



## ECO-ACADEMY for Youth and Parent Educators

An **animal track** is a mark left by a moving animal. You can find the path, route, or course of the animal by examining its track. Tracking is a technique that scientists and hunters use to find and follow animals.

### Module: Natural Sciences

## Animal Tracks

### Sunshine State Standards:

SC.1.I.17.1, SC.3.L.15.1, SC.5.L.17.1, SC.4.L.17.4,  
SC.5.L.14.2, SC.4.L.17.3, SC.4.L.16.2



### Objectives

- Understand how to identify animal tracks
- Learn how to identify animals' niche through their tracks.

### Vocabulary

**Herbivore** - an animal that feeds on grass and other plants

**Dominant** - 1. ruling, governing, or controlling; having or exerting authority or influence: dominant in the chain of command. 2. Occupying or being in a commanding or elevated position.

**Track Shape** - the track shape is the overall shape of the track pattern.

**Direct Register** - as the front foot is lifted up the rear foot on that side drops directly into the front track (cats and foxes). Also called perfect walking.

**Indirect Register** - as the front foot is picked up the rear foot on that side drops slightly behind and to the right or left of the front track (depending on the sex of the animal).

**Stalk** - to proceed in a steady, deliberate, or sinister manner

**Bound** - to move by leaps; leap; jump; spring:

**Gallop** - to run fast with a two-beat stride in which all four legs are off the ground at once

## **Background**

Animal tracks believe it or not are very important for many things. Just by finding tracks we can identify what animals are living in that certain place you're in. They can also help solve mysteries and help hunters find there hunt.

## **Large Scale sings**

### ***1. Landscape Tracking***

This is reading the landscape to locate animals. In most landscapes there are "islands" where many species will be found. One way to look is to find the best "islands" for herbivores. Wherever there are herbivores, carnivores will follow. The areas between the islands will tend to be scarce of animals except as an area for animals to pass through.

- Herbivore Needs (\* = most important)
  - \*Cover - thick tangles of vegetation, brush, rocks, to hide in and escape to
  - \*Wide variety of vegetation - a single type of vegetation is cleaned out. A good supply is necessary to be able to stay in the habitat/home. Going outside of the habitat is dangerous. Therefore, having various types of vegetation that come in at different times helps to maintain an ongoing food supply.
  - Water - this is not essential since many herbivores don't need it. They get water from dew and from the plants they eat.



- Indicator Animals - the presence of these animals is an indicator of the "value" of the habitat. If one of these is present it is a good habitat, if all are it is an excellent habitat.
  - Vole - most prolific rodent, and a major food source for all predators
  - Rabbits
  - Deer

### ***Types of Habitats***



Deep Forest - very poor as an animal habitat. There is little undergrowth and poor cover. The vegetation is not very varied. Generally there are some raccoons, birds, rabbits, but very few others.



Fields - also very poor. There is little or no cover except at the side of the fields. The middle of the field is open territory for hawks and owls.



Transition Areas - these are excellent locations to find animals. A transition area is zone of intersection between two habitats. Ex. Forest and field, field and stream, forest and stream. These offer wide varieties of vegetation and cover.

***II. Travel Routes*** - Animals will tend to take the easiest route of travel across a landscape (just like you and I - around boulders etc.) unless they are being pursued. This results in the creation of a number of "roadway systems" within the habitat. Sticking to a roadway system when being chased is poor. The prey is usually smaller than the predator and therefore tries to push through tiny openings in deep brush where the larger predator can't follow.



**Trails** - are species nonspecific. Any number, size, and shape of animal will use them. These are the superhighways of the woods. They are frequently used and rarely changed. Animals know them intimately. There may be troughs, no vegetation or battered vegetation.

**Runs** - these are less frequently used and are very subject to change. There is some definite wearing into the landscape but varies. These are very specific to a particular animal and what it is used for (e.g. runs may connect watering areas, bedding areas, feeding areas back to a trail). Survival Note: Runs are good areas to trap. You know what animal you are going for.



### **Escape Routes**

- Pushdown - Generally only used once, crashing through the brush from a trail or run to escape. Brush is broken down.
- Established Escape Route - a pushdown used repetitively. It often leads to a hide.

### **III. Animal Sleeping Areas**

**Bed** - any consistent sleeping place. It is well chosen to be in the thickest area of brush to be able to hear a predator coming.

**Transit Bed** - an established bed used every so often.

**Lay** - usually used only once or twice. Used for rest, chewing cud, etc. Can be recognized by broken and crushed vegetation.



**Den** - only used to bear and raise young.

Ex. Fox is an open ground sleeper, it curls up in the brush. For birthing it excavates a hole or uses an old groundhog hole for a den. Ex. The groundhog hole is a place for the groundhog to live. While it is raising young it is a groundhog den.

## **IV. Feeding Areas**

**Varied Run Feeding area** - where animals go through and eat off of the trail or run further and further. (80%)

**Single plant feeding area** -characterized by a run terminating at a single plant or group of plants of one kind.

**Eat-through** - where an animal or animals has literally eaten through a patch of vegetation and come out the other side.

**Patched** - marked by irregular nibblings along the edges of established trails or runs



### **Medium Scale Sign**

This makes up the largest assortment and most definitive sign. It is found all over especially on trails and runs.

#### ***I. Most Important:***

**Rub** - polished areas on the landscape

- Unintentional - animal rubbing up against an object that protrudes onto the trail (e.g. a branch).
- Intentional - specific area where an animal is rubbing itself. E.g. deer scraping velvet off antlers, wallowing in dirt to rid itself of mites etc.

**Hair and Feathers** - especially at a rub or a projection where the hair or feather gets snagged. Clumps of hair may either be purposely pulled out by the animals or clumps of hair or feathers may indicate a kill site.

