



# LYNXES

Tufted ears and short tails are the hallmarks of the lynxes — a group of wild cats with superb hunting abilities

By E. Otto Höhn

Cats, from the wild cat of Eurasia (the probable ancestor of the domestic cat) to the jaguar, lion, and tiger, form a group of very diverse, yet evidently closely-related animals. Among this array, the lynxes form a sub-unit of medium-sized, short-tailed, long-legged cats with prominent ear tufts and long cheek hairs or side whiskers. This facial

*Left: The Canada lynx is found in the northern forests of North America, where it hunts (usually alone and at night) for hares, lemmings, mice, and grouse. Photo by Charles Ott. Above: The bobcat has a more southerly range than the lynx in America, and is found in a greater variety of habitats — it is at home in woods, thickets, swamps, deserts, and hilly country. Photo by James Simon*

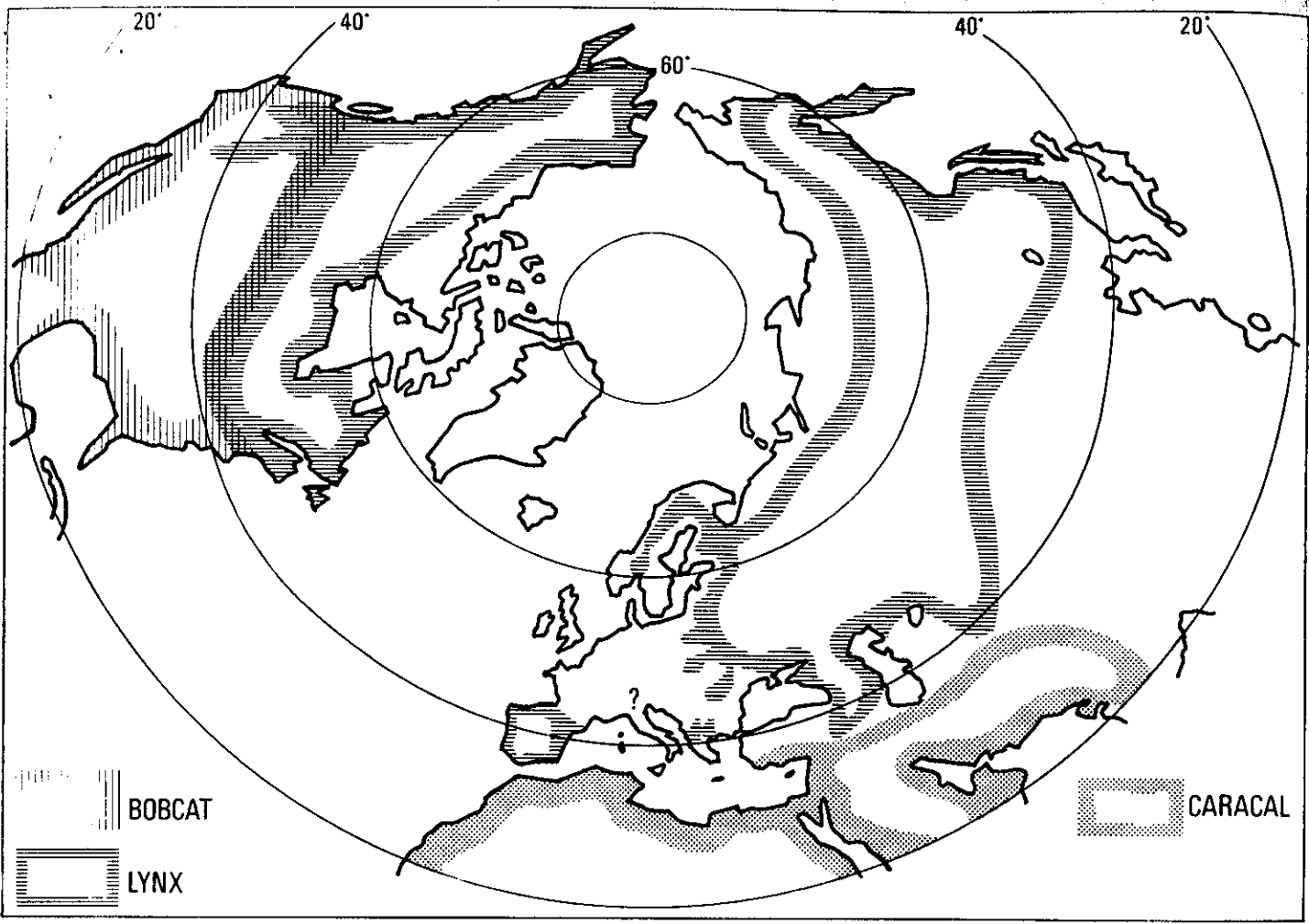
ruff, together with the pointed ears, gives the animal's face a very distinctive, at times almost Mephistophelian aspect.

