and active or dormant females.

## BATS AND PEOPLE

The bat is one of the few mammals that has prospered as a result of human settlement. It is thought that bat populations are limited by the availability of suitable colony and hibernation sites. Today, buildings, mine shafts and other human workings are heavily used. If a building is still in use, the odours and stains of bat guano can be a problem. To get rid of the bats, wait until they leave for the night or for the season, then block all openings to the site. A little brown bat can enter a hole as small as 1.6 x 2.2 cm.

## VIEWING OPPORTUNITIES

Bats will be found near water bodies where insects are abundant. Like their insect prey, the bats will be most active above 10 degrees C and almost totally inactive below 5 degrees C.

If, at dusk, you spot bats making feeding passes over a certain lake or river, remember that the maternal colony is likely within four kilometres of your location. Good luck finding it.

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## Yukon Mammal Series

### HOARY MARMOT

#### The SPECIES: Marmota caligata

Long and shrill, an alarm whistle pierces the crisp silence of the high mountain valley. The source of the sound stands on an outcrop of bedrock, watching the grizzly shuffling along the open creek bed below. The marmot feels little threat from the distant grizzly but, just the same, it carries out its role as sentinel of the mountains, triggering alarm calls from other marmots, pikas and mountain-dwelling Arctic ground squirrels. As the bear passes out of sight, the quiet returns once more and the marmot slips down over the slope to feed on lush, alpine greenery.



#### DISTRIBUTION

Wherever there are mountains with rocky talus slopes and lush green tundra vegetation hoary marmots are a possibility. Add to this a large chunk of northwestern North America -- from the Rockies (north from Montana and Idaho) to the Pacific coast of British Columbia and Alaska -- and chances of finding hoary marmots increase.

Yukon distribution is a bit more spotty. Hoary marmots are known to span the mountainous territory from the MacKenzie mountains west to Alaska. Northward distribution is more uncertain, although they are common as far north as the Ogilvie mountains. Believed to have survived continental glaciation in mountains to the south of the ice sheet, hoary marmots are probably still expanding their range northward.

Another species, the Alaska marmot (Marmota broweri), may exist in the British and Richardson mountains of the north Yukon. This darker marmot is known from the Brooks Range of northern Alaska and has been found in the mountains south of Kaktovik -- almost to the Alaska-Yukon border. It is closely related to marmots of the Kamchatka Peninsula and survived the Ice Age in Beringia -- the northern refugium. Perhaps, in the not too distant future, the range of this marmot and the hoary marmot will come together as hoary marmots expand their range northward.

South-facing mountainsides are the preferred habitat of the hoary marmot. These sites must contain outcrops and boulder-strewn slopes intermixed with rich tundra meadow. Here, at the base of such slopes, with numerous crevices leading to underground

burrows, colonies of hoary marmots live in relative peace and security.

## CHARACTERISTICS

Grizzled grey, black and brown, the hoary marmot reminds one of a huge, old grouse squirrel. It is, in fact, a member of the squirrel family, laying claim to being the largest of that group. About the size of a house cat, an adult Yukon hoary marmot may weigh 3.5 kg and reach a length of 50 cm, including its 20 cm bushy tail.

In many ways, it has similar features to those of the ground squirrels. It hibernates; feeds on soft, new, green vegetation; and is quite social, living in small family groups known as colonies. Hoary marmots even live in the company of arctic ground squirrels sharing habitat and food supply with these and other mountain creatures.

## LIVING HIGH ON THE ROCKS

Active life for a Yukon hoary marmot covers a very short period of only four months per year. During the remaining eight months, it is curled up and hibernating with its family while blizzards and -40 temperatures assail the slopes. Locked into their den deep beneath the surface by a plug of frozen soil and debris, the family will not emerge until the warmth of early May. Then, after the seal thaws, activity begins.

Out of the hibernation burrow come the mother, father, plus the young of last year and their brothers and sisters of the previous two years. In all, there may be as many as 15 members of the colony. And within a month or less, there may be an additional two to five new members -- the result of mating that took place near the end of hibernation.

The daily round of life for most of the summer will consist of feeding, lazing in the sun, watching out for predators, and playing.

Although there may be many colonies in the area, members of one colony will seldom venture into the others' territory. Instead, members of a colony share a plot of about nine hectares, which the dominant male marks by rubbing a secretion from facial glands on boundary rocks and burrows.

There is little strife within the colony or with other colonies, although the older, dispersing two and three-year-olds may have the occasional fight. More often, hoary marmots feed and play together, searching out their preferred diet of vetches, grasses and sedges. They have favorite patches where these foods are in greater abundance and will spend much of the warmer part of the day feeding, then resting on a sun-warmed rock.

If, however, the day is calm and too hot, members of the colony will retire to the cool, mosquito-free, darkness of the burrow. Otherwise, there is a strong chance of overheating. Marmots, besides having a thick coat of fur that readily absorbs solar energy, have no sweat glands and cannot pant to dissipate body heat. As a result, their body temperature increases with the external air temperature. Add to this the extra insulation as body fat increases and it is obvious that hot summer days are not well tolerated. Hoary marmots are known to stay underground for many days to escape the weather.

Cool, sunny days with strong breezes are marmot days. It is during these periods, when there is abundant time for feeding and resting, that play is another feature of life. Chasing, jumping around on stiff legs, or "boxing", with faces pointing skyward are a few of

behaviors thought to be play activities. But things can change quickly with the arrival of a golden eagle, fox, wolverine, or human.

Alarm calls ring out across the basin, and the marmots run for refuge burrows located near their feeding areas. By the type of call, they know whether the predator is an eagle or a bear and whether it is close or far away. If close, the marmot disappears like a ghost, silently dropping from sight into the burrow. If sufficiently alarmed, it may not reappear for an hour or more.

## MARMOTS AND PEOPLE

Hunted occasionally by early peoples of the Yukon and Alaska, marmots seldom have to worry about the human predator. Where this did happen to any extent, hoary marmots became extremely wary. Warning whistles may be reduced to the point where the marmot simply disappears into its den without a sound.

Today hoary marmots are protected from being hunted in the Yukon, except by First Nations people. As always, they are a source of pleasant surprise to avid hikers of the 'high country'.

## VIEWING OPPORTUNITIES

The hoary marmot is not an abundant animal and the first sign of its presence is not usually a sighting. Sound -- a loud, long, steady whistle -- is normally the way one finds this "old man of the mountains". Once you sort out the echoes from the real source of the sound, a good pair of binoculars may lead your eyes to the silhouette of a rocky ledge.

But watch closely and approach slowly. Otherwise the hoary marmot will disappear from front of your eyes. With luck and care, you may approach to within a few metres of a trusting marmot -- close enough for a good photo using a telephoto lens.

Roads that cross such regions, such as the Top of the World, Dempster, and Haines highways provide a reasonable chance for a sighting. But, unless a marmot pops up nearby, you will likely have to listen and search in ideal habitat before this wary, well-camouflaged mountain-dweller shows itself.

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