#### **Gnaws and Chews**

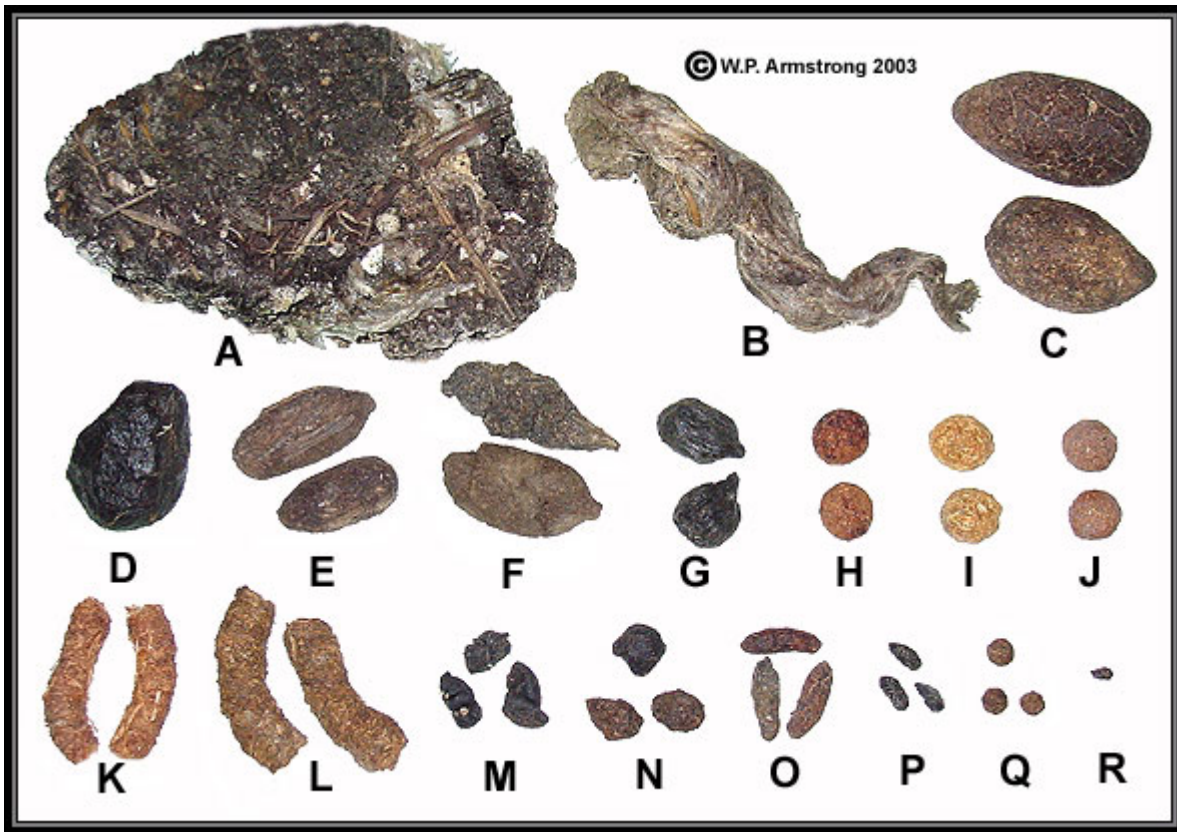
- Gnawing - like a beaver, on nuts, trees bones (rodents get their calcium from gnawing bones). You can tell the animal by the size of the teeth marks.
- Chews - where a plant has been bitten off (twigs, stalks of grass, etc.)

- 45 degree Clean Cut - caused by an animal with incisors - rodent
  - Little serrated edge - deer - pull grass up against upper palette and sickle it off by pulling neck up
  - Masticated - teeth marks all over possibly with saliva - a predator chew, used to get minerals
  - Break - not a chew, this is caused by animal movement.
- Scratchings - these can be all over, made by claws digging in on trees, scampering over sticks, boulders etc.
    - Intentional - for example a skunk or raccoon scratching in the ground for grubs, cat or bear sharpening claws on a tree.
    - Unintentional - from the animal's passing
- Ground Debris - any debris on the ground that is scratched, pinched, dented, abraded unnaturally, holes, stone rolls, broken twigs etc. (stone roll = a stone out of its bed, rolled over, skidded etc.)
- Upper Vegetation - vegetation breaks (see above), plants abraded and broken by animal passage. The location of the break (how high up) indicates type of animal. You can age a break by clearly noting how the vegetation has aged at the break and doing a sample break to observe and time. This is not as accurate as track aging.
- Scat - tells an incredible amount. Scat tells you the type of animal by its size, shape, and consistency. It tells you what the animal has been eating. Animals leave scat in areas which they feel safe. This means that it is a good area to look for animals. Scat is often found near lays.

## Scat Analysis

First determine the family shape. Then lay the scat on a piece of paper, cut it down the center carefully, then quarter it. Take a pair of tweezers or a toothpick and pick away at the edge carefully. Separate the contents into piles of bone, feathers, hair, misc. in order to see what the animal's been eating (this is for carnivores). If you find a skull, check Peterson's Field Guide to Mammals for skull or teeth identification. Herbivores tend to show loose, mushy scat in the summer because they are browsing on soft succulent vegetation. As summer turns to fall you will find more evidence of nuts, seeds, and fruits. In winter the scat becomes quiet hard and compact consisting

mainly of the more woody buds, twigs, and bark. Avoid using your fingers to work with scat (wear gloves). If the scat is dry and dusty, don't inhale the dust (can lead to lung infections).



- Tubular - Dog Family, raccoon, skunks, opossum, wolverines, bears
- Tear drop or Tapered - Cat Family
- Fattened Threads - Weasel Family
- M&M's - Rabbits & Hares
- Oblong, may have nipple at end - Deer
- Pencil Lead - Rodents
- Fox - Tubular & Tapered at both ends - between dog and cat

Aging Scat: can be aged but to be at all accurate you need to see it come out of the animal. Leave a popsicle stick marker and check it every so often. Scat dries from the inside out. Find some fresh, pick it



apart and examine the contents. Come back later, pick another apart and see how it has changed over time.

Pellets: Raptors (hawks, eagles, and owls) regurgitate pellets of what isn't digested. These pellets consist of bones, hair and/or feathers.



