

EUROPEAN WILDCAT

GROUP 1: MAMMALS

ORDER
Carnivora

FAMILY
Felidae

GENUS & SPECIES
Felis sylvestris



The European wildcat looks similar to a pet cat, but it is one of the fiercest of all animals. Like most of its cat relatives, the wildcat is a highly efficient hunter.

KEY FACTS



SIZES
Length: 18-28 in.
Weight: 8-22 lb. Female lighter.



BREEDING
Sexual maturity: 1 year.
Mating: Late February to early March.
Gestation: 63-69 days.
Litter size: 1-8 kittens, but usually 4.



LIFESTYLE
Habit: Usually solitary. Nocturnal.
Call: Purrs, howls, and meows like its relative, the domestic cat.
Diet: Small rodents such as mice; also hares, rabbits, birds, and insects.
Lifespan: About 12 years.



RELATED SPECIES
There are 30 species of cat in the genus *Felis*, which also includes the domestic cat.



Range of the European wildcat.

DISTRIBUTION

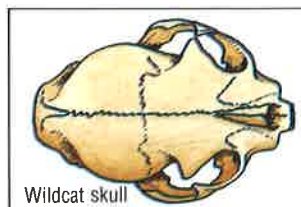
Scotland, Spain, Germany, Poland, and parts of southern Europe.

CONSERVATION

The European wildcat population is increasing after years of attempted extermination by man, and the animals are re-colonizing their former habitats.

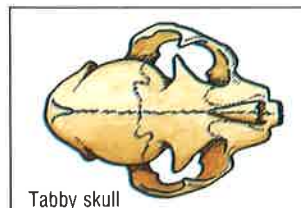
COMPARISON OF A WILDCAT WITH A DOMESTIC TABBY CAT

The domestic tabby cat is the animal that most closely resembles the wildcat. But the wildcat's head is heavier and broader than the tabby's. Its ears often project horizontally, rather than vertically, as the tabby's do. The wildcat's fur is darkest on its back and cream colored on its belly. Four or five dark stripes run from the forehead to the nape of the neck, where they merge into a line.



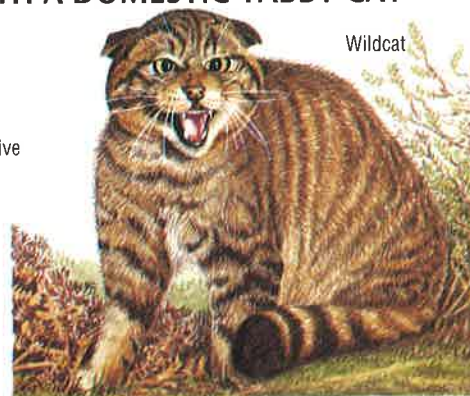
Wildcat skull

The wildcat's tail accounts for almost half its length and is shorter than a tabby cat's. It has thick, black bands and a blunt-looking tip.



Tabby skull

The domestic tabby is a third smaller than the wildcat and has a longer, thinner tail. It is far less shy than the wildcat.



Wildcat



Tabby



The European wildcat is an ancestor of the domestic cat. Its numbers are increasing slowly in many areas after a century of persecution.

HABITAT

The European wildcat is very adaptable and can survive in a variety of habitats. In Scotland wildcats inhabit moors and woodland but prefer hilly areas for hunting.

Rocky outcrops in forests

throughout Europe provide refuge for most wildcats. In southern Europe the wildcat lives among scrub brush; in central Europe it lives in *coniferous* (cone-bearing) forests of spruce, fir, and cedar.

DID YOU KNOW?

- The Egyptians domesticated the African wildcat to protect their grain stores.
- Small cats like the wildcat are unable to roar because of a bone in their larynxes. But they can purr while breathing

- both in and out, which big cats cannot do.
- The wildcat was once found throughout northern Europe. It left during the Middle Ages because of the cooling climate.

BREEDING

Female wildcats are ready to mate in late February or early March. Groups of males howl, screech, and wail throughout the night to attract females.

