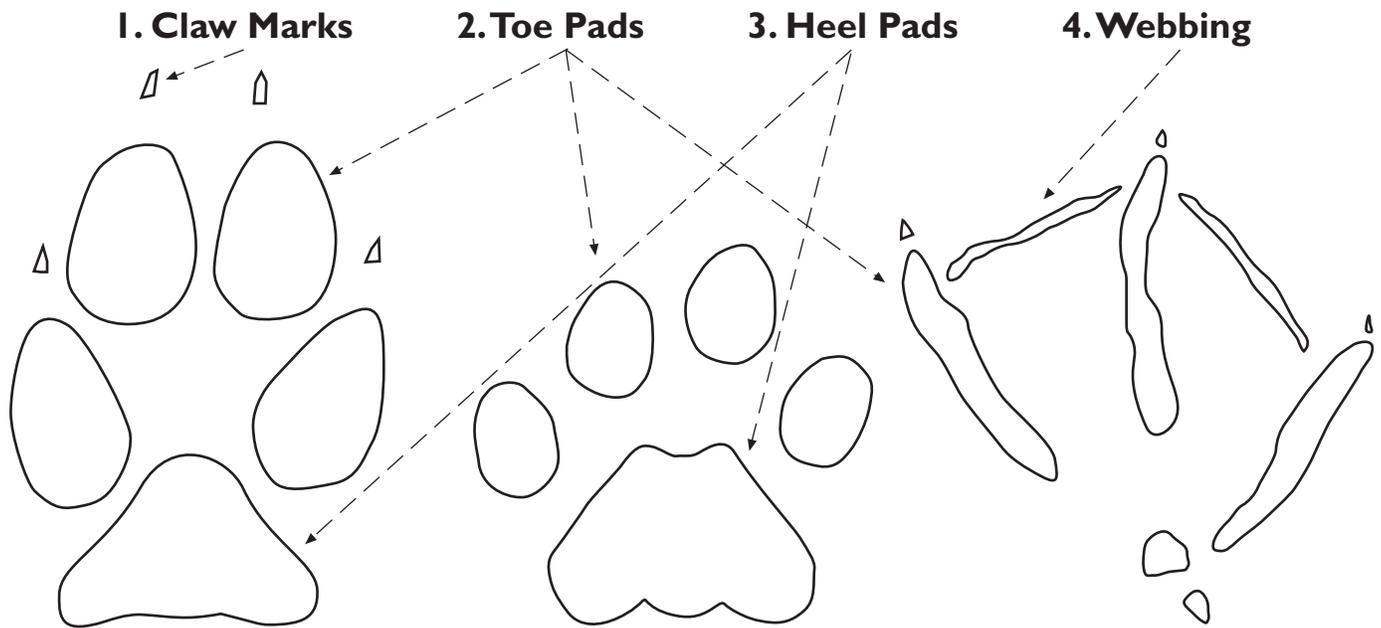


TRACK BASICS

The Parts of a Track

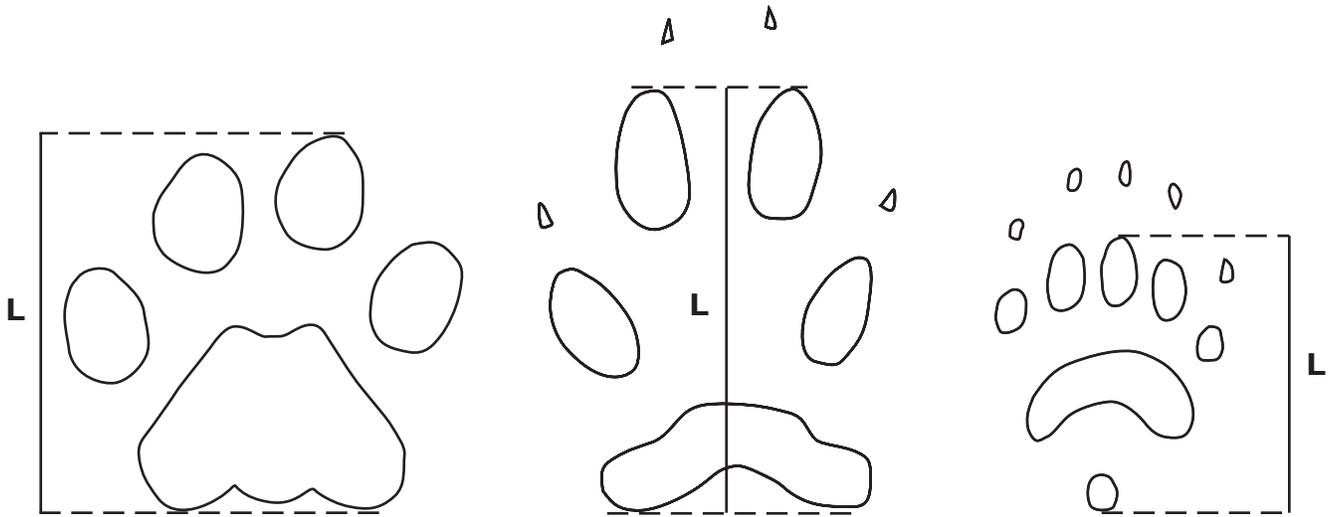


1. Claw Marks		
Present		Claw marks are visible.
Absent		Claw marks are not visible.
2. Toes		
Pad-like toes		Toes round or oval in shape. Not connected to the heel pad.
Finger-like toes		Toes long and narrow. Connected to the heel pad.
Hoof-like toes		Toes narrow at the tip, wider towards the body. Found on two-toed animals such as deer. There is no heel pad behind the toes and no claw marks in front. Sometimes a special kind of claw, called a dew claw, will make a mark behind the hoof-like toes.
3. Heel Pads		
Simple heel pads		One heel pad.
Complex heel pads		More than one heel pad. Often one large and one small.
4. Webbing		
Present		A complete OR discontinuous line connecting the toes near their tips. The line can be thick or thin.
Absent		No line between the toes is visible.