### **Small Scale Sign**

Compressions - this is both a track and a sign. On any surface there are dust particles and grit which collect. When anything walks over this surface it either presses the grit into the surface or removes it. You can see this using the sideheading technique.

Sideheading: Keep the track between you and the light source. Get your head down along the ground. Scan the ground with your bottom eye (bottom eye reads to 1 ft. top eye reads to 3 ft.). The compressions will appear as a shiny spot or a dull spot on the surface (depending on whether the grit is shiny or dull). When more dust settles it will add a layer to everything but the pock still is visible.

### **Ghost Scale Sign**

This is an interface between tracks proper and disturbances not on the ground which disappear (or seem to).

Dullings - in the morning with dew on the ground everything is shiny from the dew. If something crosses the grass it either presses or wipes away the moisture which appears as a dull area. This disappears as the dew evaporates.

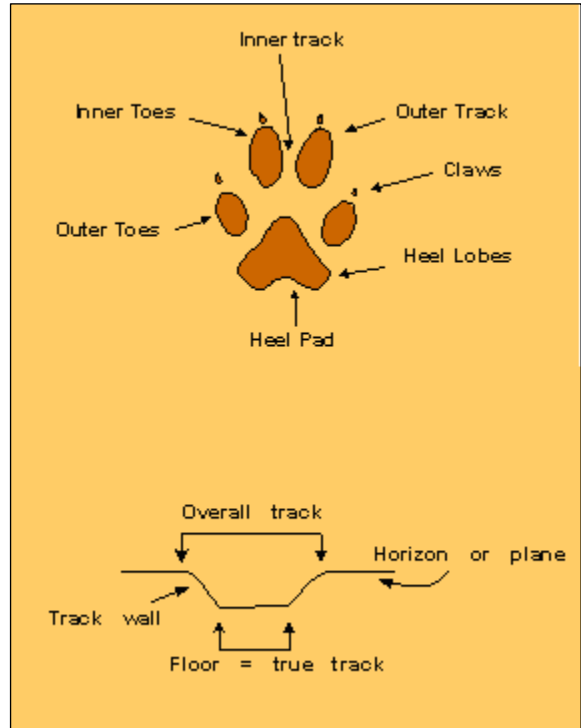
Shinings - during the day everything begins to dull down. Anything walking on the grass presses it down and the shiny side of the grass catches the sunlight giving it a shining. The shininess disappears in about 2 hours. The bent grass recovers completely in about 24 hours.

Leaf Depression - leaves are compressed as an animal walks leaving a compression outline beneath the leaves in the soil (a true track). The leaves spring back up but not all the way leaving a depression. By sideheading you can see the depression.

## Parts of a track

When a track is made, the heel slides into the ground, registers and pulls out. No track will register straight down. There is always some angled component (looking at the track cross-section) either from the foot entering or the foot leaving.

The softer the soil, the greater the slope of the wall creating a larger distortion between the overall track and the true track. Most people don't read the true track. They read the horizon cuts (overall track) which does not give the true track measurement. The true track is the only real measurement for tracking. If you read the overall track you could not tell the difference between a dog track and a coyote track. E.g. on a dog the inner toes are larger than the outer toes; on a coyote the outer toes are larger. But this distinction will not show on the overall track.



## Measuring a Track

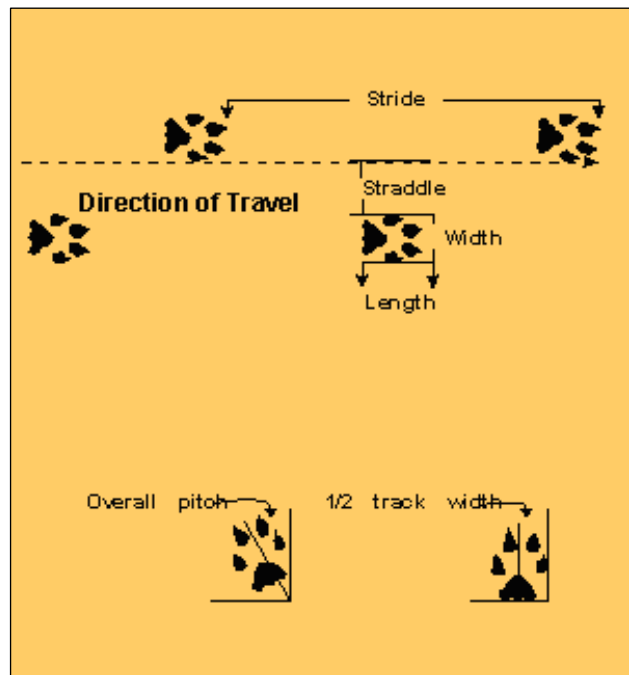
You need to measure the length and width of all four tracks (2 in humans). When measuring animal tracks the length readings between tracks are measured from toe to toe because animals hit first with their toes. In humans it is measured from heel to heel because we land heel first.

**Establish the Line of Travel**- This can be done by eye if the tracks are clear or by placing popsicle sticks at the heel of the tracks and connecting a string to the sticks.

**Length of Track** - measure the length of the true track.

**Width** - measure the widest part of the track.

**Stride** - is measured from the heel of one foot to the heel of the other foot (i.e. right heel line to left heel line).



**Straddle** - if you draw a line of travel between the left heels and a line of travel between the right heels the distance between these two lines is the straddle. There is zero straddle and positive straddle.

**Pitch** - is the degree to which the foot angles out from the line of travel (pitched out). At the widest point of the track, draw a line bisecting the track along its long axis. The distance from where the line exits the front of the foot to the heel line is the overall pitch.

**Overall Stride** - is measured from the heel on one side to the next heel on that side. Thus there is a left overall track and a right overall track. Comparison of these two can determine the orientation of the trackee.

