

# Mount Rainier National Park Carnivore Tracking



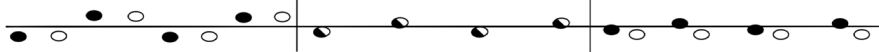
National Park Service

# Carnivore Tracking in Washington's National Parks

This guide provides basic information on carnivore tracking with descriptions of the common track dimensions, track patterns, and gaits. For a more comprehensive treatment of wildlife tracking in the Pacific Northwest, we recommend David Moskowitz's book "Wildlife of the Pacific Northwest: Tracking and Identifying Mammals, Birds, Reptiles, Amphibians, and Invertebrates" ISBN: 978-0-88192-949-2.

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When observing animal tracks, it is useful to note both the individual tracks and the track pattern across the landscape. In carnivores, the front foot is usually larger than the hind foot. The gait will vary based on whether the animal is walking, trotting, loping, or bounding. Track patterns described as "direct register" indicate that the hind foot usually lands directly on top of the front track while an "overstep" indicates that the hind foot usually lands ahead of the front foot on the same side. The stride is the distance measured from the front of one foot to the front of the same foot as the animal travels. The trail width is the distance measured between the outermost tracks. The group length is measured as the length of all four feet from the back of the last track to the front of the first track in the group.



Common track patterns can help distinguish species. The above example shows the overstep walk, direct register trot, and side trot patterns typical of coyote tracks, respectively. Front feet are represented by open circles and hind feet are represented by filled circles.



*Wolverine kits wrestle in the snow.*

People are fascinated by the natural world and seek to observe wild animals in parks. Animals can be difficult to observe directly due to many factors including: secretive and shy behaviors, nocturnal habits, or low density on the landscape. Tracking is one way you can observe the signs of wild animals. The purpose of this guide is to provide information about carnivores in Washington's national parks and to record tracks that can be used for park scientist reports. Six carnivore families occur in the Washington Cascades: cats (Felidae), canines (Canidae), bears (Ursidae), skunks (Mephitidae), raccoons

## **Six carnivore families occur in the Washington Cascades:**

- ❖ Cats (Felidae)
- ❖ Canines (Canidae)
- ❖ Bears (Ursidae)
- ❖ Skunks (Mephitidae)
- ❖ Raccoons (Procyonidae)
- ❖ Weasels (Mustelidae)

(Procyonidae), and weasels (Mustelidae). This guide includes tracks of nine species of conservation interest from three of these families. You can contribute to our knowledge of Mount Rainier's wildlife by reporting your observations of any mammal, bird, amphibian, reptile, fish, bee, bug, butterfly, or other invertebrate to our online database, where you can upload photos: <https://arcg.is/rLOiy>. If you believe you've found wolverine tracks anywhere in the Washington Cascades, they can also be reported to the Cascades Carnivore Project: <https://cascadescarnivore.org/>.



## Wolf, Coyote, and Red Fox (Canidae)

Three species of canids are native to the Washington Cascades: gray wolf, coyote, and Cascade red fox. Coyotes are typically a lower elevation species and may not have historically occurred in the subalpine habitat of the Cascade red fox, so interactions between these species are of particular interest to scientists. Canids communicate by scent marking with urine and scat, often leaving them in prominent

locations such as trail edges and on rocks and logs. The overall shape of canid tracks is more symmetrical than felids, longer than they are wide, and with a triangular-shaped palm pad. Canids have five toes but the first is reduced. Four toe pads register in their tracks with the claws typically evident. The negative space in a track usually appears as an X shape for red fox and H shape for coyote.

*A Cascade red fox walks along the forest floor.*



# Gray Wolf (*Canis lupus*)



The toe pads of wolf tracks often register deeper than the palm pad with claw marks present. Adult males are noticeably larger than females and younger males. The front paws are significantly larger and wider than the hind. A telltale sign that a ‘wolf’ track is instead a large breed domestic dog is the presence of nearby human tracks.