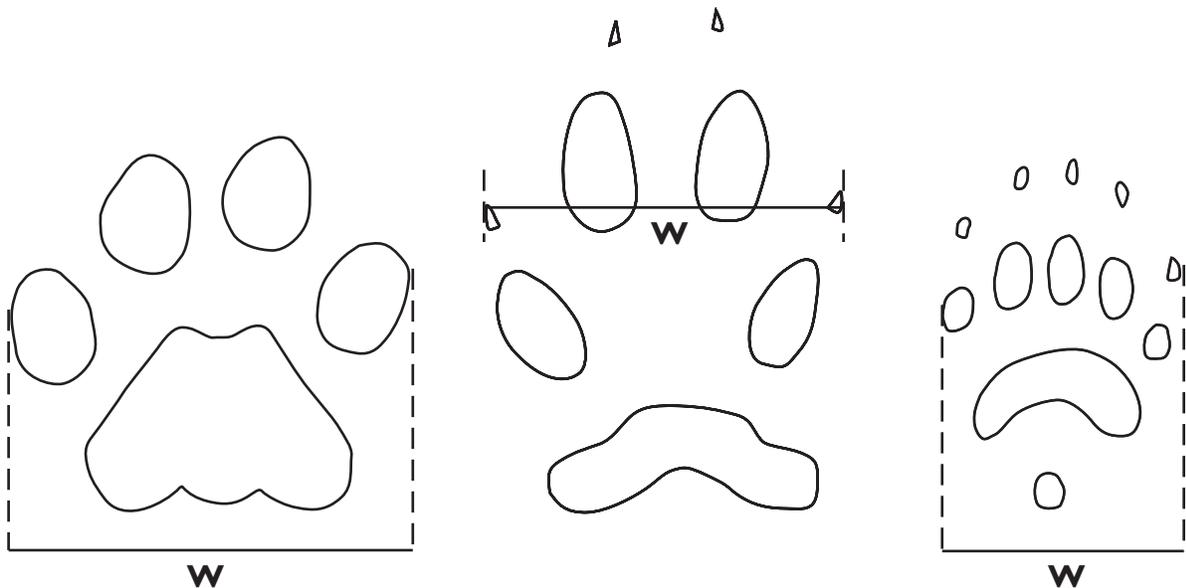
TRACK BASICS

Measuring a Track

LENGTH is measured from the very bottom of the track to the very top of the track. do NOT include the claws in the length measurement. Your length line should cut the track right down the middle.



WIDTH is measured from the outside of the track to the outside of the track at the widest part of the track. Your width line should be at right angles to your length line.



TRACK BASICS

Trail Patterns

Gait – A coordinated pattern of movements used by an animal.

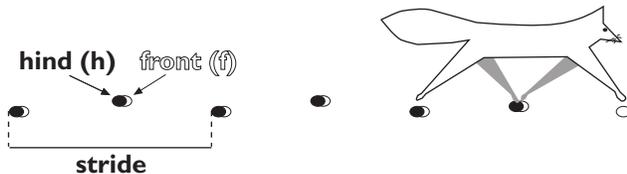
Trail Pattern – The spatial arrangement of footprints in a trail.

For example, a trot is a **gait**, and a trotting animal will leave a diagonal **pattern** on the ground.

Here are the trail patterns produced by four common baseline gaits:

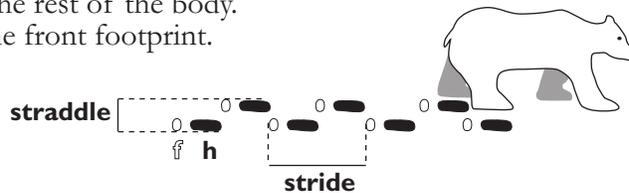
1. DIAGONAL WALK (e.g., deer, dogs and cats)

- Used by animals with long limbs and narrow bodies.
- Movement is in the legs, not in the rest of the body.
- Move hind and opposite-side front limbs forward at the same time.
- Hind footprint usually lands on top of the front footprint of the same side.



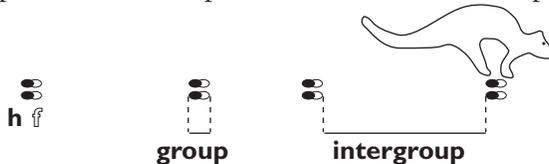
2. OVERSTEP WALK (e.g., raccoons and bears)

- Used by animals with medium limbs and wide bodies.
- Movement is in the legs, not in the rest of the body.
- Hind footprint lands ahead of the front footprint.



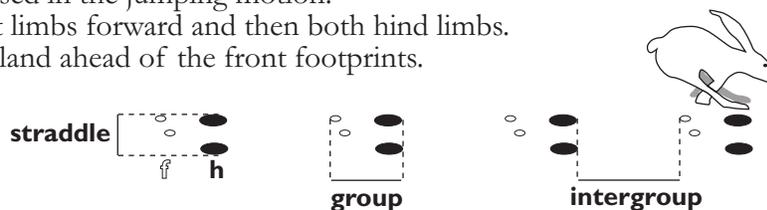
3. BOUND (e.g., weasels)

- Used by animals with short limbs and narrow, tube-like bodies.
- Whole body is used in the jumping motion.
- Move both front limbs forward and then both hind limbs.
- Hind footprints land on top of or near the front footprints.



4. HOP (e.g., rabbits, hares, and many rodents such as mice & rats)

- Used by animals with powerful hind limbs and smaller front limbs.
- Whole body is used in the jumping motion.
- Move both front limbs forward and then both hind limbs.
- Hind footprints land ahead of the front footprints.



Trail Pattern Measurements

Stride: distance from one footprint to the next footprint made by the same foot.