**Determining Orientation** - The dominant side gives a short (punch) step while the nondominant side gives a long (feeler) step. Thus if a person is walking blindfolded they will circle to the dominant side. E.g. a right-sided person has a right overall stride of 20" and a left overall stride of 20 1/2". Thus the person will veer to the right. This is why a lost person often picks a path dictated by veering to their dominant side. Note: If you add 1 pound of weight for every 50 pounds of the person's body weight and carry this weight on the nondominant side it will straighten out the person's walk (no circling).



## Classification of Animal tracks

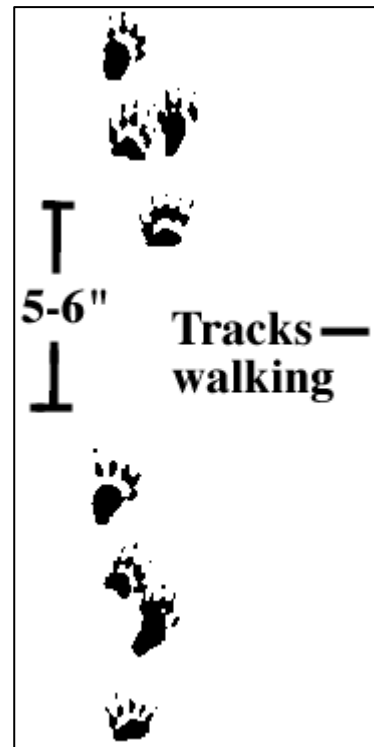
5% 1) Clear Print - when you can see the track clearly in soft soil, all toes visible.

95% 2) Pattern Classification - no clear print, you must tell track by general shape and size of track

### Clear Print Classification

The front and rear tracks on one side will be near each other. You need to note the number of toes in the front track and the rear track. Looking at the track you will also note the type of preferred gait used by the animal (in order to differentiate between front and rear tracks).

- **Track Shape** - the track shape is the overall shape of the track pattern.
- **Direct Register** - as the front foot is lifted up the rear foot on that side drops directly into the front



track (cats and foxes). Also called perfect walking.

- **Indirect Register** - as the front foot is picked up the rear foot on that side drops slightly behind and to the right or left of the front track (depending on the sex of the animal).

## Birds

- Ground Bird - spend most of their time on the ground and show a "walking" gait
- Perching Bird - spends most time in the trees - shows a "hopping" gait
- Mixed - if the track shows both walking and hopping it is probably a bird that splits its time between trees and the ground e.g. Crow

## ***Pattern Classification***

There are a number of different types of locomotion patterns. 90 - 95% of the time an animal will use this method of locomotion. In each case below the gait described is the normal walking pattern for that animal. As the animals speed changes this pattern will change (ex. moving slowly, in pursuit, being chased).

RF = right front LR = left rear, etc.

### **Continuum of Speed:**

Stalk ----->Slow Walk ----->Walk ----->Trot ----->Bound ----->Lope ----->Gallop

***Diagonal Walkers*** - the animal moves the opposite sides of the body at the same time (e.g. RF & LR move simultaneously)

- Deer Dog Cat - cat and fox direct register by being completely off the ground at one point

***Bound Walkers*** - the front feet land together, then the rear feet behind 99.9% of the time these animals use this pattern even when moving slow or fast. Stride measured from rear toes to rear toes.

- Weasel Family - All Members Except Skunks & Badgers

***Gallop Walkers*** - the front feet land first, then the rear feet come on the outside of the front feet and land ahead. 99.9% of the time these animals use this pattern even when moving slow or fast. Stride measured from rear toes to rear toes. The pattern doesn't change with speed. The distance between sets of tracks increases.

- *Rabbits Hares Rodents* - Except Porcupine & Ground Hog

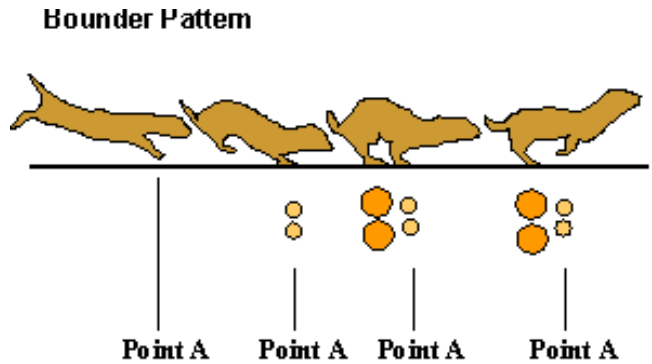


- Rarely hold a bound except in soft or rocky terrain - prefer to gallop; on clear terrain hold a bound on for a few patterns before going into a gallop - prefer to trot or lope - can go straight from a walk to a gallop (e.g. if suddenly frightened)

Species Note: Deer prefer to gallop for high speed except for the Black Tail Deer and the Mule Deer that prefer to bound because they live in rocky areas.

## 2. Bound Walkers

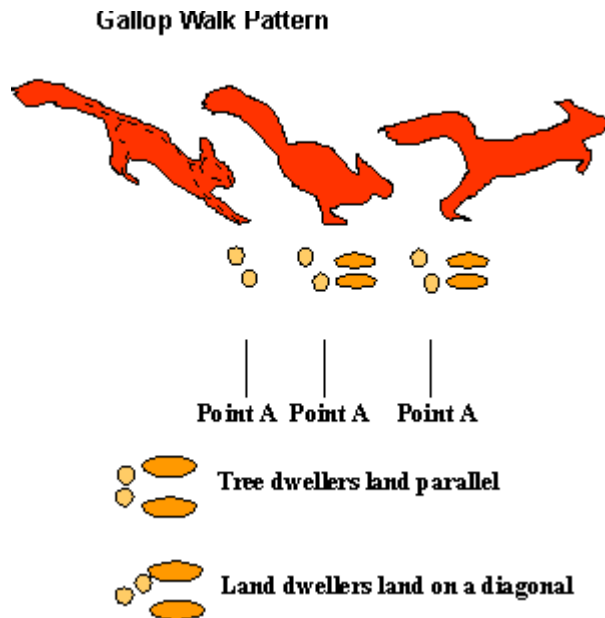
- For a sheer burst of speed will gallop - seen just before a kill
- Will diagonal walk when approaching hunting territory e.g. slowing down to be more quiet
- Will stalk when hunting game
- Will pace when aggravated, bored or agitated, threatening, seen just before going out on hunt



Note: This is an example of how you can tell the "emotional state" of an animal by looking at its tracks.

