



## IDENTIFICATION OF CARNIVORES FROM FOOTPRINTS PROTOCOL FOR TAKING FOOTPRINT IMAGES

1. We need mountain lion tracks from different individuals to establish the FIT algorithm. **Prints can be collected from unknown animals**, but we need to know they are from different individuals- either drastically different tracks or from geographically distant areas. Note: lion home ranges have been recorded at over 300 square miles.
2. **Find a good fresh clear trail** (series of footprints from one animal). We would like photographs of 10-20 left hinds (LH) from the same animal.
3. **Preparing the footprint for photography.** Choose the first print and place a ruler (preferably with cm & inches) as the scale on bottom and left hand axis if possible. Make sure ruler does not obscure any of the track. See example below. If no ruler is available, use another item of known size.
4. A **photo ID slip** giving details of each footprint is very helpful, but not required. This should contain the date and name of photographer and the animal ID. 'Footprint number' refers to the number allocated to the footprint for that day's work. Call the first LH print in the trail 1a, the second 1b, the third 1c etc. Footprints from a second trail will be 2a, 2b etc. If only occasional footprints are seen give each a different number. Indicate which foot, if known, under 'Foot ID'

Example.

PHOTOGRAPHER:	DATE:	Animal ID and sex:
GPS location:	Footprint No.:	Foot ID:

5. **Taking the digital photograph.** Align yourself and camera lens directly above the footprint, and fill the camera frame with the footprint, ruler and ID slip so that no space is wasted and the photo is filled with details of print. It is useful to have a second person view you from the side to check that you are directly overhead, to avoid distortion of the image. Try to get the best possible light contrast – usually found early morning and later afternoon. Try taking photos both in sunlight and with a shadow cast over the track.



Please send images to:  
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Example of good left hind footprint  
image from a captive mountain lion.

## Differentiating Cougar and Dog Tracks

### Cougar



**Size:** About 3-4" long x 3-5" wide (front and hind foot measurements combined).

**Metacarpal pad:** The metacarpal pad in cougar tracks is trapezoidal shaped and fills a large portion of the track. The pad is usually as large as all 4 toes combined. The anterior portion of the pad is wide and may be flat or bi-lobed (often described as a letter "m" shape). Three lobes are usually visible in the posterior portion of the pad.

**Symmetry:** The toes of cougar front feet are asymmetrically arranged around the pad, with toe 3 (your middle finger) longer than the rest (the thumb does not register). Front feet tend to be wider and more asymmetrical than the hind feet. The hind feet of pumas can be very symmetrical and may leave tracks that more closely resemble those of canines.

**Claws:** Claws occasionally register in cougar tracks, but they are sharp and thin when compared to the large blunt claw marks in dog tracks.

### Dog



**Size:** Not useful. Large dog tracks can easily surpass the largest cougar tracks.

**Metacarpal pad:** The metacarpal pad in dog tracks is triangular shaped and fills a much smaller portion of the overall track than in cougar tracks. The pad is usually about the size of 3 toes or smaller. This is one of the most useful characteristics for differentiating cougars from dogs. Two or three lobes may be visible in the posterior portion of the pad.

**Symmetry:** Dog tracks are usually symmetrical. However, asymmetrical dog tracks happen on occasion. The asymmetry found in dog tracks is usually to a much lesser degree than what is found in cougar prints. As in cougar tracks, the front feet of dogs are wider and more likely to be asymmetrical than the hind feet.

**Claws:** Dog tracks usually have large blunt claws. However, the lack of claws is NOT a reliable indicator for identification. Many dog tracks will not register claw marks.

## Finding a Cougar's Left-Hind Footprint



**Front Tracks:** Cougar front tracks are *wider* than their hind prints. The front tracks also have a very *round* appearance while the hind prints appear oval shaped. The heel pad on front tracks tends to be larger and wider and more bi-lobed in the anterior portion than the hind. Front tracks are also more asymmetrical than hind prints.

**Hind Tracks:** Hind tracks tend to be longer and narrower than front tracks. The heel pad is usually somewhat narrower and smaller as well. The anterior end of the heel pad is much narrower than on the front tracks. Hind tracks are more symmetrical than front tracks.

**Left from Right:** Cougar feet are asymmetrical in the same manner as our hand, where the middle finger (toe 3) is longer than the rest. The thumb (toe 1) does not register in the tracks. Ignoring your thumb, hold the 4 fingers of your left hand over the track. Does your middle finger match the longest toe? If so, it is a left track. The toes also have a tendency to be slightly skewed to the inside of the trail.

**Gait Pattern:** Cougars tend to use an *overstep walk* as their primary traveling gait. In this gait pattern, the hind foot steps beyond the front print on the same side of body. Note the image on the left, the sequence of tracks is: RF, RH, LF, LH, RF, RH... etc. So, if you find two left tracks next to each other, the further forward tracks is more likely to be from the hind foot.



Left front (below) and left hind tracks



Left front (below) and left hind tracks