## Front Track (top)

Length:  $3\frac{1}{2}$ – $5\frac{1}{8}$  inches ( $8\frac{9}{10}$ – $12\frac{4}{5}$  cm)

Width:  $2\frac{7}{8}$ – $4\frac{7}{8}$  inches ( $7\frac{1}{2}$ – $12\frac{2}{5}$  cm)

## Hind Track (bottom)

Length:  $3\frac{3}{8}$ – $4\frac{5}{8}$  inches ( $8\frac{3}{5}$ – $11\frac{3}{5}$  cm)

Width:  $2\frac{5}{8}$ – $3\frac{7}{8}$  inches ( $6\frac{4}{5}$ – $9\frac{4}{5}$  cm)

## Direct Register and Overstep Walk

Stride:  $43\frac{7}{8}$ – $48\frac{5}{8}$  inches ( $111\frac{1}{2}$ – $123\frac{1}{2}$  cm)

Trail width:  $4\frac{7}{8}$ – $9\frac{1}{8}$  inches ( $12\frac{1}{2}$ – $23$  cm)

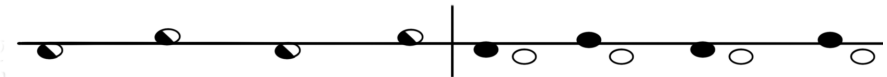
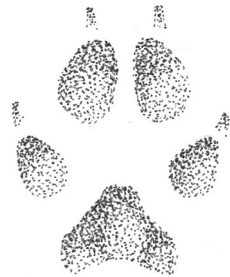
## Direct Register Trot

Stride:  $51\frac{1}{8}$ – $61$  inches ( $130$ – $155$  cm)

## Side Trot

Stride:  $46$ – $84\frac{1}{4}$  inches ( $117$ – $214$  cm)

Trail width:  $4\frac{7}{8}$ – $9\frac{1}{8}$  inches ( $12\frac{1}{2}$ – $23$  cm)



# Wolf, Coyote, and Red Fox (Canidae)

## Coyote (*Canis latrans*)



Similar to wolves, coyote tracks slant slightly forward with the toes registering deeper than the palm. The negative space between the toes and palm often show a raised mound on the substrate it walked across, with the outer toes appearing like wings. The hind foot is smaller than the front foot.

### Front Track (top)

Length:  $2\frac{1}{8}$ – $3\frac{1}{8}$  inches ( $5\frac{2}{5}$ – $7\frac{4}{5}$  cm)

Width:  $1\frac{3}{8}$ – $2\frac{1}{2}$  inches ( $4\frac{1}{5}$ – $6\frac{3}{10}$  cm)

### Hind Track (bottom)

Length:  $1\frac{3}{4}$ –3 inches ( $4\frac{2}{5}$ – $5\frac{1}{2}$  cm)

Width:  $1\frac{3}{8}$ – $2\frac{1}{8}$  inches ( $3\frac{1}{2}$ – $5\frac{2}{5}$  cm)

### Overstep Walk

Stride: 24– $38\frac{5}{8}$  inches (61–98 cm)

Trail width:  $2\frac{1}{4}$ – $7\frac{5}{8}$  inches ( $5\frac{7}{10}$ – $19\frac{3}{5}$  cm)

### Direct Register Trot

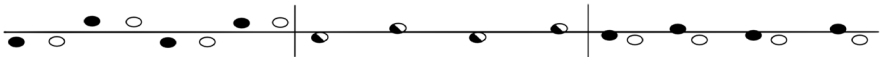
Stride:  $32\frac{7}{8}$ – $46\frac{1}{2}$  inches ( $83\frac{1}{2}$ –118 cm)

Trail width:  $2\frac{1}{2}$ – $4\frac{1}{2}$  inches ( $5\frac{4}{5}$ – $11\frac{1}{2}$  cm)

### Side Trot

Stride:  $38\frac{3}{8}$ – $53\frac{3}{8}$  inches ( $97\frac{1}{2}$ –136 cm)

Trail width:  $4\frac{1}{8}$ – $6\frac{1}{2}$  inches ( $10\frac{1}{2}$ – $16\frac{1}{2}$  cm)



# Cascade Red Fox (*Vulpes vulpes cascadensis*)



The Cascade red fox lives at high elevations in subalpine parklands and is the only red fox native to Washington. They appear to have suffered a precipitous decline in the northern portion of their range. Cascade foxes have fur-lined feet, which are large for their body size and only slightly smaller than those of coyotes.