## 3. Gallop Walkers

- Prefer to gallop but will bound in soft terrain i.e. snow, mud or rocky terrain
- Will diagonal walk if it needs to cover a shorter distance than a hop would cover, e.g. rabbit moves 2" over to feed
- Will stalk when moving away from danger
- Will pace when aggravated, threatening or bored



## 4. Pacers

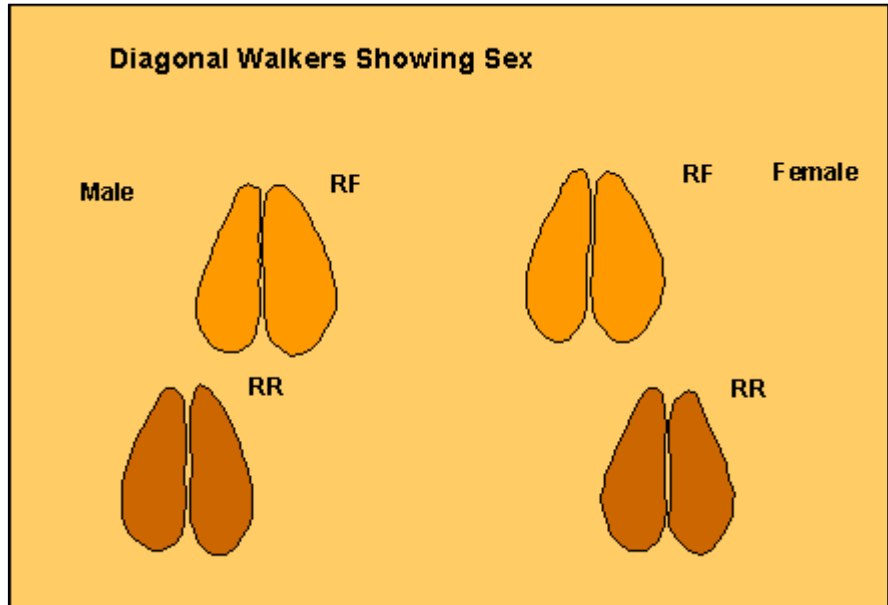
- Can go from a stalk to a gallop

## Reading Tracks

1) Sidedness - if one front foot is behind the other over 4 - 5 tracks that foot is on the dominant side. The animal will have a tendency to circle in that direction.

2) Sex - (this works for diagonal walkers only). Deer for example, just because a track is deep or splayed wide does not mean that

animal is male. There are variations in the size of animals of the same species from location (different amounts of feed). Male deer (bucks) and female deer (does) have different bone structure. Doe - pelvic girdle > shoulder girdle (for birthing). Buck - shoulder girdle > pelvic girdle (to support antlers). In order to tell the sex of the animal you must compare the animal to itself. Find the front track on one side. The look for the rear track on that side. If the rear track is to the inside of the front track = male, a rear track to the outside = female. This system works only for adult animals. Immature animals have not finished bone development and may have rear track falling exactly behind front track.



Cats are another example because they direct register. Then how do you tell whether the rear foot is inside or outside the front? In cats (and foxes) the front foot is larger (by 1/3) than the rear foot. Thus the rear track will fall in the front track and be to the inside or the outside. Inside = male Outside = female.

## Aging Tracks

1) The single most important factor in track degradation (and thereby aging) is weather and weather fluctuations.

2) Gravity is the second major factor in track degradation.

3) The third factor is the type of soil. The only way to learn to age tracks is to observe a track degrade over time with given soil conditions and weather conditions. Soils are classified from 1 to 10 with 1 being sand and 10 being clay (soft to hard). You must estimate the soil classification first. Then keep an accurate record of weather changes and by observing a track you will develop a sense of how a track degrades in that type of soil with those weather conditions. Weather conditions to be aware of are temperature, humidity, wind, precipitation, and hours of direct sunlight on the tracks.

4) Wisdom of the Marks - Do this once a month for three months and you will cover all seasons for the type of soil in your area (if possible do it with various types of soil). Clean out rectangular area of soil. Remove all rocks, transplant plants etc. Dig down 2 inches, break up soil into smooth texture, pat it down smooth and leave it to settle for 24 hours. Using a stick or object approximately 1/2 inch diameter make 5 marks in a row in the soil with varying pressure from a touch to enough to go 1/2 inch deep. Look at the marks carefully for 10 minutes to engrain into your subconscious what they look like. Write down weather conditions. Come back 6 hours later and repeat the entire process making the new marks with the same implement and the same pressures in a row next to the first marks. You will now have fresh marks and 6 hour old marks to compare. Study both for 10 minutes. Come back in 6 hours and again 6 hours after that and again in 6 hours. This will give you a comparison of track degradation at 6 hours, 12 hours, 18 hours and 24 hours. Then go back every 24 hours for 6 days and you will see the track age and degrade over a week. After doing this summer, fall, winter, and spring you will begin to learn how to age tracks to within 2 hours of their being made. It is also advisable to do this whenever you move into a new area for tracking.

## Learning Techniques

1) File card learning Method - Read about an animal in the Peterson's field guide and prepare a scan card on a 3 x 5 index card. By scanning these cards during "blow off time," you will quickly learn to recognize tracks.

2) Tracking Stick - This can be either primitive ( a stick with notches cut into it) or advanced a dowel with rubber bands ("O" ring washers work great). The stick should be about 3' x 1/4" and very straight. The tip should be sharpened to give a point. The stick is used to measure a track and give you a standard for comparing and looking for the next track.