The lynxes proper, animals of the boreal and temperate zones, show all these features. Their close relative, the caracal, a desert animal of more southern distribution, has shorter hair and lacks the facial ruff.

Not all zoologists agree as to the number of species of lynx which should be recognised. In matters of this sort, there are always two schools of thought: the lumpers and the splitters. The lumpers, making full allowance for the great range of individual animal variation, set their boundaries wide. To them, the brown bear of Eurasia, the North American grizzly, and the big brown bear of Alaska, are all forms of one species (personally I think they are right). An extreme of the other school,

that of the splitters, is exemplified by a 19th-century American zoologist who described over fifty different 'species' of grizzly bears, some of them I believe on the basis of a single skull. To the more reasonable modern splitters, each of the three types of bear named above forms a full species.

To the lumpers, the lynxes of Europe, northern Asia, and northern North America (the Canada lynx) form but one species. Even though colour differences between typical examples from each population can be striking (as when comparing the vividly spotted Pardel lynx of Spain and the Balkans to the paler lynx of northern Europe), these variations are rated as being merely those of different subspecies. Splitters, on the other hand, recognise three species: the Pardel lynx, the northern lynx of Eurasia, and the



**Lynxes of the world. Map shows the extent of the range of lynx, bobcat, and caracal (northern range only)**

**Canada lynx of North America.**

Both schools agree that North America has a second, more southern, and rather smaller species of lynx, the bobcat. When seen in the wild it can really only be distinguished from the lynx by the colour of the tail (the tip of the tail in the bobcat is black above and white below, in the lynx it is black both above and below); but it also has much narrower footpads and a rather different skull.

Moreover, (and this is what clinches the matter), where the ranges of the two animals overlap roughly along the US/Canadian border, intermediate forms are *not* found: in other words, bobcat and lynx do not interbreed. But although unquestionably distinct, the two animals lead very similar lives, and such differences as there are, for example in food, habitat, and variability of population numbers, are mainly due to the difference in latitude of their ranges.

Lynxes and bobcats are extremely secretive. Even in districts where it is not uncommon to find its tracks in the snow, a wild lynx is rarely seen. This is partly because the animals are largely nocturnal, restricting their activities to the hours of darkness and the twilight

**LYNX *Felis (Lynx) lynx***

**Range:** Europe, northern Asia, and northern North America  
**Habitat:** Typically the northern coniferous forests or taiga, but southern races also inhabit deciduous woodlands and even fairly open scrub country  
**Food:** Generally medium-sized mammals such as hares and rabbits, but ranging from mice up to deer; also birds up to the size of grouse or duck  
**Status:** The lynx once ranged through all the northern forests of the world. By the beginning of this century the main race or subspecies, the northern lynx (*Felis lynx lynx*), had disappeared from central and continental western Europe, but it survived in Scandinavia and north Russia. It has made some recovery since the Second World War, especially in the western parts of its European range. The range continues across northern Asia as far as the Pacific coast, and in this region it is probably as numerous as ever. The Spanish or Pardel lynx (*F.L. pardina*) of Spain and the Balkans is very much in need of protection. The Canada lynx (*F.L. canadensis*) of northern North America is still numerous, apart from the few densely populated areas

**BOBCAT *Felis (Lynx) rufa***

**Range:** North America from just north of the US/Canada border, south to Mexico  
**Habitat:** Almost any type of country which offers some cover, from magnolia forests in the south-eastern United States, to the deserts in the south-west where rocks provide the cover  
**Food:** Small to medium-sized mammals such as rodents, rabbits and hares; occasionally larger mammals, birds, and other animals  
**Status:** The bobcat has adapted well to the settlement of the United States, and is still widespread and fairly common

**CARACAL**

***Felis (Caracal) caracal***

**Range:** From Africa (except for equatorial forests) to Arabia, Afghanistan, and India  
**Habitat:** Desert, semi-desert, and scrub-covered savannah  
**Food:** Small and medium-sized mammals up to the size of small antelope, also birds and reptiles; caracals take more bird prey than do the other lynxes  
**Status:** Although much of the caracal's habitat is of little appeal to man, it is becoming scarce over much of its range, particularly in Asia

*Right: Apart from its striking facial markings, the caracal lynx is a uniform sandy or brown colour, lacking spots. It also lacks the facial ruff of the other species – but has the prominent ear tufts and the short tail*

KENNETH FINK

of dawn and dusk; and partly because when prowling about, they are very much on the alert. Their acute vision and hearing give them plenty of warning of a person's approach, enabling them simply to hide where they are by crouching down, or to withdraw into cover if necessary.