Straddle: distance between the widest points of a trail pattern.

Group: distance from the beginning of the first point to the end of the last point of the same pattern (includes all 4 feet).

Intergroup: distance between the end of one pattern to the beginning of the next pattern.

Tracks Classifications

Family	Toes Front	Toes Rear	Track Shape (left track shown)	Baseline Gait	Trail Pattern
Deer	2	2		Diagonal Walk	
Cat	4	4		Diagonal Walk	
Dog	4	4		Diagonal Walk	
Rabbit	4	4		Hop	
Rodent	4	5		Hop or Diagonal Walk (depending on size of animal)	
Raccoon	5	5		Overstep Walk	
Opossum	5	5		Diagonal Walk	
Weasel	5	5		Bound or Lope	
Bear	5	5		Overstep Walk	

○ front ● hind ◊ both

Field Training Session

The field training session for the Wolverine Tracking Project will be held on the floodplain at Oxbow Park. It takes about an hour to get there from downtown Portland.

Directions to Oxbow Park

From I-84, take the Troutdale exit (17). Continue past the truck stops to the stoplight. Turn right on 257th, go 3 miles to Division St. Turn left onto Division St. Continue, following signs for Oxbow Park, for 5 miles. Turn left onto Oxbow Park Rd; this intersection is also signed. Follow the road into the park.

Alternatively, take SE Division heading east the entire way.



Directions to Floodplain

Turn left into the first parking lot after you pass through the entrance gate. There is a small brown sign that says 'floodplain'. We will meet here.

Parking Fee

There is a \$5 fee per car, unless you have an annual Metro pass. Please carpool if you can.

What to Bring

- It can be surprisingly COLD and WET at Oxbow this time of year. Bring a waterproof jacket and pants, hat, gloves, warm sweater, warm pants, and other warm layers. Wet cotton does not insulate!! Wear non-cotton clothes.
- Journal and pencil/pen
- Tape measure (optional)
- Personal bathroom kit if you need it (the restroom at this parking lot is closed during winter; there are other restrooms, but they are a couple of miles down the road).

We are very fortunate to have the park to track and explore along the beautiful Sandy River. Please respect and treat kindly the plants and wildlife of the area.

Packing List for Day Trips

10 Hiking Essentials:

Whistle **	Sunglasses
Map (supplied by Cascadia Wild)	Matches (in waterproof container) **
Compass **	Firestarter **
Flashlight or Headlamp **	Pocket Knife **
Extra Clothes	Extra Food

** Starred items are included in a safety kit that can be checked out.

Dressing for the snow:

Cotton clothes are not appropriate for the winter outdoors in this area. Cotton, when wet, does not insulate. Instead, it actually speeds up the rate at which you lose body heat. ALWAYS WEAR wool or synthetic clothes!!

Think layers. Several thinner layers are better than one thick layer, because you can remove or put on layers as needed to regulate your temperature.

The best dressing includes: long underwear tops and bottoms (non-cotton, of course), warm pants and shirt (non-cotton of course), warm sweater, shell jacket and pants that are waterproof and breathable.

A large percentage of your heat is lost through your head. ALWAYS bring a warm hat.

Snow boots and mittens/gloves complete the outfit. Many people also like to wear a scarf or neck gaiter.

Other Necessary Gear

Snowshoes
Water and lunch

Other Helpful Gear

Sunscreen (snow reflects the sun, increasing its brightness)
Ski poles/ Walking stick
Gaiters (shell for the lower leg)
Journal and pencil/pen
Tape measure
Field guides
Personal bathroom kit (ex- toilet paper)
Dry change of clothes for the ride home

Cascadia Wild has cold weather clothing to loan out. Please contact us to see if we have what you need.



Wolverine Natural History

The wolverine has been called one of North America's rarest mammals. Solitary and secretive, they survive today only in areas of remote wilderness. Wolverines are members of the weasel family, though in appearance they are so large and robust that they are often described as resembling a bear cub with a tail. They are very powerful for their size and very ferocious. Although only weighing an average of 30 lbs, a wolverine is able to drag an entire moose carcass or drive off a grizzly bear to steal its food. In fact, their name in at least one Native American language translates as "devil of the woods."