Once a male has established his dominance over the group, the female rolls on the ground to signal that she is ready to mate with him. Like other cats, the male wildcat bites the female's neck during mating.

Approximately six and a half weeks later the female gives birth in a nest situated among rocks or in a hollow tree.

The mother defends her litter ferociously during the first few weeks of their life. The kittens

open their eyes after 10 days and are quite fierce themselves, spitting, biting, and scratching at intruders. The mother suckles the kittens for a month, after which they start leaving the den to play nearby. The male does not help rear the kittens.

At the age of three months the young begin to accompany their mother on hunting trips. By 10 months of age the kittens are almost fully grown, but they do not breed until the next year.

Left & right: Young wildcats mimic all their parents' habits and are just as fierce.



FOOD & HUNTING

Wildcats feed mainly on mice and other small rodents. They also eat larger mammals and prefer to live in areas where ground-nesting birds, rabbits, and hares are common. The European wildcats are not as successful at catching larger prey, but they may kill deer fawns that are too slow to escape.

Wildcats lead solitary lives and hunt alone in areas where food is scarce. Their territories usually contain approximately 250 acres that they mark with feces and urine and by shredding the bark on trees. Wildcats fiercely defend their territories against intruders but do not hesitate to leave when it is time to mate. Where prey is plentiful, wildcats sometimes hunt in groups.

Right: A Scottish wildcat stands guard over a full-grown rabbit it has just killed.



WILDCAT & MAN

Wildcats once ranged throughout Europe. But as forests were cleared to provide wood for homes and industry, their habitats were destroyed, and they were forced to move to more remote areas.

The European wildcat was once considered to be a pest because it preyed on ground-nesting birds that were raised for private hunting. Thousands of wildcats were killed during the 1800s and early 1900s to protect the grouse, partridges, and pheasants that were raised by gamekeepers on hunting estates.

Because the attitude toward wildlife today is one of awareness and sensitivity, the slaughter of the wildcat has completely stopped. It is now seen as an important member of the environment and is protected in many areas.

BOBCAT

CARD 57

GROUP 1: MAMMALS

ORDER
Carnivora

FAMILY
Felidae

GENUS & SPECIES
Felis rufus



Although it is the most common of North America's small wild cats, the solitary bobcat is so well camouflaged that it is rarely seen.

KEY FACTS



SIZES

Length: 25-42 in. Tail, 8 in.
Height: 20-24 in.
Weight: Average, 13-24 lb., but as much as 40 lb.



BREEDING

Sexual maturity: 1 year. Males mate in their second year.
Mating season: November to January. Females thought to give birth every other year.
Gestation: 60-63 days.
No. of young: 1-6, usually 3.



LIFESTYLE

Habit: Solitary and nocturnal.
Diet: Carnivorous; mainly rabbits and hares; also rodents, sheep, deer, and birds.
Lifespan: Over 30 years in captivity.



RELATED SPECIES

28 other small *Felis* species around the world, including the domestic cat, *Felis domesticus*.



Range of the bobcat.

DISTRIBUTION

Found extensively throughout North America from southern Canada to southern Mexico.