## Front Track (top)

Length:  $1\frac{7}{8}$ – $2\frac{1}{2}$  inches ( $4\frac{7}{10}$ – $6\frac{2}{5}$  cm)

Width:  $1\frac{1}{2}$ – $2\frac{3}{8}$  inches ( $3\frac{7}{10}$ – $5\frac{9}{10}$  cm)

## Hind Track (bottom)

Length:  $1\frac{3}{4}$ – $2\frac{3}{8}$  inches ( $4\frac{2}{5}$ – $5\frac{9}{10}$  cm)

Width:  $1\frac{3}{8}$ – $1\frac{7}{8}$  inches ( $3\frac{1}{2}$ – $4\frac{7}{10}$  cm)

## Direct Register Walk

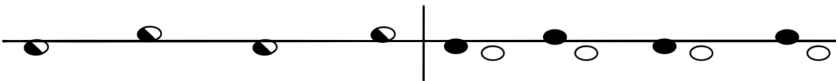
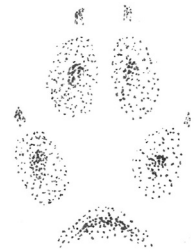
Stride: 22– $26\frac{1}{2}$  inches ( $55\frac{4}{5}$ – $67\frac{3}{10}$  cm)

Trail width:  $2\frac{7}{8}$ –6 inches ( $6\frac{1}{5}$ – $15\frac{1}{5}$  cm)

## Direct Register and Side Trot

Stride: 31–40 inches ( $78\frac{7}{10}$ – $101\frac{3}{5}$  cm)

Trail width:  $2\frac{1}{4}$ – $6\frac{3}{8}$  inches ( $5\frac{7}{10}$ –16 cm)





## Wolverine, Fisher, and Marten (Mustelidae)

Members of the weasel family vary considerably in size and behavior, and are thought to be largely solitary. The characteristic long bodies and short legs of mustelids create distinct loping gaits, so in addition to the stride and trail width, it is important to observe how the tracks are grouped along the trail or trackway. Mustelid tracks are round to oblong, and usually register five toes on both front and hind feet with obvious claws. The palm pad is much smaller than in felids and canids and has four

distinct subpads. The orientation of the toe pads is asymmetrical with a large amount of negative space between the toes and the palm pad. While measurement of mustelid tracks is the most reliable way to confirm species, the trail width can be especially helpful. Overlap between the size of males and females of different species can make identification of species challenging. For example, it may be difficult to impossible to distinguish a large male marten from a small female fisher.

*A marten peers down from a branch of a tree.*





# Wolverine (Gulo gulo)



Wolverine tracks are large for their body size but their front and hind feet are similar in size. Their feet are furred, which can distort fine detail. They have claws that are often, but not always, apparent. The loping gait is the most common form of travel, though a direct register walk may also be observed for short distances.

## Front Track (top)

Length:  $4\frac{3}{8}$ – $5\frac{5}{8}$  inches (11–14½ cm)

Width:  $3\frac{1}{2}$ – $4\frac{5}{8}$  inches (9–11 cm)

## Hind Track (bottom)

Length:  $3\frac{1}{8}$ –7 inches ( $7\frac{4}{5}$ –14½ cm)

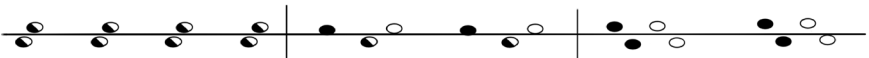
Width:  $3\frac{3}{8}$ – $5\frac{1}{2}$  inches ( $8\frac{2}{5}$ –14 cm)

## Bound and Lope

Stride:  $26\frac{3}{8}$ –55 inches (68–139⅓ cm)

Trail width:  $7$ – $9\frac{7}{8}$  inches ( $17\frac{4}{5}$ –24½ cm)

Group length:  $9\frac{5}{8}$ –38½ inches (50–97⅔ cm)



## Fisher (*Pekania pennanti*)



From 2015 to 2020, the National Park Service, Washington Department of Fish and Wildlife, and Conservation Northwest translocated fishers from Canada to the Washington Cascades. While the population is still growing and observations are uncommon, fishers have dispersed to areas beyond their release sites. Fisher and marten tracks are quite similar.