- Tip to 1st mark = length
- 1st to 2nd = width
- Tip to 3rd = stride
- 3rd to 4th = straddle
- 4th to 5th = true pitch

Since animals walk 95% of the time the tracking stick is a useful way to find the next track. If you lay the 3rd mark over the center of the last track the stick will point to the center of the area where the next track will be. To find the track add the straddle. If you don't find the track, ask yourself what does the landscape tell you? Uphill, downhill will shorten the stride; debris - does the animal understep or overstep it? Soft earth will have an effect on stride length.

3) Track Pack - Carrying these items with you will help in learning to track.

- Magnifying glass - large 2-4 x, jewelers loop 10x

- Tape measurer - thin, metal 8'- to measure stride, straddle etc.
- 6" plastic ruler - to measure track
- Small notebook
- Pen
- Ziplock bags - for scat, bones etc.
- Peterson's Field Guides
- File Cards
- Tweezers
- Popsicle sticks and string
- Price tags - for labeling.

All the information you need to find the next track is within the one you have. Never skip a track (cross-tracking); it doesn't teach you anything. If you hit "the wall" and can't find the next track, work at it, analyze it. This is how you learn to be a good tracker. If you spend 2 hours to find the next track, your skill will grow to a higher level.

## **Tracking Environmental Hazards**

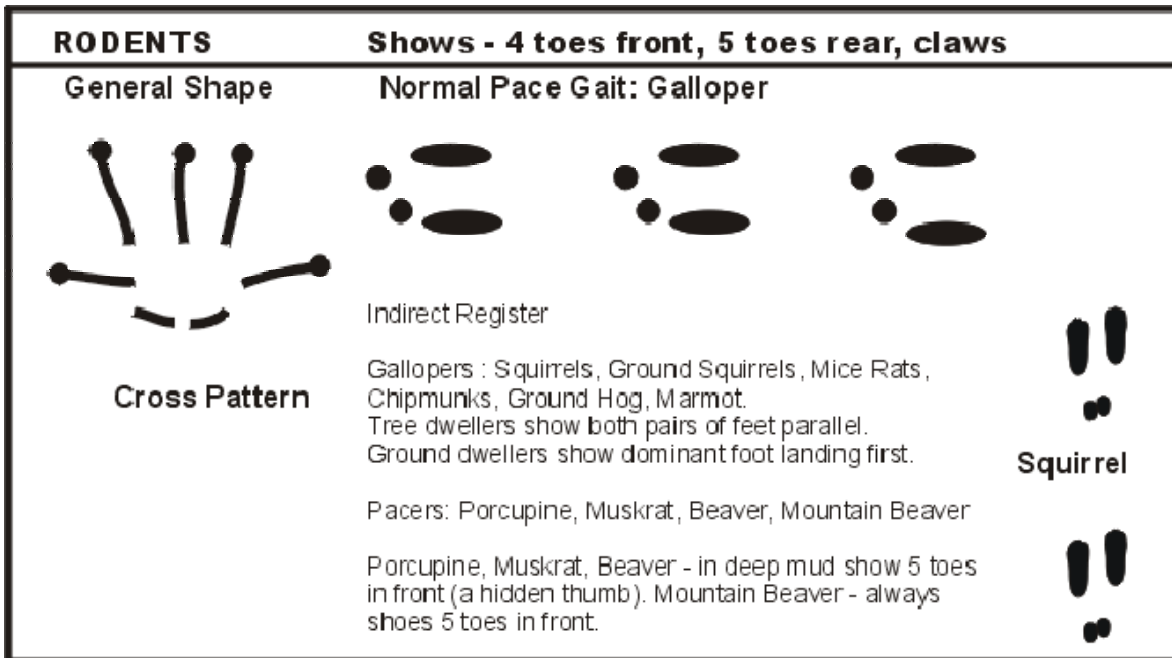
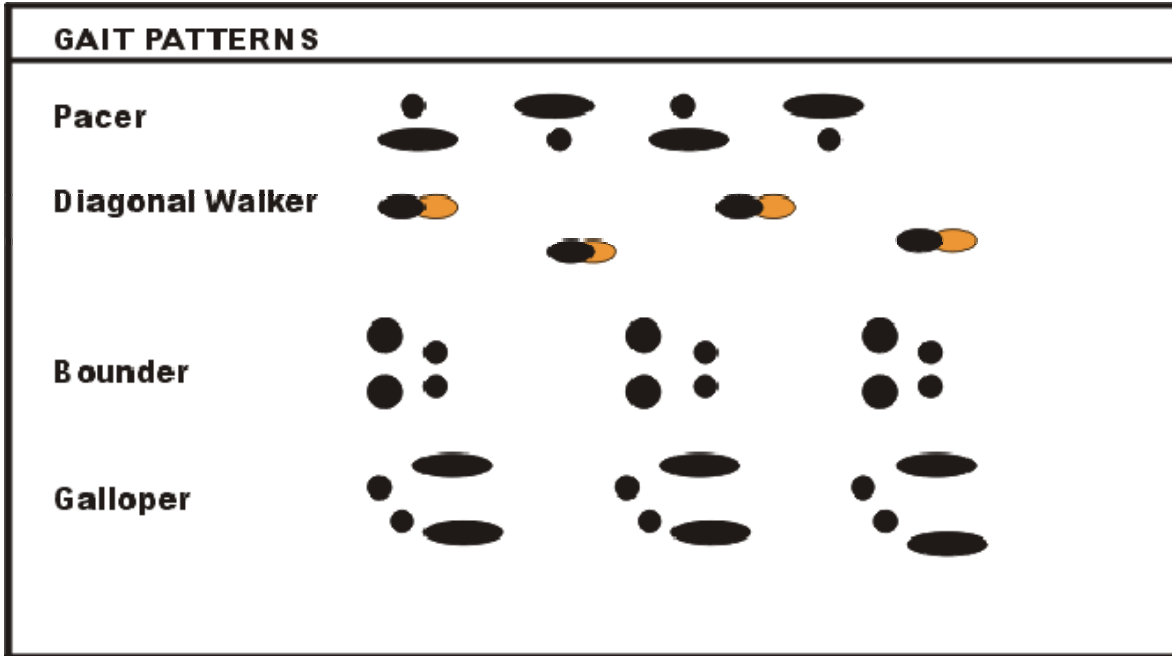
In any tracking situation you need to be aware of what the local environmental hazards are in order to avoid accidents. This is a general list for a typical mid-Atlantic forest region.


