

Tracks

of large carnivores

and other animals in the forest



Hnutí DUHA



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



nadace
partnerství

| LIDÉ A PŘÍRODA



europa outdoor
conservation association

The forest is like an open book ...

...you only have to learn how to read her.

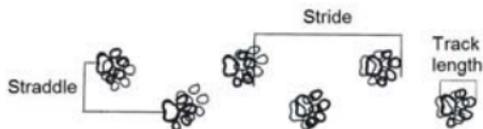
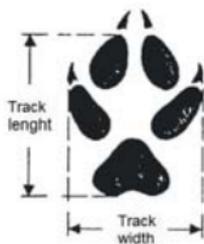
Wolves, lynxes and bears are in the Czech Republic again. But hardly anyone manages to see these rare and protected animals with their own eyes. They live a elusive life, are shy and avoid humans. Still there are many things that can get to know about them. To find out, the only thing you have to do is to keep your eyes open. Animals leave behind a lot of signs that indicate their presence (tracks, droppings, prey remains, etc..). This booklet fits easily into your back-pocket and will help you during your search for tracks of common and rare mammals.

After humans had entirely exterminated them in past centuries, large carnivores are now gradually coming back again. For both humans and nature this is great news. Predators help maintain the natural balance and the health of the forest. Wolves and lynx mainly hunt red deer, wild boar and roe deer. However, if the amount of herbivorous animals is higher than the carrying capacity of the environment, they will prevent natural forest regeneration by browsing on young trees and seedlings. Bears, wolves and lynxes are still rare in Czech Republic, and can only be found together in the Beskidy Mountains.

The wolves and lynxes are very rare animals who have territories of tens to hundreds of square kilometers. Even for scientists and conservationists it is rare to see one. By tracking animals with radio transmitters one can obtain much valuable information, but these methods are relatively expensive. There are other possibilities, of which the simplest is to field monitor the known tracks, something you can easily find. The more information about the occurrence of large carnivores we have, the more accurate we can estimate their numbers and ranges. These findings will enable us to work on better protection of large carnivores and the whole of our nature.

What to do when you find the track of a large carnivore?

If you find a track of which you suspect that it belongs to a large carnivore, it is best to document it - take a picture with the accompanying scale (like the one found on the backside of this booklet). You can also return to the spot later and make a plaster cast. The size of the track can give you a first indication of the animal that you are tracking. Traces of all animals are measured without claws or nails. It is also useful to document the direction in which the animal was traveling and the stride length and step width:



Tips for proper documentation

Always take pictures of the most obvious clues, perpendicular (90 degree angle) to the ground and at the smallest possible distance. With snowtracks it is good to take a of the individual tracks as well as one of the whole trail (also including the measuring instrument).

Where do I report the presence of large carnivores?

The easiest way is to send images directly
Hnutí DUHA.

You can use, for example:

- e-mail stopy@selmy.cz
- on-line reporting on www.carnivores.cz
- postal address of **Hnutí DUHA**, Dolní náměstí 38, 779 00 Olomouc
- in case of urgent messages can also call us on the number + 420 728 832 889



This handbook consists of demonstrative, sometimes schematic drawings. You can find pictures of real tracks and other signs on our website: www.selmy.cz or www.carnivores.cz

Is there no danger in tracking large carnivores?

All the large carnivores are shy animals and try to avoid humans. Bears are the only exception, they might be dangerous to humans in some cases. But in most incidents a bear leaves before people even notice the animal. Problems can arise when entering into legally protected reserves off the tourist trail in impenetrable thickets. Bears may have a lair there or a favorite place to graze on blueberries and other forestfruits. The disturbance by humans in these areas can then be seen as a threat by the bear.

Also bears can become dangerous if they have been habituated to humans. This happens when they have lost their natural fear of people for because they are used to feeding on garbage in the villages or near mountain-huts. If you encounter such animals please inform the local rangers.

Although in many fairy tales the wolf emerges as a bloodthirsty killer, there is in fact no evidence that a wolf has killed or seriously injured a human in Europe in the last few centuries.

Won't I disturb the animals?

When you find tracks, it is not very likely that you will disturb the animal. But when the tracks are very fresh, it is always best to follow the trail opposite of the direction of travel (so called back-tracking). Unless the tracks lead directly towards a tourist paths or forest road, do not follow fresh tracks for more than 500 meters in the direction of travel.

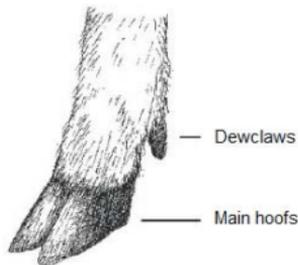
While staying in nature we ask you to pay attention to the basic rules – do not make unnecessary noise and when you are in a nature reserve stay on the marked hiking trails.