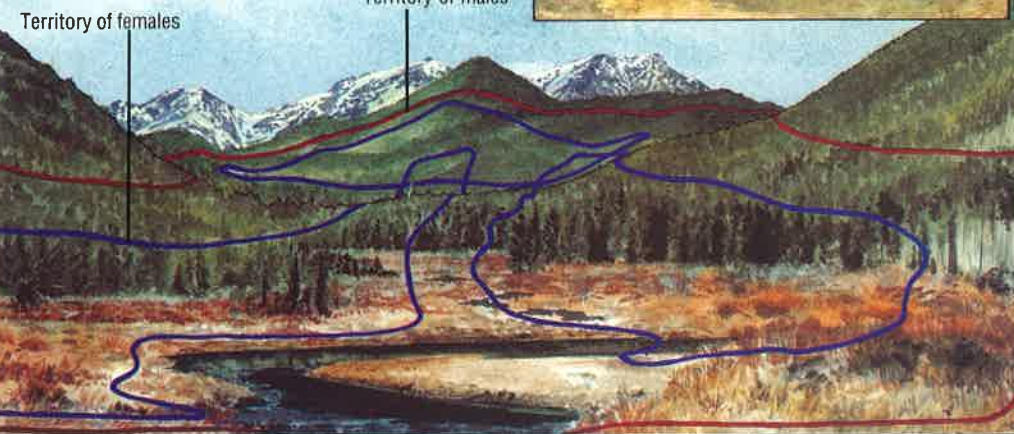
CONSERVATION

Most common wildcat in the United States. Hunted for sport and trapped for its fur, particularly in northern part of range. A subspecies in Mexico, *F. rufus escuinapae*, is listed as endangered.

THE TERRITORIAL BOBCAT

Male bobcats may defend territories of up to 40 square miles, although they may share common boundaries with those of other males. Females defend areas about half the size of the males' and never share boundaries. Two or three females may live within the territory of a single male, who will mate with them all.

A male bobcat which fathers three litters in his territory will be responsible for the feeding of as many as 18 kittens.





S. Krasemann/HPA

The adaptable bobcat is found in a variety of habitats, from mountain ranges to prairies and from subtropical swamps to deserts. The only place where it does not thrive is open, treeless grassland, where there is no cover for hunting.

FOOD & HUNTING
 Rabbits and hares make up two-thirds of the bobcat's diet. The remainder consists of squirrels and mice. Bobcats sometimes prey on deer, domestic sheep and goats, and an occasional cat or dog. The bobcat creeps up on its prey until it is close enough to pounce on and kill the animal. The bobcat is very strong for its size and kills its larger prey by biting and clawing at the base of the skull. During a night-long hunt, a male bobcat may travel as far as 25 miles to find prey.



Left: *The bobcat is about the size of a retriever dog. It hunts mainly rabbits and hares. Its reddish brown coat is typically striped and spotted with black. Its coat provides excellent camouflage.*
 S. Krasemann/Bruce Coleman

DID YOU KNOW?

- The bobcat gets its name from its stumpy tail.
- A bobcat is likely to be seen during the day only in the winter when food is scarce.
- Bobcats are good swimmers, but they rarely go into the water. Still, on hot days, they sometimes sit in pools of water to keep cool.
- The further north bobcats live, the bigger they grow; the largest are found in Canada. Bobcat kittens can be reared to be tame, if boisterous, pets.

HABITS
 Although the bobcat is a nocturnal hunter, it is also active at dawn and dusk. In the northern part of its range, it will even hunt by day in the winter if food is scarce.

The bobcat is extremely territorial and marks its boundaries with urine and droppings, as well as by digging up the ground. A male can tell from a female's urine when she is ready to mate. Mothers with young are extremely aggressive.

Right: *Bobcats rest by day in hollow trees or small caves.*



J. P. Varrin/Jacana

BREEDING
 Mating takes place in the winter and the male mates with all the females that share his territory. The blind and helpless young are born in early spring. At this time, the female drives the male away from the den, although he usually remains in the area. The kittens' eyes open after a week, but they continue to suckle for eight weeks. Once the kittens can eat solid food, the female allows the male to return to the den. Male bobcats are unusual among cat species because they bring food to both the mother and kittens. As the kittens grow, the whole family travels throughout the female's territory, living in a number of different dens. When the kittens are five months old, they learn to hunt from their mother. At this time, the male loses interest in the kittens and he returns to his own territory. The young stay with their mother for six to nine months, or until the next breeding season. They then find territories of their own.

Right: *The young are born in a cozy den lined with moss and leaves. These kittens are only a week old and have just opened their eyes.*



NORTHERN FUR SEAL

CARD 60

GROUP 1: MAMMALS

ORDER
Pinnipedia

FAMILY
Otariidae

GENUS & SPECIES
Callorhinus ursinus



The northern fur seal is the most common of the fur seals and is closely related to the sea lion. It is one of the three species of fur seal still hunted for its fur.