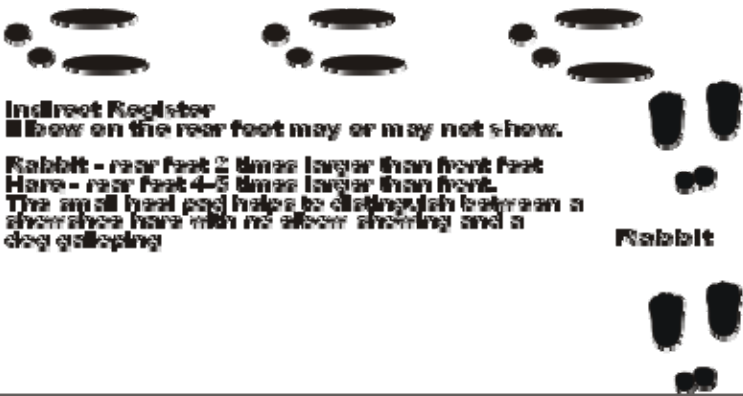
Sample Environmental Hazards:





- Scat - avoid handling it with your hands. When picking apart scat or pellets use a stick or disposable gloves. Dry scat contains numerous microorganisms and spores which if inhaled can lead to serious lung infections.
- Poison Ivy, Oak, Sumac - The basic rule of "leaves of three, let it be" serves as basic identification of poison ivy. Know how to recognize it both in the plant stage and the vine stage. Typically found in moist soil areas.
- Ticks - Tick bites can lead to a number of serious diseases including Rocky Mountain Spotted Fever (RMSF) and Lyme Disease. RMSF is primarily carried by dog ticks. Lyme Disease is carried by deer ticks which can be very difficult to locate. See the web site section on Lyme Disease. Often found in the thick brush at the edge of transition areas.
- Bees & Wasps - nests often found in rotting logs where you may be looking for sign.
- Rattlesnakes - often sun themselves on rocks in cool weather or hide in shadowed areas in hot weather.
- Rabies - Rabies is on the increase in animals. Do not approach animals too closely. Rabid animals may appear anxious and aggressive or very docile. In either case they can attack very suddenly.
- Hanta Virus - Hanta Virus is carried by rodents.




# Animal Tracking




Animal tracking diagrams are a great way to learn basic track identification. Each diagram shows a general type of animal showing the basic track shape, standard walking gait and some basic facts about the tracks of the animals in that family.










<b>RABBITS &amp; HARES</b>		<b>Shows - 4 toes front, 4 toes rear</b>	
<b>General Shape</b>		<b>Normal Pace Gait: Galloper</b>	
 <p>Front</p> <p>Rear</p> <p>Rear with elbow</p>	 <p>Indirect Register          ■ Bow on the rear feet may or may not show.</p> <p>Rabbit - rear feet 2 times larger than front feet          Hare - rear feet 4-5 times larger than front.          The small heel pad helps to distinguish between a hare and a rabbit with no elbow showing and a dog galloping</p> <p>Rabbit</p>		

<b>CAT FAMILY</b>		<b>Shows - 4 toes front, 4 toes rear, claws (rarely)</b>	
<b>General Shape</b>		<b>Normal Pace Gait: Diagonal Walker</b>	
 <p>Round</p>	 <p>Direct Register          Front feet 1/2 larger than rear          No claws (95% of time) - sometimes out during a hunt.          Zero straddle          Zero pitch</p> <p>Feral Cat - 4 toes equal size          Mountain Lion - 4 toes equal size          Bobcat - inner toes larger, cleft in heel pad          Lynx - outer toes larger</p>	 <p>Cat</p> 	

<b>DOG FAMILY</b>	<b>Shows - 4 toes front, 4 toes rear, claws</b>
<p data-bbox="256 262 479 294"><b>General Shape</b></p>  <p data-bbox="256 756 438 787"><b>Egg Shaped</b></p>	<p data-bbox="641 262 1166 294"><b>Normal Pace Gait: Diagonal Walker</b></p>  <p data-bbox="641 499 993 556">Indirect Register Front feet 1/3 larger than rear.</p> <p data-bbox="641 619 1112 787">Dog inner toes larger Fox - 4 toes equal size, direct register, zero straddle, zero pitch, shows ridge on heel pad Wolf - 4 toes equal size Coyote - outer toes larger</p>  <p data-bbox="1266 798 1331 829"><b>Dog</b></p>

<b>WEASEL FAMILY</b>	<b>Shows - 5 toes front, 5 toes rear, claws</b>
<p data-bbox="284 1104 506 1136"><b>General Shape</b></p>  <p data-bbox="341 1381 506 1413"><b>Box Shape</b></p>	<p data-bbox="609 1104 1019 1136"><b>Normal Pace Gait: Bounder</b></p>  <p data-bbox="581 1344 1128 1400">Indirect Register All are ball walkers (except skunk - see Others)</p> <p data-bbox="581 1428 1144 1484">Weasals, Mink, Fisher, Otter, Marten, Wolverine, Badger</p>  <p data-bbox="1274 1669 1388 1701"><b>Badger</b></p>

<b>DEER FAMILY</b>	<b>Shows - 2 toes front, 2 toes rear</b>	
General Shape	Normal Pace Gait: Diagonal Walker	
		
<b>Heart Shaped</b>	<p>Indirect register            Front feet 1/2 larger than rear feet            With speed or soft ground the toes may spread and dew claws appear            Larger toe is on the outside</p>	
  Dew Claw	<p>Can tell sex using toe size/location (in adults). Locate the front vs rear tracks on a pair of prints. Decide which toe is larger to determine whether it is a left or right pair. If the rear foot is in a wider stance then it is a female (wider pelvis). If the front foot is in a wider stance then it is a male (wider shoulder girdle).</p>	
	<b>Deer (toes open)</b>	