The visual power of these animals justifies the expression 'lynx-eyed', as shown by some fairly recent experiments conducted in Germany on lynxes reared in captivity. They could spot a buzzard in flight up to nearly two miles away, and when a stuffed brown hare was moved on a background of snow by pulling a string, they would notice it up to 325 yards away (but they could detect a white stuffed rabbit on snow only up to about 26 yards). Incidentally, the hearing of the young lynxes was also better than that of humans or even average dogs. The lynxes reacted to a police whistle up to 2.8 miles away, while a dog could hear the whistle only up to 1.8 miles and a human up to 1.5 miles away.

It seems unbelievable that a bobcat or lynx, weighing at the most 30 to 60 pounds (Old World lynxes reach greater weights than those of North America), can kill full-grown deer of small species such as the roe in Eurasia, or individuals up to 100 pounds in weight of larger species such as the white-tailed deer of North America. Lynxes may also kill the young of red deer, chamois, caribou, and, as is reported from Scandinavia, young elk. On rare occasions domestic animals are killed, including sheep, goats, calves, young pigs, and (very occasionally) foals.

Predation on deer and other wild ungulates is unusual in the sense that these animals form only a small proportion of the total annual diet of either the lynx or the bobcat; but appreciable numbers of deer are killed when other easier prey, such as rabbits and hares, is scarce. (European lynxes also take a fair number of roes and the young of other deer.) In the case of the bobcat at least, it seems that individual animals which have become successful at killing larger prey then 'specialise' in such prey. And it was for this reason, when it was felt necessary to protect domestic animals or deer from bobcats in specific areas in the United States, that professional hunters who trapped for individual cats were more effective than were general attempts to reduce the bobcat popula-



tion by means of bounties or indiscriminate trapping.

To understand how these animals can overcome much larger ones, we must recall the transformation which even the domestic cat can undergo when cornered and attacked. Docile pussy becomes a fearsome beast, raging with tooth and claw. There are only a few eye-witness accounts of lynx attacks on deer; but the few there are, plus the larger numbers of reconstructions of the events based on finding the dead deer and the tracks of the predator in the snow (for attacks on large deer are almost all made in winter when other food is scarce) are in good agreement about the techniques used by both lynx and bobcat.

The predator may lie in ambush on an elevated perch and leap, claws out, on to the shoulders of a deer passing below. It attacks immediately with teeth and claws, biting at the throat so that

the large blood vessels of the neck are soon torn and the deer collapses as a result of haemorrhage and shock. The predator's paw grip is generally so firm that it is not dislodged by the deer's frantic leaping, nor is it foiled if the deer flings itself down in an attempt to push the cat off – the cat holds on or, if dislodged, leaps straight back on to its prey.

More often the bobcat or lynx stalks its prey, for example a deer which is feeding or lying down to rest in the snow. It approaches, taking advantage of every bit of cover, in a series of crouching crawls, checking its objective at every pause until it is within about five yards. Then there is a tremendous leap, again aimed at the shoulders of the prey. If it misses the cat gives up, for it is not a swift runner and has no chance of overtaking a startled deer. No doubt a high proportion of lynx and bobcat



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Left: The vividly spotted Spanish or Pardel lynx is a small subspecies rapidly declining in numbers; today it is found in Spain only in the Coto Donana reserve. Photo by L. R. Dawson

Right: Bobcat kittens with prey. Rabbits, hares, and various kinds of rodent — even porcupines — are the main animals eaten by bobcats.

E. WILKINSON/W. MILLER



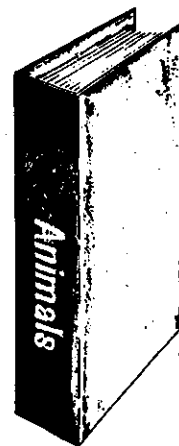
attacks on large prey fail, and occasionally the cat as well as the prey gets fatally injured in the struggle. A doe, which can be formidable with its front hoofs, may rout a bobcat sneaking up on one of its fawns (as has been reported more than once).

Stanley Young, in his book *The Bobcat of North America*, reports an observation made early in the century in West Virginia which illustrates the amazing determination of a bobcat as a predator. The witness saw a female, obviously alarmed, take her two kittens one at a time up into a tree as a half-wild boar, followed by a sow with a litter, entered the forest glade which formed the scene. The boar, seeing the bobcat, rushed at the tree, foaming at the jaws and gnashing its five-inch tusks. Unable to get at the bobcat, it gradually calmed down. Soon both pigs and piglets began to feed at the foot of the tree.