KEY FACTS



SIZES

Length: Male, up to 7 ft. Female, up to 5 ft.
Weight: Male, 400-600 lb. Female, 65-110 lb.



BREEDING

Sexual maturity: Male, 5 years. Female, 3 years.
Mating: June and July.
Gestation: 1 year.
No. of young: 1.



LIFESTYLE

Habit: Females and young are migratory; males remain in well-guarded territories. Male and female seals live separately.
Call: Harsh, purring sound.
Diet: Mainly fish.
Lifespan: About 20 years.



RELATED SPECIES

There are 7 species of fur seal, of which 6 live in the southern hemisphere.



Range of the northern fur seal.

DISTRIBUTION

Mainly Pribilof and Commander Islands in the Bering Sea, but small populations are found on islands in the sea of Okhotsk and off California.

CONSERVATION

Hunting stopped in the United States in 1985, but 9,000 seals a year are still killed in the Soviet Union. Population decline over the last 30 years appears to have leveled off.

CHARACTERISTICS OF THE NORTHERN FUR SEAL



Besides the huge difference in size between the **male** (left) and the **female** (right), the heavier male has a massive neck with especially thick fur. The layer of fatty tissue beneath

the fur helps to conserve heat and streamlines the body for swimming. Both the male and the female northern fur seals live on their blubber during the breeding season.

Because the animals are crowded together at the breeding sites, **newborn** fur seals are often trampled to death by fighting males.



The northern fur seal was discovered off Alaska on the Commander Islands in 1741, and it was later found on the Pribilof Islands in 1786. The huge males weigh up to five times as much as the smaller females and spend most of their time defending their breeding territories.

HABITS

Male and female seals come together only during breeding season. Once they are mature, males never stray far from the breeding area. Females, however, make an annual migration to hunt in waters as far south as California.

Much more agile than true seals (which do not have external ears), the northern fur seal uses its hind flippers to move quickly over short distances. When swimming, true

seals propel themselves through the water almost entirely by their hind flippers, but the fur seal uses both its webbed front flippers as well as its hind flippers.

The northern fur seal's senses are well developed, but how it navigates underwater is still unknown. Scientists believe that it may rely on the taste or smell of various ocean currents for guidance.

BREEDING

In June, male seals, called *bulls*, compete to establish breeding territories before the females, or *cows*, arrive on the beaches. Each bull gradually acquires a harem of up to 40 cows.

Within 48 hours of arriving at the breeding site, each cow gives birth to a single, small, black *pup* that was conceived during the previous year's mating season. Several days later the female mates with a dominant bull and, after suckling her pup for a few days, returns to the sea to hunt.

After three months the pups are weaned, and they accompany the females on their migration south. The males remain in their territories for three months without eating.

Left: A male aggressively defends his breeding territory from other males.

Right: Pups are born headfirst and the entire process takes only 10 minutes.

Right: The huge bull seal plays no part in raising its offspring.

Far right: The seal's thick fur protects it from below-freezing temperatures.



FOOD & HUNTING

The northern fur seal spends most of its life hunting for food in the north Pacific. Its main food is fish, although it also eats squid and crustaceans. Like other seals, the northern fur seal uses its whiskers to catch fish. Each whisker has nerve endings that detect the vibrations made by passing fish.

During the breeding season the females leave their pups regularly to make extended hunting trips. They travel distances of up to a hundred miles and are often gone for seven or eight days. The seals swim, rest, and sleep on the surface of the water until they reach suitable feeding grounds. They hunt mainly at night and can stay submerged for periods of up to seven minutes at a time.



Left: Seals spend most of their lives in water, feeding at night when the fish they prey on swim to the surface. Fishermen claim that seals reduce the salmon population, but examination of the contents of seal stomachs has shown this belief to be unfounded.

FUR SEAL & MAN

By 1834 fur traders had nearly wiped out the Pribilof northern fur seals. Other nations also endangered seals by killing them at sea.

