Lessons in a Backpack

United Nations Educational, Scientific and Cultural Organization

LONG POINT BIOSPHERE REGION

Animal Tracks

Keeping track of who has been here!

Photo by Gunnar Ries

Description of Lesson in a Backpack

In this lesson, students will investigate the similarities and difference of various animals as seen through their tracks. Students learn the basics of track identification, make animal tracks using molds, explore how different animals move, and learn to walk quietly to observe wildlife.

Connect with the Long Point Biosphere

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LONG POINT BIOSPHERE REGION

At a Glance

Grade Level: 2

Learning Environment:
Indoor Classroom
School Yard or Forested Area

Prep Time: 15 minutes

Length of Lesson: 2 hours

Key Vocabulary: diagonal walkers, bounders, pacers, gallopers

Staffing: 1 educator

Materials:
1. 5 pictures and 5 tracks
2. 1 track casts/group hidden in school yard
3. Plaster of Paris
4. Mixing containers
5. Spoon or mixing stick
6. Water
7. Track casts from scavenger hunt
8. Paper plates
9. 10 pylons
10. 1 bright piece of materials
11. Blindfold

Kit available from the NODS Resource Centre

Groupings: Whole class, and Small groups

Teaching/Learning Strategies: Game and Field Trip.

Lesson Outline

Time	Activity	Location	Materials
5 minutes	Intro	Schoolyard	
10 minutes	#1 Whose track is that?	Schoolyard	5 pictures and 5 tracks (deer, wolf, squirrel, black bear, mink) Animal Track ID Worksheet
15 minutes	#2 Track scavenger hunt	Schoolyard	1 track casts/group hidden in school yard Prep: Hide track pictures in suitable habitat around schoolyard
15 minutes	#3 Animal track casts	Schoolyard/ Classroom	Plaster of Paris, Mixing containers, Spoon or mixing stick, Water, Track casts from scavenger hunt, and Paper plates for finished tracks.
15 minutes	#4 Track Patterns – how to walk like an animal	Schoolyard	5 pictures (deer, wolf, squirrel, black bear, mink)
15 minutes	#5 Follow the leader – animal walking		10 pylons
15 minutes	#7 Fox walk Exercise – stalk the deer		1 brightly coloured piece of material. Blindfold
15 minutes	Wrap Up – something you learned, get tracks, show and tell.		

Curriculum Expectations
Grade 2 Science and Technology

Understanding Life Systems: Growth and Changes in Animals

Overall Expectations
2 Investigate similarities and differences in the characteristics of various animals.

Developing Investigation and Communication Skills
2.2 Observe and compare the physical characteristics (e.g., fur or feathers; two legs or no legs) and the behavioral characteristics (e.g., predator or prey) of a variety of animals, including insects, using student-generated questions and a variety of methods and resources (e.g., observation of live animals in the schoolyard; books, videos/DVDs, CD-ROMs, and/or Internet sources that depict animals in a positive light).

Understanding Basic Concepts
3.2 describe an adaptation as a characteristic body part, shape, or behaviour that helps a plant or animal survive in its environment (e.g., some birds migrate to a warmer climate for the winter; the design of a whale's flipper allows the whale to turn, steer, and balance; the cecropia moth has the pattern of a snake's head on its wings: the hypothesis is that this is to frighten its predators away).

Background

Often most of the activity of the animal world happens hidden from our view. Animal tracks provide a way to find out more about the lives of animals. In order to know what is happening, we need to learn how to read the track just like we learn to read books. Reading animal tracks becomes easier if you keep in mind a few things: the size of the track, number of toes, the shape of the track, and the track pattern.

Wow Look at this Track!

This is a wolf track. Like all members of the dog family, wolf tracks have four toes on each foot and claw marks showing. They are usually between 4 to 5 inches long. Wolf tracks are difficult to tell apart from large dogs - usually the biggest hint is where they are found.

Size of the Track

The easiest place to start examining prints with children is the size of the print – large, medium or small? Get children to think of what kind of animal might make a large track, a medium track and a small track.

Shape of Track

Each group of animals has a characteristic shape to their tracks. The following is a list of the shapes of each:

Deer Family (e.g. white-tailed deer, moose) – heart shaped

Dog Family (e.g. wolf, red fox) – egg shaped

Rodent Family (e.g. squirrel) – cross pattern

Weasel Family (e.g. fisher, mink) – box shaped

Bear Family (black bear) – human shaped

Patterns of Tracks

Diagonal walkers - (cat, dog and deer family) Move opposite limbs together, right foreleg with left back leg.

Bounders - (weasels) Hop in steady series of jumps, forelegs first and back legs pulling right behind them

Gallopers - (most rodents and rabbits) These animals hunch down and bring hind legs in front of thier front legs.

Pacers - (wide-bodied animals such as raccoons, bears, beavers, porcupines, and skunks). They shuffle along, but move from pacing to bounding as they go faster.

Number of Toes

Counting the number of toes can be helpful in identifying the family of animal. See chart.

Teaching and Learning

Part A: Introduction

Discuss with students how tracks help us to know what is happening in the natural world.