In spite of their strength and ferocity, they are not feared as predators, but rather cursed as cache robbers, known for raiding trap lines and cabins. Wolverines are primarily scavengers. Their preferred food source is the carrion of large ungulates such as deer and elk, though they often also prey on small mammals, such as marmots and other rodents.

Wolverines have a circumpolar distribution, ranging throughout Alaska and Canada and in limited numbers down into the Cascades and Rocky Mountains. At one time their range extended as far south as California and Colorado. In the western United States, they are found primarily in high elevation forests. Wolverines have huge home ranges, estimated at up to 500 sq. miles, and can easily travel over 30 miles in a day. Even under optimal conditions, they are few and far between, making their presence very difficult to detect. Detection is made even harder by the fact that they avoid humans.

With their thick fur and large, snowshoe-like paws, wolverines are built for cold weather. Females also rely on snow to construct their dens. Birthing dens are at the end of a snow tunnel that can be up to one hundred feet long, where the young will be safe from predators. Suitable denning areas, where heavy snowpack lasts into May, may be an important factor limiting the distribution of wolverine.

Historically, wolverines roamed much of the northern United States, but trapping and habitat modification have caused their extinction in many areas of their former range. With protections in place, they are now making a comeback in some areas such as the northern Washington Cascades. How long will it take before their populations grow enough to repopulate Oregon? How will this cold-adapted species fair in the face of climate change? What measures can be taken to ensure their survival? With an animal like the elusive wolverine, there are many more questions than answers.



Rare Mammals on the Mt Hood National Forest

What makes a species rare? Is rare the same thing as endangered? Although these terms are not synonymous, the same biological factors contribute to both.

For some animals, being rare means that they are naturally found only at very low population densities. Although this reasoning sounds obvious, let's look into why this varies. Those animals higher on the food chain – carnivores – have to be less abundant and have a larger home range than their prey species, since one individual carnivore will hunt and eat many prey during the course of its life. One way to represent this is through a “food pyramid” that you may have learned about in high school biology. Plants form the wide base of the pyramid, herbivores (plant eaters) form the middle layer, and carnivores form the small, upper layer, representing the smallest population size.

Wolverines are an example of a species that occurs naturally at extremely low population densities. As scavengers, they need to travel even farther to find food than predators do. They are territorial and spread themselves out across the landscape. Having such a small population size makes them much more vulnerable to extinction. Chance events, such as individuals being killed crossing the highway, disease, a fire that destroys part of their habitat, or the failure of some individuals to find mates, will have a much larger impact on a small population than on a large one.

Often correlated with being a predator or prey is what is called “reproductive strategy.” Animals have two basic reproductive strategies. Voles (sometimes called meadow mice) are a good example of the “many offspring” strategy. One female can have up to 13 litters per year, with an average of 6 young per litter. Each of her offspring can have young of its own in less than a month, so over the course of just one year, one vole can have well over a hundred thousand offspring! What keeps the world from being overrun by voles? They are a staple food for most predators and over 99% of them die before their first winter. Cougars, on the other hand, exemplify the “take care of your offspring” strategy. A mother cougar gives birth every other year to only two young. She takes very good care of them, protecting them and teaching them to hunt. She counts on her young surviving. Those species with the “take care of your offspring” strategy, in addition to often having smaller population sizes in general, will also be less able to recover if something happens to the population. Porcupine are another species with a very low reproductive rate, even though they are herbivorous, giving birth to only one young per year. In the past, they were considered pests of young forest plantations, and, along with voles and rabbits, were trapped and killed in order to control the damage they caused. Unlike their faster breeding cousins, however, their populations could not recover, and it is now wondered if they are gone from much of the west side of the Forest. Fisher is another animal that was trapped extensively in the past, this time for its fur. They, as well as their close relatives the marten and wolverine, come readily to traps, and although they have moderate reproductive rates somewhere in between the two strategies described above, fisher were harvested faster than they could reproduce and are now believed to be gone from Mt Hood.