In 1911 the United States, Great Britain, Japan, and the Soviet Union agreed to honor prohibitions outlawing the killing of fur seals at sea and to conduct studies to find ways of preventing further decline.



DID YOU KNOW?

- Male and female seals are so different in size that some naturalists once thought they were different species.
- Fur seals are known to eat 63 species of fish but usually feed on just eight.
- Most seals dive to an average depth of 200 feet, but fur seals dive to 600 feet.
- The female's annual migration to and from the breeding grounds is the longest undertaken by any seal species. The trip can be as far as 6,000 miles.
- One of the main reasons the United States purchased Alaska from the Soviet Union in the 1800s was to obtain the Pribilof Islands fur trade. Revenues paid for the purchase within three years.

IMPALA

CARD 63

GROUP 1: MAMMALS

ORDER
Artiodactyla

FAMILY
Bovidae

GENUS & SPECIES
Aepyceros melampus



With its sleek, tawny coat, large eyes, and curved horns, the male impala is one of the most agile—as well as most common—of all of Africa's antelopes.

KEY FACTS



SIZES
Height to shoulder: 30-40 in.
Length: 55 in.
Length of horns: 20-30 in.
Weight: 100-175 lb.



BREEDING
Sexual maturity: 13 months, but rarely reproduce until 2 years old.
Mating season: Varies with area and climate.
Gestation: 6-7 months.
No. of young: 1.



LIFESTYLE
Habit: Sociable herds.
Diet: Grasses, herbs, and shrubs.
Call: Male roars during mating season.
Lifespan: Up to 12 years in the wild; 17 years in captivity.



RELATED SPECIES
Impala is the only species in the genus. There is a subspecies—the black-faced impala, *Aepyceros melampus petersi*.



■ Range of the impala.

DISTRIBUTION

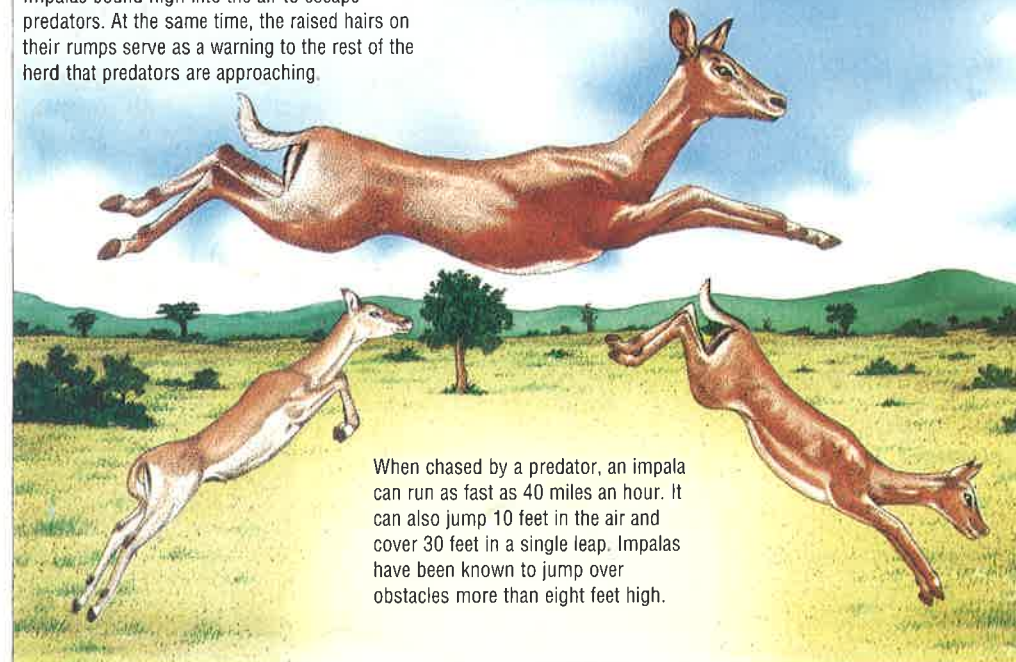
Found over most of southern and eastern Africa. Impalas also live in national parks and reserves.

