

# TRACKS

## FOOTPRINTS AND GAITS OF JUNEAU-AREA MAMMALS

prepared by Richard Carstensen for Discovery Southeast

Original 1990, updated 2007

### Note to Discovery naturalists and teachers

This slide show is intended to summarize a unit on local mammals and tracking. It presents too much information to be absorbed without prior study. Slide number 2, showing footprints and gaits of our major mammal groups, also exists as a xerox master, or can be printed from disk. As a projected slide, it gives you the chance to review together with your class, bridging from artist's stylized conception to actual photographs of animals' feet and tracks. You may wish to let your students use their paper version as a reference sheet during the slide show.

I like to treat the show as a series of puzzlers, rather than an illustrated lecture; instead of announcing "This is a ..." I ask "What are our clues here?" Tracking, like most natural history interpretation, is just asking the right questions. To keep students on track, I've found it helpful to ask them *not* to yell out their first guesses as to species, but working as a group, to assemble all of the possible clues first.

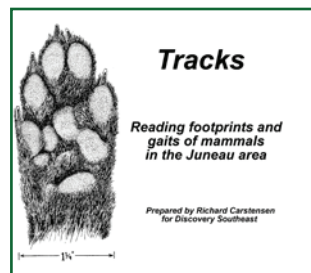
This takes a bit of self discipline, but eventually students appreciate the strategy. Noticing all the clues is more important *and more fun* than guessing the track-maker's name correctly. For your own use as instructor, I give the species name with each slide number, but I suggest you withhold it until all the observations are in. There's no predicting what students will notice about the slide, so the following *is not a script to be read verbatim*, but a guideline, with suggested promptings, should the clues not be noticed. The *italicized* responses are what you hope to hear from your well-prepped and alert students.

The fun thing about this tracking show is student participation. It would of course be easier for you (and me) if I were simply to write a "talk-at-em" script, but that takes the joy out of the detective process. Because there is no real script, it's almost essential for you to carefully preview the slides and the following "prompts," and to make the show your own.

### 1) title slide

(Left front foot of mink)  
Let's begin "on the right foot" (actually the left foot!) with the title slide itself. How many toes? *Five*. Then what can we rule out? *Dogs, cats, hares (4 toes), deer (2 toes)*... Do the toes extend like little fingers? *Nope*. Then we can also rule out most of the rodents. That leaves us with either the bear or weasel families, both of which have five toes. At 1 1/4 inches across, it'd be a pretty small bear. So we've narrowed it down to the weasel family.

But which weasel? What are our clues here? *Size!*



Yup, use the rule of thumb. Too large for short-tailed weasel (thumbnail sized), but too small for marten (thumb width across). So it must be a mink!

### 2) review of footprints and gaits

(Here's a last opportunity to drive home the importance of number of toes, gait patterns etc. The previous slide should have provided some incentive. Search for generalizations.)

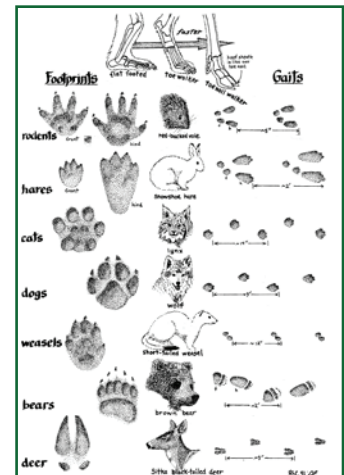
What mammals show no claws in the prints?

*Cats*. Which have hind feet much bigger than front?

*Rodents, hares,*

*bears*. Which place their hind feet in the prints of

their front feet (at least in the gaits depicted)? *Cats, dogs, weasels, and deer*. Okay, ready or not, here we go!



### 3) deer mouse

(5 inch comb for scale)

Begin with the scale.

How far does this animal

travel at a hop? *Five*

*inches*. Hold your hands

out to show how big you think this animal is,

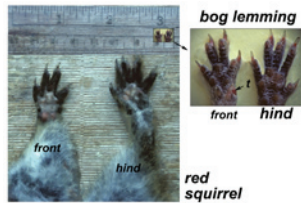
from head to rump (not including tail) *Students should be indicating a 3 or 4 inch long animal*. Which way was it moving? *Right to left*. (I sometimes demonstrate the rodent type hop at this point, reminding students why the hind feet print ahead of the front.)

What groups have this gait? *Rodents, shrews and hares*, and hares are too big, so we are left with shrews and small rodents such as mice and voles. Shrews leap only about three inches, so this is probably a mouse or vole. Does it have a tail long enough to drag in the snow? *Yup*. Most voles have pretty stubby tails that don't show in their tracks. This is probably a deer mouse, or possibly a long-tailed vole.



#### 4) front and hind feet of rodents

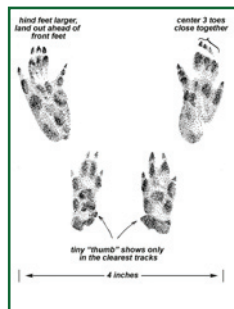
Here are the front and hind feet of a red squirrel and bog lemming, good examples of a medium-sized and small rodent, respectively. On the left are front feet, and on the right are hind. What tells you they're in the rodent family? Except for shrews, rodents are the only Southeast mammals with feet that look like little hands. Since shrews have five toes on the front foot, we can rule them out too.