How to recognize tracks of various animal species

Each species has its own characteristic way (or several ways) of moving and this is visible in their tracks. In a slow walk most mammals back-feet imprint on the same place as their front-feet (usually not exactly). This creates a double print, which may be somewhat confusing for beginning trackers. The size of a track can vary within a species and depends primarily on the age and sex of the animal.

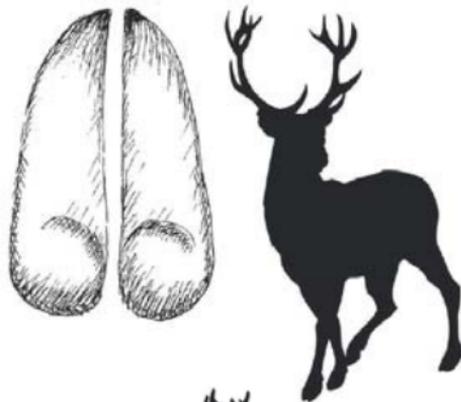
Even-toed ungulates

(Red deer, roe deer and wild boar) Basically walk on two toes. Their nails have evolved into hoofs. The front two hoofs are the main ones the animals walk on. The other two hoofs or dewclaws are located on the back of the limbs. With deer the dewclaws are rarely visible in a track, but with wild boar they usually are.



Red deer (*Cervus elaphus*)

Tracks of Red deer are oval-shaped. The hoofs are two parallel lines with a rounded point on the front side.



Roe deer (*Capreolus capreolus*)

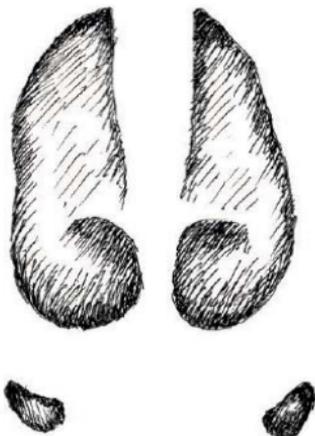
Roe deer tracks are the smallest ungulate tracks found in this region. The track is elongated and hart-shaped. The hoofs are rounded on the backside and have a quite sharp pointed front.



Species	Track: length x width (cm)	Stride (cm)	Straddle (cm)
Roe deer	5-9 x 3,5-7	70-140	5-20
Red deer	3,5-5 x 3	60-90	8-15
Wild boar	3-8 x 2,5-6	40-80	5-20

Wild Boar (*Sus scrofa*)

The tracks of wild boars are usually very easy to distinguish from other even-toed ungulates, because the dewclaws almost always leave a mark.



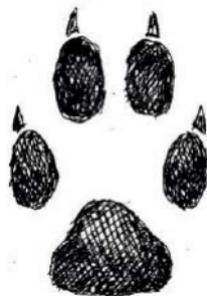
Species	Track: length x width (cm)	Stride (cm)	Straddle (cm)	Number of toes visible
Wolf	8-14 x 8-10	70-110	0-25	4
Fox	4-6 x 3-4	40-90	5-15	4
Dog	Depends on the breed	Depends on the breed	Depends on the breed	4

Canids

The tracks of Canines are usually in a straight line with only narrow space between the left and the right track. It seems as if there are only 2 tracks each time, because canines usually place their hindfoot directly on the track of the front-foot.

Red fox (*Vulpes vulpes*)

The tracks of foxes can be confused with those of small dogs, but there are differences. The tracks of foxes have more space between their toes and palm-pad than dogs. The front two toes are placed more forward than with most dogs, and the first and fourth toe are lined up behind them. This creates space between the toes and the palm pad. In the snow or wet soil you can see a clear X-shape in this space.



Wolf (*Canis lupus*)

The shape of a wolf track is similar to that of a fox, but much bigger. The palm pad sits well back, so there's a lot of free space between the toes and the palm pad. The rear track tends to be slimmer and more pointed, while the front track is wider. The tracks of wolves can easily be confused with those of (big) dogs. Dogtracks are usually rounder and more wide than long, and sometimes have less deep claw-impresions. On a single track it is almost impossible to determine if the track was made by a wolf or by a dog. The tracks have to be followed for longer, and you will have to look for other signs. Some tricks to tell the difference:

- In general wolves try to walk a straight line to their goal, while dogs tend to swerve from left to right over a path. Dogs make more stops to sniff and walk around.
- On straight paths wolves place their hindfeet directly on the track of their front-feet, this makes their tracks look like those of a fox. Dogs often walk a bit in a shifted angle, placing their hind-feet next or behind the tracks of their front feet.
- If wolves travel in groups over longer distances they walk in single file behind each other, each one placing his paws on the tracks of the wolf in front of him. They will split up and follow their own path when faced with obstacles.
- Look for other signs that can point to wolves, like scats and urine markings (often near road-crossings) and prey(-remains).
- Look for human footprints. Dogs usually don't wander alone through the forest (except near cottages, farms or settlements). So a dog trail without any human footprints anywhere near it, will more likely be from a wolf.