Other species are rare because they only occur in very specialized habitats which are uncommon across the landscape. Again, animals have two different “habitat strategies.” Some species are “habitat generalists,” meaning they can thrive under a wide range of conditions. Coyotes are an example of a generalist, found in forests, meadows, suburbs, and even riding the max! Other species can only survive in one type of habitat. Marten are an example of a specialist. They need closed canopy, upper elevation forest in order to survive. If you go to this type of habitat, you will usually see marten tracks; but if you look at the landscape as a whole, they are rare. They are more vulnerable to extinction because if something happens to that limited habitat, there is no where else for them to go.

Some habitats, such as the shrub fields that are created by clearcuts, have become much more abundant in recent times, so species that depend on them, like deer, have increased in number. Species that prefer habitats that are declining, such as old growth forest, however, are often in trouble. Many animals also need very specific things in the environment, such as snags (standing dead trees). Flying squirrels and many other animals depend on cavities carved out by woodpeckers in snags for their winter homes. If these are missing, flying squirrels will have a difficult time surviving in the area, even if the the forest as a whole looks healthy.

One final thing to consider when talking about habitat is how the patches of good habitat are distributed across that landscape. Most animals are not found continuously throughout an area, instead they exist as discrete populations, interconnected as individuals move between one population and another. Montane red fox, which live in the alpine areas on the tops of the high mountains, are an extreme example of this. Although it is difficult for them to survive in the lower elevation forest in between, the young fox still have to travel through those areas when they leave their parents and disperse out on their own. This connectivity between the populations is very important for maintaining genetic diversity and preventing inbreeding. Barriers such as highways or urban development can interrupt their dispersal. Managing for “wildlife corridors” has become a major challenge in modern wildlife management. With global climate change, it is becoming even more important than ever for species be able to move about and even shift their ranges to areas that will continue to support them.

Why do we care about rare species? Everything influences everything else. A good example of this comes from the reintroduction of wolves back into Yellowstone. The presence of wolves caused the elk to change their behavior, becoming more vigilant and wary. This caused them to use riparian areas less because they were more vulnerable there. This, in turn, caused the riparian vegetation to grow back to its former abundance. Which caused the songbirds that hid in the thick shrubs to become more abundant, and the stream banks to erode less. Which caused less sediment in the streams, allowing the fish to become more abundant. And the list probably goes on with more results that haven't yet become apparent. We really don't know what will happen if just one part goes missing. As Aldo Leopold put it, “to keep every cog and wheel is the first precaution of intelligent tinkering.”

What is Cascadia Wild's role? Cascadia Wild's surveys provide data that helps the Forest Service and other entities understand the wildlife in the Mt Hood National Forest better. The more that is known, the better these animals can be protected. The first step is simply knowing what species are present, and the Forest Service no longer has the funds to answer even this basic question. Our surveys will be able to inform people when wolverine or wolves disperse back into the area. Knowing what habitat each species is associated with is another important objective. Our data, along with that of other researchers, helped show that marten are associated with upper elevation forest, not old growth forest at any elevation as was originally thought. Now managers know to focus on this forest type when trying to protect marten. Collecting long term data on all species is also important in being able to monitor how populations might be changing, either as a result of increased human development, climate change, or the return of wolves back into the area. We want to keep monitoring these populations in order to provide the baseline data scientists can use to detect any changes.

In addition to carrying out surveys, another of Cascadia Wild's goals is education. We can show where the animals are found and help study their habitat needs, but keeping this habitat intact and maintaining it so that it continues to support these animals is a political decision. This means it rests on your shoulders. Forest Service management objectives are set by congress, which only YOU can influence. The more we can make you aware of the needs of these animals, they better off they will be.