CONSERVATION

Impalas have disappeared from parts of their southern range because of overhunting by man, but they have been introduced into new areas.

FEATURES OF THE IMPALA

Impalas bound high into the air to escape predators. At the same time, the raised hairs on their rumps serve as a warning to the rest of the herd that predators are approaching.



When chased by a predator, an impala can run as fast as 40 miles an hour. It can also jump 10 feet in the air and cover 30 feet in a single leap. Impalas have been known to jump over obstacles more than eight feet high.



Throughout most of southern and eastern

Africa, impalas live in open forest

country and wooded grasslands.

Only the males sport the long, curved horns,

which are ridged on the front

surface and take several

years to grow.

HABITS

Impalas are sociable animals that travel in herds. Females and young form herds as large as 100 animals, while males live in small bachelor herds. The herds occupy a large range and make seasonal migrations according to the availability of food.

While most males live together peacefully, dominant males may establish their own territories, to which they try to attract females. The most successful males are those whose

territories have abundant food. Other males are tolerated as long as they show no interest in the females.

During the dry season impalas of both sexes and all ages form a single, non-territorial herd to forage for food away from their home ranges.

After the dry season is over the dominant males return to their home ranges. They often must reclaim their territories from rival males.



Right: Young impalas suckle for five or six months.

Below: During mating season male impalas fight off rivals. The loser retires to a bachelor group and the victor takes over the territory.

FOOD & FEEDING

Impalas feed mainly on grasses, but they also eat a wide variety of leaves, fruits, and seeds. The amount they eat of any one food depends on season and location.

In most parts of their range, impalas graze the new protein-rich grasses that flourish during the rainy season. When the grasses die during periods of drought, the animals browse on bushes, herbs, and shrubs.

Because predators often lie in wait near water holes at dusk, impalas drink during the hottest part of the day, when lions are likely to be asleep.

Right: A male impala grazes on protein-rich grass. All impalas have black-tipped ears and black stripes on their rumps and tails.



BREEDING

The principal mating season is April through June in the southernmost part of the impala's range, and from February to April in East Africa.

Males do not search for females; instead, they mate with those that wander into their territories. When a

female is ready to give birth, she seeks a secluded spot away from the herd. After the birth, she and her calf remain separate from the group for several days.

When the female rejoins the herd, her calf joins a large group of calves that are

similar in age.

Females are not usually sexually mature until they are two years old. A male is unlikely to win his own territory, or females, until he is four years old, even though he is sexually mature at one year.



DID YOU KNOW?

- The male impala's horns take many years to reach full length.
- Most young impalas are born in the middle of the day, when predators are usually resting.
- Impalas are preyed upon by lions, leopards, and cheetahs, so they are constantly on the alert for danger.
- The male impala produces a scent from his forehead. The greater his rank in the herd, the stronger the scent. When a male loses his rank, he produces less scent.
- In addition to leaping forward, impalas can also jump straight up and turn in midair.
- Living in herds helps to protect impalas from predators. If the herd is attacked, the impalas scatter in all directions.

NORWEGIAN LEMMING

CARD 65

GROUP 1: MAMMALS

ORDER
Rodentia

FAMILY
Cricetidae

GENUS & SPECIES
Lemmus lemmus



The lemming resembles a mouse but has a short tail and fur-covered feet. The rodent is the most numerous animal in its habitat and is a source of food for many predators.

KEY FACTS



SIZES
Length: 4-6 in.
Weight: 1-4 oz.



BREEDING
Sexual maturity: Can be as young as 14 days in females.
Mating: Year-round in favorable conditions.
Gestation: 16-21 days.
No. of young: Up to 12. May have 3 or more litters a year.



LIFESTYLE
Habit: Solitary. Sociable when moving to new feeding areas.
Diet: A variety of plant matter.
Lifespan: Rarely more than 2 years.



RELATED SPECIES
There are 12 species of lemming, grouped in 4 genera, living throughout cold regions in the northern hemisphere.