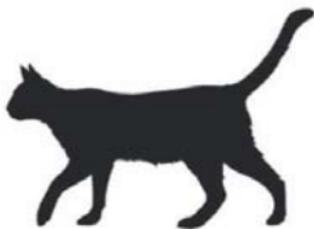


Felids

Felids have retractable claws and a circular track. In the snow it is often possible to distinguish between the left and right paw.

Wildcat (*Felis silvestris*)

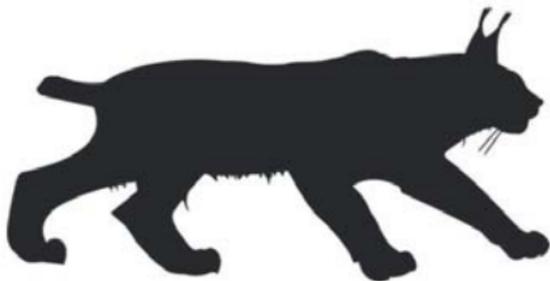
The tracks of wildcats are very hard to distinguish from those of a domestic cat. A cat's claws mark only in very exceptional circumstances (eg on a steep slope). Most cat tracks belong to domestic cats that are wandering deep into the woods. The wildcat has a large and thick tail and a slightly larger track than the domestic cats. In the Czech Republic it occurs only very rarely. But in Slovakia they live up to thousands and in Germany there are 3-5 thousand of these animals. The occasional occurrence of wild cats in our forests is therefore not excluded.



Eurasian lynx (*Lynx lynx*)

The lynx has cat-like tracks, but several times larger. They are oval-shaped, sometimes slightly asymmetrical (one of the front toes more shifted up). The palm pad on the upper lobe is slightly dented or straight, never bulging like a dog. Hind feet tend to be slimmer and smaller than the front. Nails may be reprinted, for example when walking on steep slopes or at jumps. Lynxes like to walk over fallen tree trunks.

Good places to look for lynx tracks are on rocky terrain and in places with a lot of fallen trees. Lynxes like these places because they are ambush hunters. And this type of terrain is difficult to navigate for their prey giving them more hunting opportunities.



Bear (*Ursus arctos*)

Bear tracks can be easily recognized by the characteristic size and shape. The rear tracks resemble the print of a human walking barefoot, a long track with five toes, but it has recognizable long claws. The front tracks are smaller, but also have five fingers with long claws. Bears have a partial overlap of their rear track over their front track. In the winter, we do not find bear tracks very often, because bears have a period of winter in-activity. In contrast to popular belief bears do not sleep the whole winter. They hold periods of in-activity that can last days or weeks, which are partially spent sleeping, interrupted by periods of activity. These periods of inactivity are called torpor or false hibernation.



Species	Track: length x width (cm)	Stride (cm)	Straddle (cm)	Number of toes visible
Wildcat	2,5-4,5 x 3-4	15-30	3-7	4
Lynx	6-10 x 6-10	60-150	7-12	4
Bear	10-16 x 10-20	50-60	15-25	5

Mustelid carnivores

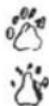
Mustelids like martens, badgers and otters have five toes on each foot which make their tracks very recognizable, especially in the snow. The spacing between the tracks and their gait depends mostly on the speed of movement. Traces of pine marten, stone marten, weasel and ermine are very similar and differ only in size.



Track pattern of jumping marten



Track pattern of running marten



Badger (*Meles meles*)

The badger has five toes on each foot, like a bear but several times smaller. Their front claws are longer than the back claws and can mark up to 15mm in front of the toes. At normal walking speed the tracks of the back-feet overlap partially with the tracks of the front-feet. Tracks and paths of badgers are naturally several times smaller than those of a bear.



Otter (*Lutra lutra*)

Traces of otters are most often found near streams and lakes, but occasionally also further away from the water. The snow tracks are very variable. The fifth (smallest) toe is often only slightly visible in the track and webbed marks only are only found under ideal conditions.