Now for scale. Both of the smaller feet in the enlargement could be placed on your thumbnail, with room to spare. *Must be a mouse or vole!* Right. These are the feet of a bog lemming, a type of vole that lives in muskegs and wet meadows. Notice that if you look closely you can see a reduced thumb on the forefoot ("t").

#### 5) red squirrel tracks

Considering the scale, hold your hands out to show how big you think this animal is from head to rump (not including tail). *Students should be indicating a 6-to 8-inch-long animal.*



What gait? *Hopping.* What groups of mammals hop? *Rodents and hares.* How many toes on the hind feet? *Five.* Does that rule out anything? *Yup, hares! They have four toes on the hind foot.* So we've narrowed the possibilities to a rodent, about 6 to 8 inches long. Does it hop like a ground dweller or tree dweller? *Tree dweller; the front feet print side by side!*

That leaves only red squirrels and flying squirrels. The two are hard to tell apart by their tracks, unless you can find where a flying squirrel landed after gliding out of a tree.

#### 6) porcupine tracks

Considering the human foot print for scale, hold your hands out to show how big you think this animal is, from head to rump (not including tail) *Students should be indicating a 1- to 2-foot-long animal.* Which way was it moving? *left to right.* What



gait? *Walking. (I sometimes demonstrate a waddling walk, front feet toeing in, hind feet overstepping the front)* Before making any guesses, let's look at a closeup of this animal's hind foot.

#### 7) porcupine foot (hind)

Believe it or not, this is a rodent! But it doesn't have the normal hand-like feet. What large rodent moves in a waddling walk, and has long claws for grasping tree bark? *Porcupine!*



#### 8) snowshoe hare tracks

What gait? *Hopping.* Which groups of mammals do that? *Rodents and hares.* Which way was this animal moving?



*To the upper left.* The GPS for scale is 4 inches long. How big was this animal? *Students should be indicating a 1-foot-long animal.* If you guessed too big, that's an easy mistake. This animal has huge feet for its size. Why might that be useful? *To "float" on the snow.* Is this a ground dweller or tree dweller? *Ground dweller; the front feet print one ahead of the other.* Before we guess the name of the track maker, let's look at its hind foot... (click)

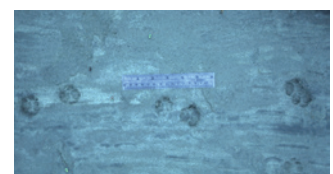
#### 9) snowshoe hare hind foot

How many toes? Four. Can we rule out rodents or hares? Yes. Rodents have five toes on the hind foot. This is the hind foot of a young snowshoe hare. Unlike most Southeast Alaskan mammals (except the marten), it has stiff hairs on the bottom of its feet, which spread out to make its "snowshoes" even bigger.



#### 10) house cat tracks

Considering the scale, hold your hands out to show how big you think this animal is, from head to rump (not including tail). *Students should*



be indicating a 1-foot-long animal. Which way was it moving? *Left to right.* What gait? *Walking.* Compared to the porcupine, would you call this a more efficient walker? *Yes.* Longer stride for the size of its feet? *Yup.*

Notice how the hind feet have stepped almost exactly on the front prints. Are the feet about the same size? *Yes.* Then we can rule out hares and rodents. How many toes? *Four.* So that leaves what? *Cats and dogs.* Do the claws show? *Nope.* So it must be in the group of cats. And from its small size we know it can't be a lynx. Must be a house cat.

### 11) wolf tracks

How many toes? *Four.* Claws showing? *Yes.* So which group of animals? *Dogs.* Hmm. That much was easy. We've all seen lots of dog tracks. But this slide was taken 50 miles from the nearest road, so it must be one of our 3 wild species. What are the possibilities for Southeast Alaska? *Red fox, coyote and wolf*



Using the 5th-grader's hand for scale, we can estimate the larger track on the left to be about 3 1/2 or 4 inches across. Hold your fingers this far apart, and visualize the track. If it were a domestic dog, it'd have to be a Saint Bernard or Great Dane. So this must be a... *Wolf.* But is this the track of one or two animals? *One, the big track is the front foot and the small one is the rear.*

### 12) short-tailed weasel tracks

For scale in this photo we have a 5-inch comb. So the individual tracks are only a bit more than half an inch across. What's the gait? *2 x bound.* The hind feet have landed exactly in the paired prints of the front feet. What group of mammals uses this gait? *The weasel family.* Using the rule of thumb, which species? *The prints are about thumbnail sized, so this is a short-tailed weasel.*



### 13) weasel with deer mouse

Weasels are skinny enough to follow

mice and voles into almost any of their hiding places. This drawing shows a short-tailed weasel in its winter coat, with a captured deer mouse.