### Front Track (top)

Length:  $1\frac{5}{8}$ –4 inches ( $4\frac{1}{5}$ –10 cm)

Width:  $1\frac{5}{8}$ – $3\frac{1}{2}$  inches ( $4\frac{1}{10}$ – $8\frac{2}{5}$  cm)

### Hind Track (bottom)

Length: 2– $4\frac{1}{4}$  inches (5–11 cm)

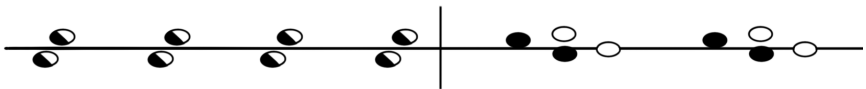
Width: 2– $3\frac{1}{8}$  inches (5– $7\frac{9}{10}$  cm)

### Bound and Lope

Stride:  $18\frac{1}{2}$ – $43\frac{1}{4}$  inches (47–110 cm)

Trail width:  $3\frac{3}{8}$ – $7\frac{1}{8}$  inches ( $8\frac{1}{2}$ – $18\frac{1}{2}$  cm)

Group length:  $4\frac{3}{4}$ – $8\frac{7}{8}$  inches (12– $22\frac{1}{2}$  cm)



## Marten (*Martes caurina*)



There is significant overlap between male marten and female fisher track size, but a keen observer may be able to evaluate the combination of track size, track width and group length to differentiate between the tracks of the two species. Marten are nearly four times lighter than fishers, so their tracks will register less deeply in snow.

### Front Track (top)

Length:  $4\frac{1}{4}$ – $5\frac{3}{4}$  inches (11–14½ cm)

Width:  $3\frac{1}{2}$ – $4\frac{3}{8}$  inches (9–11 cm)

### Hind Track (bottom)

Length: 3–7 inches ( $7\frac{4}{5}$ – $17\frac{4}{5}$  cm)

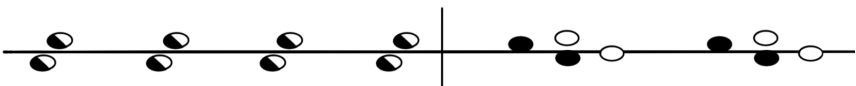
Width:  $3\frac{1}{4}$ – $5\frac{1}{2}$  inches ( $8\frac{2}{5}$ –14 cm)

### Bound and Lope

Stride:  $26\frac{3}{4}$ –55 inches (68–139<sup>7</sup>/<sub>10</sub> cm)

Trail width: 7–10 inches ( $17\frac{4}{5}$ – $24\frac{1}{2}$  cm)

Group length:  $9\frac{1}{2}$ –26 inches ( $24\frac{1}{2}$ –66 cm)





## Mountain Lion, Canada Lynx, Bobcat (Felidae)

Three species of felids are native to the Washington Cascades: mountain lion, Canada lynx, and bobcat. The overall shape of felid tracks is round and their palm pad makes up at least 50% of the overall track size. These two features distinguish cat tracks from dogs. Although

felids have five toes, only four register in their tracks. They have retractable claws that may not appear in the track. Felids typically travel in a walking gait, leaving direct register or overstep track patterns, but they also trot, bound and gallop.

*A bobcat stands on the bank of a river.*



## Mountain Lion (*Puma concolor*)



Foot pads are sparsely furred and tracks are usually well defined. Tracks are larger than bobcats. Rectangular depressions, called scrapes, are often made with hind feet to mark territories.

### Front Track (top)

Length:  $3\frac{3}{8}$ –4 inches ( $7\frac{4}{5}$ – $10\frac{1}{10}$  cm)

Width:  $2\frac{3}{4}$ – $4\frac{3}{8}$  inches (7–11 cm)

### Hind Track (bottom)

Length:  $2\frac{7}{8}$ – $4\frac{1}{8}$  inches ( $7\frac{1}{2}$ – $10\frac{1}{2}$  cm)

Width:  $2\frac{1}{2}$ – $4\frac{3}{4}$  inches ( $6\frac{1}{2}$ – $12\frac{1}{10}$  cm)



### Overstep Walk

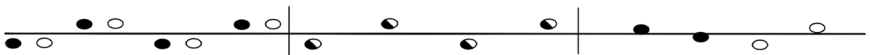
Stride:  $40\frac{5}{8}$ – $46\frac{3}{8}$  inches ( $103\frac{1}{5}$ –118 cm)