Species	Track: length x width (cm)	Stride (cm)	Straddle (cm)	Number of toes visible
Weasel	1,5-2 x 0,7-1	15-50	3-5	5
Ermine	2-2,5 x 1,5	15-20 (-70)	4-5	5
Marten	4-4,5 x 2,5-3,5	50-60	8-10	5

Hare (*Lepus europaeus*)

Most of the time hares move around by jumping. Individual tracks can be confused with the tracks of canids (relatively large, with claws). Snowtracks however, are unmistakable: while jumping the two bigger rear-feet move ahead of the smaller front-feet.

Rear
Track



Front
Track



Track
Pattern



Squirrel (*Sciurus vulgaris*)

Squirrels move hopping, placing their hindfeet in front of their front ones just like hares. The front limbs are fixed, so they always face forward, unlike other rodents which can change the direction of their front paws. Squirrels always place their front and back legs next to each other, resulting in a set of double tracks.



Species	Track: length x width (cm)	Stride (cm)	Straddle (cm)	Number of toes visible
Badger	5-7 x 4-6	20-50	10-15	5
Otter	5-6,5 - 5-6,5	Depends on the gait	8-13	5
Hare	5-6 x 3-4	Length of Jump 50-300	7-10	5 (rear 4)
Squirrel	4 x 2	30-100	2-3 (rear 5 - 10)	4 (rear 5)

Additional signs of presence

If conditions are not suitable for finding footprints we can find other signs that can indicate the presence of large carnivores. One of such signs are scat or droppings. Wolf droppings are cylindrical, with a diameter of about 3 cm (at least 2-2.5 cm), full of hair and/or bone fragments. Wolf-droppings are often deposited at crossings, where you can often find multiple scats close together.

The lynx also has cylindrical droppings, but like most other cats, they bury them. Bear droppings are very diverse (3-6 cm thick cylinder, and irregular masses or even like cow shit). In the summer and autumn it often contains clearly visible seeds or other plant remains, and sometimes also remains of insects.

Bears sometimes mark on trees, especially coniferous, scratching with their claws or biting the wood. But it is easy to confuse this with bark peeled by deer or woodpeckers, which causes similar damage to trees. When deer strip the bark from trees they do it by biting it with their bottom teeth and pulling their head up. This way the bark is peeled off from the bottom up. And this leaves shreds of bark hang at the top of the peeled section. To be sure that the damage is done by a bear it is necessary to look for claw marks or hairs left on the tree (bears like to rub against the trees).

If you are in the woods after dark, you can sometimes hear vocalisations of wolves - their howling. This is most common in late summer and autumn.

In February or March lynx have their mating-season and loud meows: their “auum” can be heard up to a mile away. Bears have a very characteristic voice, and if you hear it you will not mistake it. But more often in the early evening you will hear the voices of owls and other animals. For example loud barking roe deer, at the time of oestrus (September/October) the mating calls of red deer, and barking or howling foxes.



Damaged trees by bear (left) and deer (right) can look similar. Trees marked by bears can be recognized by (deep) claw marks in the wood and by hairs left from rubbing against the tree. Deer just peel of the bark to eat and leave teeth marks in the wood.

Threats to large carnivores

Unfortunately, large carnivores in the Czech mountains do not have an easy life despite the legal protection. The biggest threat to wolves, lynx and bears is illegal hunting - poaching. Significant threats are also changes in the landscape, especially in near important migration corridors. These can vary from new recreation areas and increased tourism to intensive forestry. The large carnivores are then disturbed in their resting areas, or they can not migrate on their traditional routes between mountain ranges.

Large carnivores in Moravia

Large carnivores, were extinct in the Czech Republic beginning of the 20th century, and are now gradually coming back. They come primarily from Slovakia. In Beskydy and Javorníky there are now 10 -15 lynx living, and from time to time bears and wolves also occur here. Even in the Jeseníky mountain there are sometimes recorded occurrences of lynx or wolf, but bears do not live there for now. According to current scientific knowledge the Moravian and Silesian mountains pose suitable habitats and can sustain many more lynx and wolves.