Range of the Norwegian lemming.

DISTRIBUTION

The Norwegian lemming is confined to the northern alpine and tundra areas of Scandinavia and the Soviet Union.

CONSERVATION

The lemming is in no danger of extinction. Population is controlled by predators and by the lemming's self-regulating mechanism that reduces reproduction when conditions are unfavorable.

THE LEMMING'S MIGRATION

As the lemming population increases there is more competition for available food resources. Every few years the lemmings are forced to either migrate to new habitats or die of starvation. They travel in huge groups, heading downhill from the tundra. They are so desperate to find food that little deters them from moving forward.



Lemmings may travel long distances to find new feeding grounds, and many die on the journey.

When their population levels become too high lemmings undertake mass migrations to find new feeding grounds.

Many drown while trying to cross the sea.

In the year 1532 it was believed that the lemmings were committing suicide.

HABITAT

The Norwegian lemming lives 3,250 feet above sea level in the open, swampy flatlands of the *tundra* (arctic plain). In summer it burrows under tree stumps, fallen tree trunks, or rocks, where it digs a short tunnel and a small chamber that it lines with grass.

In winter the lemming

retreats to a meadow, where it builds a dry, rounded nest of grass that it lines with moss and lichen. The nest is located on the ground under the snow or in the branches of a small, snow-covered shrub. In the spring thaw, when its nest in the meadow becomes flooded, the lemming moves

DID YOU KNOW?

- The first known account of the lemmings' mass migration is from the year 1532. At that time people believed that the lemmings were committing suicide.
- One pair of lemmings kept in captivity produced eight litters in 167 days.
- Contrary to popular belief,

lemmings are not good swimmers. They are easily exhausted and drown within 15 to 25 minutes of entering the water.

- The lemmings' waterproof fur is essential to its survival in the cold northern climate.
- Females can become pregnant at 14 days of age.



to higher ground.

In fall the lemming travels from its summer to winter quarters and lives temporarily in woody marshes.

Below: In winter, when the ground is covered with snow, the lemming lives in a dry, underground nest.

FOOD & FEEDING

The lemming eats the tender shoots of grasses and other grasslike plants, as well as bark, leaves, berries, moss, and lichens. Even when the ground is covered with snow, the lemming feeds by digging tunnels to reach vegetation that is buried under the snow.

The lemming searches for food day and night, alternately feeding and resting every two hours.

Below: A lemming feeds on grasses and other ground vegetation.



Above: The lemming's teeth are sharp enough to chew bark.

PREDATORS

The Norwegian lemming is the most plentiful of all the plant-eating animals in its habitat. It is an important part of the food chain and is itself food for many predators. Birds such as skua, snowy and great gray owls, buzzards, gyrfalcons, and gulls, and mammals such as wolves, bears, wolverines, ermines, and foxes all prey on the lemming.

BREEDING

The lemming can produce a litter as large as 12 young every month, year-round. Females from the first and second litters often breed within a few weeks of being born.

Lemmings are born blind. But they mature quickly and need only a short period of maternal care. The female nurses the newborn for 16 days, after which they can

BEHAVIOR

Norwegian lemmings make two kinds of migration: seasonal and periodic. Their seasonal migrations between summer and winter quarters cover only short distances. But their periodic migrations take them great distances to much lower altitudes than the tundra.

Every three to four years the lemming population becomes too large for the available food resources. Many lemmings are forced to migrate in search of food. The usually solitary lemmings become part of a mass migration.

When lemmings migrate they do not travel to a specific destination. They are simply moving away from their crowded feeding grounds in search of new ones. They sometimes follow paths and roads that lead them directly through areas of human habitation. The lemmings show little fear of people.

Many lemmings die during the migration from disease, starvation, accident, drowning, and attack from predators. While they are moving in such large numbers, the lemmings make easy prey for their predators. Thus, the periodic migration helps to control the lemmings' numbers.

fend for themselves. When food is scarce, or when lemmings are forced to migrate to new feeding areas, their reproductive capacity automatically slows down.