<b>OTHERS</b>	<b>Shows - 5 toes front, 5 toes rear, claws</b>	
General Shape	Normal Pace Gait: Pacer	
		
<b>Fuzzy front edge with            elliptical back - human            looking</b>	<p>Indirect Register            Raccoon, Opposum, Bear, Skunk (from Weasel family)</p>	
		
	<b>Bear</b>	

## Animal Track Listing By Number of Toes

### **2 Toes**

- Mule Deer
- Whitetail Deer
- Pronghorn
- Bighorn Sheep
- Mountain Goat
- Elk
- Moose
- Caribou
- Bison
- Wild Boar
- Collared Peccary

### **4 Toes**

- Eastern Cottontail
- Snowshoe Hare
- Black-tailed Jackrabbit
- Bobcat
- Lynx
- Mountain Lion
- Red Fox
- Gray Fox
- Coyote
- Gray Wolf

### **5 Toes**

- Long-tailed Weasel
- Mink
- Striped Skunk
- Badger
- River Otter
- Virginia Opossum
- Raccoon
- Muskrat
- Beaver
- Black Bear
- Grizzly Bear

### **4 Toes Front, 5 Toes Hind**

- Norway Rat
- Eastern Woodrat
- Deer Mouse
- House Mouse
- Hispid Cotton Rat
- Ord's Kangaroo Rat
- Meadow Vole
- Pika
- Least Chipmunk
- Gray Squirrel
- Fox Squirrel
- Thirteen-lined Ground Squirrel
- Red Squirrel
- Golden-mantled Ground Squirrel
- Southern Flying Squirrel
- Prairie Dog
- Woodchuck
- Yellow-bellied Marmot
- Valley Pocket Gopher
- Eastern Mole
- Porcupine
- Nine-banded Armadillo

# Activity: Plaster Casting

**Duration:** 30-45 minutes

## Objectives:

- Learn to identify different animal tracks

## Materials:

- Plaster of Paris
- Mixing container
- Stick or spoon for mixing
- Water
- Thin cardboard strips (optional)

## Procedure

Find a good track that shows a lot of detail. If needed, gently remove any leaves or sticks that have fallen into the track. You can very gently blow away some of the excess dirt, but be careful not to destroy the track. If you want, you can use the cardboard strip to form a wall around the track to contain the plaster. This is useful if the track is on a slope and the plaster will run out.

1) Pour dry plaster into your mixing container.

2) Then, pour in some water and mix with a stick or spoon until you have plaster that is about the consistency of pancake batter. Slowly pour the plaster into the track, being careful to get plaster into all the toes and claw marks. You can let the plaster overflow the edges of the track. Let it dry for about half an hour. To check for dryness, knock gently on the plaster. If it has a ceramic sounding ring, it is dry enough to pick up. If the plaster is still mushy, leave it to dry longer.

Some plaster, especially art casting plaster, can take an hour to dry. The plaster used by carpenters is best because it dries quickly.



3) When you pick up the track, try not to grab the edges as these sometimes break off. It's best to lift the track from underneath. Use a stick or knife to get under the track and lift. Be careful if you do this with a big track as this can cause the casting to crack.

4) After you've picked up the cast, let it dry overnight before trying to get the dirt off. Some dirt will not wash off. You can paint the casting if you want. Casting in snow can be difficult because the plaster generates heat as it dries. Try misting the snow with water from a spray bottle. Let the water freeze for a while. This may firm up the track enough to make a casting. Castings may be taken home or back to class for further study.

5) Identify the animal that made it and look up information about the animal's life history.

Tip: To make the plaster dry quicker, add a little salt to the mixture. Be careful; it dries really fast. To slow down the drying process, add a little vinegar.



## **Activity: Baited Track Plates**

Note: Preparation of track plates needed for this activity should be done by an adult.

**Duration:** 1-2 hours

**Objectives:**

- Identify different animals located in an area by their tracks

**Materials:**

- Flat sheets of aluminum
- Acetylene torch and acetylene
- Tripod (optional)
- Bait (peanut butter, chicken or dog food)



**Procedure:**

1. The idea here is to coat the aluminum plates with soot from the acetylene torch. You can put the plates on two sawhorses and burn the torch underneath them to get soot on them. Be careful and only handle the plates by the edges so you don't smudge the soot surface. You might want to have a box to carry the plates into the field so that they aren't smudged by rubbing against each other.
2. Carry your plates out to a place where you've found tracks or seen animals.
3. Place the plates soot side up on the ground. You should put the plates side by side to get a big surface area.
4. Then, put bait in the middle of the plates. (It is best to do this activity when it is not likely to rain.) You can decide which animal you want to try and attract by experimenting with different types of bait. (I don't advise handling uncooked meat in the field because of the possibility of bacteria.)
5. Leave the baited plates for a few days, or just overnight. When you next visit the plates, you should see some tracks in the soot.
6. Collect the tracks by using wide, clear plastic tape. Take a piece of tape and place it sticky side down over the track on the plate.
7. When you lift up the tape, you'll have a track on it. You can then stick the tape to a plain white sheet of paper. The track is where the soot was removed by the animal's foot.
8. A variation of this activity includes building a wooden box to house the soot plate. Use plain white contact paper (shelf lining paper). Put the paper sticky side up at the back of the box. You can attach it to the underside of the plate with tape. Put your bait in the back of the box.

When the animal enters the box to get the bait, it walks through the soot, then leaves its sooty tracks on the contact paper. To collect the tracks, cut them out from the paper and put them in clear plastic bags so the tracks show through. These can be photocopied or scanned so a whole class can look at them.

## **Resources**

[http://en.wikipedia.org/wiki/Animal\\_tracks](http://en.wikipedia.org/wiki/Animal_tracks)

<http://42explore.com/animaltracks.htm>

[http://www.ussartf.org/animal\\_tracking.htm](http://www.ussartf.org/animal_tracking.htm)

<http://www.bear-tracker.com/>

<http://www.bear-tracker.com/teachers.html>