Trail width:  $6\frac{3}{4}$ – $12\frac{5}{8}$  inches ( $17\frac{1}{10}$ –32 cm)

### Direct Register Walk

Stride:  $27\frac{1}{2}$ – $42\frac{1}{4}$  inches (70– $107\frac{3}{10}$  cm)

Trail width:  $4\frac{3}{4}$ –11 inches ( $12\frac{1}{10}$ – $27\frac{9}{10}$  cm)



## Canada Lynx (*Lynx canadensis*)



Lynx are well adapted to snowy environments, with large feet relative to their body size. Foot pads are densely furred and tracks are less defined. Their distribution in Washington is currently limited to the North Cascades ecosystem, but sightings outside of this region can occur.

### Front Track (top)

Length:  $2\frac{5}{8}$ – $4\frac{1}{2}$  inches ( $6\frac{4}{5}$ – $11\frac{2}{5}$  cm)

Width:  $2\frac{3}{4}$ – $4\frac{1}{2}$  inches ( $7$ – $11\frac{2}{5}$  cm)

### Hind Track (bottom)

Length:  $2\frac{3}{8}$ – $4\frac{3}{4}$  inches ( $6$ – $12\frac{1}{10}$  cm)

Width:  $2\frac{1}{2}$ – $5$  inches ( $6$ – $21\frac{1}{10}$  cm)

### Walk and Bound

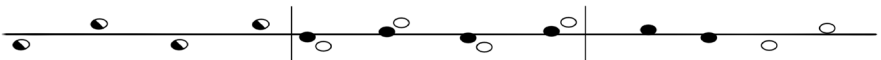
Walk stride:  $18\frac{1}{2}$ – $37$  inches ( $47$ – $94$  cm)

Walk trail width:  $3\frac{1}{2}$ – $11$  inches ( $8\frac{9}{10}$ – $27\frac{9}{10}$  cm)

Bound stride:  $39$ – $112\frac{2}{5}$  inches ( $99$ – $285$  cm)

Bound trail width:  $6\frac{3}{8}$ – $12$  inches ( $16\frac{1}{5}$ – $30$  cm)

Bound group length:  $15$ – $55\frac{1}{8}$  inches ( $38\frac{1}{10}$ – $30$  cm)





## Bobcat (*Lynx rufus*)



Foot pads are sparsely furred and tracks are often well defined. The front is broader than the hind and the palm pad is larger than the hind. The hind is more symmetrical than the front and is often longer than wide. Toes can splay widely in deep snow, giving the appearance of larger tracks.

### Front Track (top)

Length:  $1\frac{1}{2}$ – $2\frac{1}{4}$  inches (4– $5\frac{7}{10}$  cm)

Width:  $1\frac{3}{8}$ – $2\frac{3}{8}$  inches ( $4\frac{1}{10}$ –6 cm)

### Hind Track (bottom)

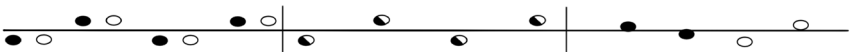
Length:  $1\frac{5}{8}$ – $2\frac{3}{8}$  inches ( $4\frac{1}{10}$ –6 cm)

Width:  $1\frac{3}{8}$ – $2\frac{1}{4}$  inches ( $4\frac{1}{5}$ – $5\frac{7}{10}$  cm)

### Direct Register Walk

Stride: 19– $31\frac{1}{2}$  inches ( $48\frac{3}{10}$ –80 cm)

Trail width:  $2\frac{3}{4}$ –8 inches (7– $20\frac{3}{10}$  cm)



*Front cover image of wolverine tracks in snow  
by Cascades Carnivore Project/S. Shively*

You can contribute to our knowledge of Mount Rainier's wildlife by reporting your observations of any mammal, bird, amphibian, reptile, fish, bee, bug, butterfly, or other invertebrate to our online database, where you can upload photos: <https://arcg.is/rLOiy>.

If you believe you've found wolverine tracks anywhere in the Washington Cascades, they can also be reported to the Cascades Carnivore Project (CCP): <https://cascadescarnivore.org/>

More information on Mount Rainier National Park's carnivores can be found: <https://www.nps.gov/mora/learn/nature/carnivores.htm>

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