The mother bobcat, which shortly before had saved herself from the boar's imminent attack, now began to inch down the tree and finally sprang at and carried off one of the piglets, being of course immediately pursued by the boar. The chase took the two to the foot of a steep ledge or rock, an obstacle which the bobcat could not overcome with her heavy load. She threw the piglet aside, sprang up the rock wall, and got away from her enemy. The sow and remaining piglets soon left to follow the boar, and not long after this the bobcat returned to the tree and brought her two youngsters down to the ground, carrying them as before in her mouth.

Another interesting report in Stanley Young's book is the killing of 38 lambs in one night by a single bobcat. This is, of course, quite exceptional: in fact it is a record. The relatively small importance of large animals in the bobcat's diet is shown in the following figures, based on the examination of over 3,500 bobcat stomach contents. Remains of various types of prey were found in the following percentages: rodents, including porcupines — 46; hares and rabbits — 45; deer — 3; sheep, goats, and a very few pigs — 2; game birds — 1. In another very large sample, fish, frogs, and reptiles, as well as carrion, formed additional but very minor food items.

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*Right: The northern lynx of Europe and Asia lives in forested regions. One of its main strongholds in Europe is the coniferous forest of Scandinavia*

The lynx in Canada feeds very largely on the snowshoe hare, a small hare superficially like the European rabbit but with a white winter coat. It also takes various species of grouse (particularly the spruce grouse, the chief grouse of the northern coniferous forests of America) as well as lemmings and mice. Ernest Thompson Seton states that the Canada lynx never takes berries or any vegetable matter, but since Young, drawing on much larger stomach content analyses, reports grass, sticks, and berries in 180 out of almost 4,000 bobcats, *never* is not likely to be true for the lynx either.

A minor food item of the Canada lynx is the Arctic fox, and in some areas the red fox. In a fight, lynx always overcomes fox. The fox takes off when approached by a lynx, but leaping along in soft snow, in which it sinks deeply at every jump, it soon becomes exhausted. The lynx, on the other hand, has feet adapted to walking on snow. Its paws are wider than those of a fox or coyote and are even wider than those of the bobcat, which is less well adapted to snow. Moreover, the winter fur on the paws makes them wider still – the hindfoot of the Canada lynx measures five inches across in winter (compared with three inches in summer), so that sinking in the snow is minimised.

When they kill large prey, lynxes and bobcats only consume a small part and cover the rest with snow or earth. Whether they come back and effectively use the rest of the kill is not certain, for in contrast to canine predators, these cats very rarely take carrion, and then only in winter. It is possible that they return to their own kills if they cannot readily find live prey, but while the meat is still fresh.

While a wounded lynx or bobcat can be very dangerous indeed to a hunter trying to take it out of a trap, there have been only four other cases recorded of attacks on humans in the United States. These attacks were by rabid bobcats, and none was fatal to the person involved. Young's book has an interesting photograph of a man in one of the eastern states holding a bobcat he managed to kill with his gloved hands as it jumped on him, wounding him in the cheek.

Robert Hainard's account of European wild mammals relates two instances of an apparently normal lynx attacking a man. But both took place at dusk when the lynx probably mistook the person involved for some other animal. In both cases the attacker jumped away





DICK ROBINSON

probably about fifteen years at best, although they can live longer in captivity.

The ecological relationship between lynxes and their prey is of great interest. Every attack a lynx makes is a gamble; it is most likely to succeed when the prey is not quite up to par due to sickness, old age, or past injuries. For example, a study in Sweden revealed that 60 per cent of roe deer killed by lynxes had been diseased. In the Polish Carpathians, the post-war increase in the lynx was accompanied by an increase in the population of roe and red deer, wild boar, and gallinaceous birds. In the Bialowieza reserve, about 100 lynxes kill 200 to 300 roe and red deer per year, and these are judged to be mainly the sick or weak one-tenth of the deer

*Above: Canada lynx at carrion. Lynxes normally take only live prey, but in winter they may be forced to feed on animals which have died recently. Right: Young Canada lynx moves easily on the snow with its enormous foot-pads. In winter the lynx's fur is thicker - especially on the feet - and paler in colour than the summer coat*

CHARLES OTT



without inflicting an injury. The story Hainard relates of a rather more blood-thirsty lynx which was reported to have attacked several people in the Jura mountains in 1819, may well have involved an animal infected with rabies.