Hnutí DUHA helps to protect large carnivores and the Czech nature:

We organize wolf and lynx patrols

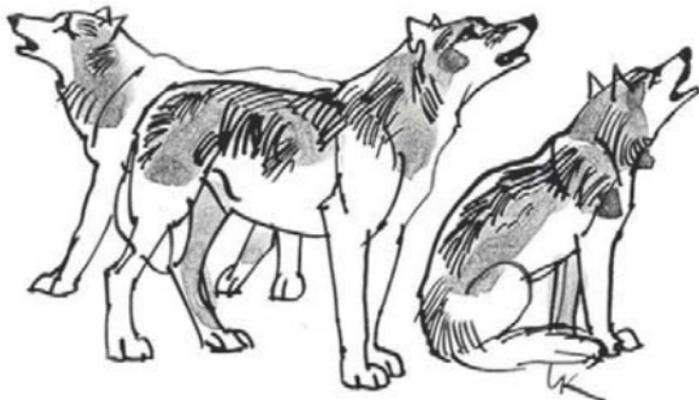
All winter we organize wolf and lynx patrols in the Beskydy Mountains and Bohemian Forest. Groups of specially trained volunteers monitor the presence of large carnivores and their presence in the area deters poachers. Experts have pointed out that the visible presence of a large number of people in the mountains makes it harder for poachers and help to protect the animals.

We educate and communicate

The future of large carnivores, more than other species, depends on the opinions and attitudes of the people. In the areas where large carnivores occur we organize exhibitions, information stands and lectures and talks at schools and in local communities. Personal contact improves communication between local residents, conservationists and hunters and it fights the myths and fears that people still have towards large carnivores. We provide specific advisory to farmers on the protection of sheep and how to avoid conflicts in the areas where large carnivores occur

We protect the migration routes of large carnivores

Growing car traffic and the construction of new industrial sites on the foothills of mountains can significantly disrupt the traditional migration routes of large carnivores. Hnutí DUHA promotes the conservation of important migration corridors and the construction of “green bridge” for wild animals in places where the most frequent road- or railcrossings happen.



Large carnivores are endangered species of the Czech fauna. And due to illegal hunting they may become extinct again. Maintaining lynxes, wolves and bears in the border mountains can not be done without your help:

- **Come on patrol**

We need volunteers (who will receive special training) to participate on patrols in the Beskydy Mountains and in the Bohemian Forest.

For more information: vici.hlidy@hnutiduha.cz (Beskydy Mountains)
rysi.hlidy@hnutiduha.cz (Bohemian Forest).

- **Let us know about your observations**

The more data on the occurrence of large carnivores we have available, the more accurate our estimates of their numbers and habits will be. This data will enable us to work on better protection of animals and the whole of our nature. Any sightings, reports of tracks and photos can be send to stopy@selmy.cz or use other options listed at the beginning of this booklet.

- **Support the conservation of lynx and wolf**

Hnutí DUHA Olomouc organizes projects to protect the rare and endangered species. Our work is non-profit and can not be realized without the financial help of people like you. Become one of the friends of large carnivores! More information on: www.carnivores.cz/support-large-carnivores

Want to learn more?

Every month we publish an e-mail newsletter full of interesting facts about large carnivores. The subscription is for free on website www.selmy.cz.

For more news from the world of carnivores you can also follow us on Facebook or check out our website www.selmy.cz / www.carnivores.cz





Hnutí DUHA Olomouc is one of the branches of the nationwide environmental organization Hnutí DUHA / Friends of the Earth Czech Republic. We successfully promote environmental solutions to ensure a healthy and safe environment for all of us. We propose specific measures to reduce air and water pollution, help reduce the amount of waste, protect the natural landscape or get rid of toxic food substances. Our work involves dealing with the authorities and policies, bills, checking industrial companies, helping people, households and boards of education, research, informing journalists and cooperation with municipalities. Hnutí DUHA is the Czech representative of Friends of the Earth International and a Carpathian EcoRegion Initiative, an international network of conservation and sustainable development in the globally important Carpathian Mountains.

A - Dolní náměstí 38, 779 00 Olomouc
T - + 420 585 228 584, + 420 728 832 889
E - olomouc@hnutiduha.cz, info@selmy.cz
Website: www.hnutiduha.cz/olomouc



Published by Hnutí DUHA Olomouc, 2014
Text: Miroslav Kutal, Libor Praus, Kateřina Ulmanová
English translation: Job de Bruin
Illustrations: Ludvík Kunc, Gabriela Váňová
Layout of English version: Job de Bruin
Printed on recycled paper.

For more information:

- Jdrzejewski & Sidorovich: The art of tracking animals, published by Mammal Research Institute, Polish Academy of Sciences, 2010
- Olsen: Tracks and Signs of the Animals and Birds of Britain and Europe, published by Princeton University Press, 2013

Websites:

www.carnivores.cz about large carnivores in Czech
www.naturetracking.com website on animal tracks



Hnutí DUHA cooperates in the protection and monitoring of large carnivores with the Administration of PLA Beskydy and the Nature Conservation Agency of the Czech Republic.