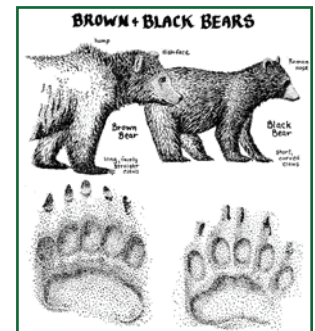
### 14) river otter tracks

How many toes? *Five.* (lower track has 5 toes, but they don't show well, which is a clue in itself. What animal groups have 5 toes on front and hind feet? *Weasels and bears.* Can we rule out bears? *Yes.* *The foot pad is too small, and the claws don't stick out very far.* So this animal is in the weasel family, which has 5 common terrestrial members in Southeast: weasel, mink, marten, and wolverine. Use the rule of thumb to figure out which of our weasel family members this is. The track is more than 3 inches across, bigger than a thumb's length across., *so it must be river otter or wolverine.* Right, now what clues could tell us which of these? An otter swims, so the toes of its hind feet might have a.... *Web!*



### 15) brown and black bear tracks

What differences can you detect between these front foot tracks of brown and black bears? They were drawn from prints of similar-sized animals, a medium brownie and a large black bear. The brown bear's claws seem slightly longer, but this isn't always true. One difference is that black bear toes are more widely spread. And if you draw a line between the toes and foot pad of a black bear, it forms more of a curve than on a brownie.



### 16) black bear tracks

Which species of bear? *Black.* *Strong arch to the toe line, widely spaced toes.*



### 17) brown bear tracks

Which species of bear? *Brown*. The front foot print is above; the hind foot below. A bear's hind foot looks a lot like a person's. One difference is that their big toe is on the outside instead of the inside. Which hind foot shows in this slide? *The left*.



### 18) black-tailed deer tracks

(Two-inch lens cap for scale.) What animal walks on its toenails? *Deer*. Only the middle 2 toenails show in this track. If the deer were running, or sliding down a steeper slope, the outer toe nails, or dew claws, would also leave marks.



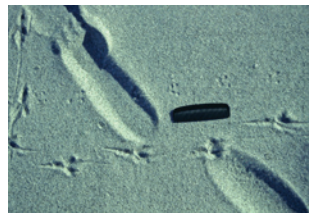
### 19) mallard tracks

Let's try out our tracking skills on birds. These are the 3-inch wide tracks of a pair of birds. Are they walkers or hoppers? *Walkers*. What bird groups have webbed feet? *Gulls, ducks and geese*. Would you say that this pair of birds has an efficient straight-ahead walk like the cat, or a wide-bodied waddle like the porcupine? *A waddle*. So let's narrow it down. A goose has a four inch print. Too big. From the short stride and wide straddle, would you guess duck or gull? *Duck*. Right. This is a pair of mallards. A walking gull places its feet more directly in front of each other. But there are even variations within species. Do these two mallards walk differently? *Yes. The one on the right toes-in more!*



### 20) final puzzler

Person, vole and crow (5-inch comb for scale). Okay. Here's a chance to pull it all together in a beach scene. How many critters left tracks on this sandy beach? *Three*. Who left the biggest track? *A*



*person*. Now what about the tiny line of tracks going across the center? What gait? *Hopping*. Which way was the critter going? *Left to right*. Yup. The hind feet have a wider straddle than the front, and they print out ahead

(on the right of each set). How far did it hop? *Five inches*. So we can rule out shrew (usually about three inches). What little rodent made the hopping tracks? *Vole or mouse*. So far so good.

How about the third critter? *A bird*. Walker or hopper? *Walker*. Use the comb for scale. How long was its foot? *About 3 inches, if you don't include the drag marks*. Notice the long rear toe. Is this a bird that spends all its time on the ground, or is it also good at perching on branches? *Branches*. It can grasp better than birds like sandpipers with only stubby rear toes.

So... 3-inch track, percher, would you say bigger than a robin? *Yes*. Eagle? *No*. What perching birds between robin and eagle size also spend a lot of time walking the beach? *Crows, Ravens!* Right. A raven's foot is about 5 inches long. Crows are about 3. This was a crow.

But who came first? The person, vole or crow? What are our clues? *Tracks on top of tracks. The crow stepped on the person's track, so it came later*. How about the vole? *Its foot steps on the left edge of the person's track, so it came after the person*.

What about this little line? *Ab. Tail drag mark!* Yup. This was a long-tailed vole. Its tail doesn't drag as much as that of a deer mouse, but touches sometimes. So we know the person came before the vole or crow. But which of these came first?

If you can figure that out you're a better tracker than me! I do have a guess, however. The person's track looks oldest; the wind has softened the edges. The vole and crow tracks look relatively fresh. I'm guessing the person came by yesterday or earlier. Although long-tailed voles are abundant in the grasses right next to sandy tidal beaches, I've never seen one running around on the sand by daylight; it's just too dangerous for them. Crows, on the other hand, are active on the beach by day. Probably the person came by quite a while ago, followed by the vole last night, and the crow sometime today. Wind-exposed sandy beaches are like an easily-erased school chalkboard; it doesn't take long for the breeze to wipe away the delicate prints of little rodents and birds.