Though neither the lynx nor the bobcat can run fast for long, and their running is a clumsy-looking bounding due to the long hind legs which elevate the hips slightly above the shoulders, they are capable of fast short runs and swift leaps. A Spanish lynx has been seen to capture a red-legged partridge, a major prey of this subspecies, in full flight.

The caracal is particularly agile and swift and is a better runner than either lynxes or bobcats. Apparently it is adept at stalking and then rushing into flocks of pigeons or sand grouse and clawing one down as they fly up in confusion. Like cheetahs, caracals have been trained for hunting in India.

Lynxes lead solitary lives but are brought together in the mating season, probably by scent and certainly by the loud nocturnal caterwauling of the males. The mating season extends from January to February for the lynx, both in Eurasia and Canada, and takes place in spring for the bobcat. Several males may court a female, and there are noisy skirmishes and fights among them until one becomes the chosen suitor. The female, after a two-month gestation period, selects a den in a site such as a hollow log or under the roots of a fallen tree, or in the case of the bobcat,

possibly in a rock crevice or a dense bush.

Two to four young are born in a litter, though two is the usual number in both species. The male is expelled from the den when the kittens are born, but he remains in the vicinity and brings food to the den entrance until the young are old enough to follow their mother about. Then he tends to take off for good. Mother and young stay together until well into the winter, perhaps even until the next mating season breaks up the maternal family. The life span of lynxes in the wild is

population. So the overall effects of lynxes on game animal populations are beneficial, the lynx weeding out the poor specimens and ensuring the survival of the fittest and most likely fertile animals among its prey. Lynxes must therefore be judged valuable from a purely utilitarian point of view.

To trappers in Alaska and northern Canada, the lynx is a valuable asset for an entirely different reason. The fur, particularly of the Canada lynx, is of great value, and was particularly important to the native Indians and half-breeds of North America, whose sole



The easiest way to distinguish between the bobcat (right, climbing rocks), and the Canada lynx (below, stalking in snow) is by the tail. The tip has a black bar above and white below in the bobcat, while in the lynx the tip is completely black. The tail is about the same length in both cats, but because the bobcat is generally smaller, its tail appears to be longer in proportion. Also the bobcat's ear tufts are smaller, and its general colour is browner

JOE VAN WORMER



income came from trapping until the advent of family allowances and welfare payments. (In the fur trade lynx and bobcat pelts are both called lynx, although bobcat skins are generally priced lower.)

The total yearly bobcat catch varies little from year to year, indicating that the bobcat population remains fairly steady over long periods. The lynx 'harvest' however is not steady, but shows peaks which recur regularly every nine to ten years.

These regular fluctuations in lynx numbers are but one aspect of the so-called ten-year cycle (marked and regular population fluctuations) of the snowshoe hare, the dietary mainstay of the lynx. In spite of much research, there is still no generally accepted explanation of the hare cycle, but there is no doubt that this is the cause of the cyclical changes in the lynx population rather than the other way around — as is shown by the history of the large island of Anticosti in the Gulf of St Lawrence. Originally there were neither lynxes nor hares on the island. The latter were introduced and soon became well established. They now show the usual ten-year cycle, though there are still no lynxes.

CHARLES OTT



When hares are at a minimum of their cycle, many lynxes actually starve, and few of the rest are fit enough to breed. In 1907, Ernest Thompson Seton travelled down the Athabasca River to Great Slave Lake and on to the barren grounds beyond with the zoologist Preble. It was the spring following a snowshoe hare 'crash', and they saw almost no hares, but quite a number of lynxes, which were forced by lack of their normal food to expose themselves more than usual in clearings and on the river banks. All the lynxes they collected as specimens (about a dozen) were emaciated and weak from hunger. The stomachs of most were empty or contained useless items like bits of leather or rope the animals had swallowed to relieve their hunger. Only two contained any food — one of them had eaten a chipmunk with its young, the other a mouse. Seton and his companion also found the corpses of two lynxes dead from starvation.

On the other hand, when hare populations are back to normal, lynxes are well nourished. Almost all that are old enough to breed probably do so, and in the presence of a good food supply the survival of the young is assured. Thus fluctuations of lynx numbers follow the pattern of those of the snowshoe hare, often with a lag of a year between the two species.

The virtual disappearance of hares over a large area causes lynxes, which normally wander within a smallish area of about 50 miles across in the course of a year, to move into areas outside their normal range. The city of Edmonton, for example, is surrounded by farming country in which most of the original balsam poplar 'bush' has

been cleared. The northern forest is at least one hundred miles away, so the lynx normally does not live in the district. But they do appear there, apparently at about ten-year intervals when the hares have become scarce. ●

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