Part B. Whose Track is That?

Human – medium size, human foot print-shaped

Deer – med-large size, heart-shaped

Wolf – medium size, egg-shaped

Mink – small size, box-shaped

Squirrel – very small size, cross-shaped

Bear – large size, human foot print-shaped

(Shapes – heart, egg, human foot print, box)

Match the tracks with the pictures of the animals. (See Teacher's Answer Key for Track ID).

Discuss: How did you know? (Size and shape) Where would you expect to find these tracks? (Forest, water's edge?)

Note: If lesson is used with older students, Animal Track ID Worksheet can be used. Otherwise this sheet can be used for teacher reference.)

Making a Cultural Connection

Animals are very special in the Haudenosaunee Clan System (Six Nations of the Grand River Territory), representing the land, air and water elements. The bear, wolf and deer clans represent the land.

Source: https://www.haudenosauneeconfederacy.com/clan-system/

Part C. Track Scavenger Hunt

The objectives of this activity are to get students to look for tracks where the tracks would be found, on the ground, and to prepare for the next activity.

Preparation: Hide one track cast per group throughout an area in schoolyard – preferably wooded.

Discuss with students: Where are tracks found? (On ground, in mud, sand, etc.)

Have students look for pictures of tracks. When they find them ask them to come back to you. The animal track that they find is the kind of animal track that they will be making in the animal track casts. This nicely prevents any arguments when track casts are being handed out.

Part D. Animal Track Casts

1. Pour the dry plaster into the mixing container.
2. Gradually, pour cold water in the plaster and mix. The mix should not be runny. Follow directions on package.

3. Slowly pour the plaster into the track.
4. Let it dry for 30 minutes. If the plaster is hard around the track it is dry enough to pick up. If the plaster is still mushy let it dry a little longer.
5. Push the track out of the mold by gently using your thumbs to pop the center out first. Be careful of pulling small toes out at an angle so they don't break off.
6. Let tracks harden overnight.

Part E. Walk Like an Animal – Track Patterns

Using the five pictures from Whose Track is That?, demonstrate the different track patterns – diagonal, bounders, gallopers, and pacers). Have students imitate. (Deer – diagonal; wolf – diagonal; squirrel – galloper; black bear – pacer; mink – bounder)

Discuss: Which one is easiest to imitate? Which one is fastest? Slowest?

Play Follow the Leader: Put students into groups of 4 – give each group one of the patterns. Set a course for them to walk around. Discuss how walking like this is difficult for people but helpful for some animal species.

Part F. Stalk the Deer

Teach students to fox walk. This walk is the basic step for walking quietly in the wilderness – helping you to get closer to wildlife. The fox walk has three basic parts and allows you to feel the surface of the ground and slowly compress, leaves, sticks etc. to minimize noise.

Lower the foot to land on the outside of the ball of your foot with light pressure.

Roll off the edge of the foot onto the ball laying the whole foot down still with only partial weight. Place full weight on foot.

Discuss: How do our tracks change as we do the fox walk? How do animals' tracks change as they walk or run?

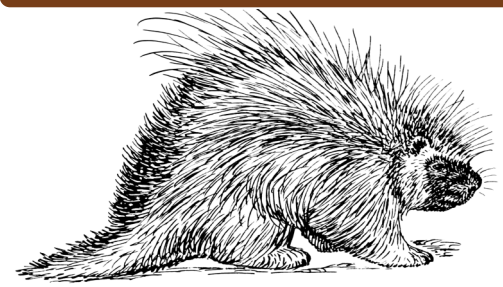
Play "Stalk the Deer."

Objective: To successfully "stalk the deer" by stealing a piece of material without detection.

Instructions: Have students standing in a circle with one blindfolded student sitting in the middle as the "deer" with a piece of material in front of them. Tap the shoulder of a student in the circle to become the wolf. The deer gets three opportunities to guess the location of the wolf, by saying "freeze" and pointing to where she thinks the wolf is (wolf must freeze). If the deer is correct, the wolf goes back to the outer circle, the deer remains, and another student is chosen to be the wolf. If the deer is incorrect, the wolf can continue on and the deer can continue guessing. If the wolf is successful in getting the material back to the outer circle, the wolf becomes the deer. Continue playing until all students have had a turn being either the wolf or deer.

Debrief: What was the best strategy for successfully "stalking the deer"?

Extension Activities



Porcupine tracks show four toes on the front foot and five on the back foot and the tracks have marks from their long claws. The heel pads show a pebbly texture that helps them to grip while climbing trees.

Tracking the playground

Take them to look for tracks in the school playground. It works well when the ground is a little bit wet. usually you can find tracks around puddles. Make plaster castings of animal tracks found outside.

Matching Game

Have students match the animal to their tracks. Worksheet attached below. May also be used an assessment.

Animal Tracks Booklet

Have students create an Animal Tracks Booklet as a reference tool. A sample outline attached below. There is a cover page and a blank page to fill out. Print the second page as many times as necessary or as many tracks you intend on going over with the students.

Making a Cultural Connection

Hunters are interested in finding animal tracks too. Finding animal tracks often helps them find an animal.

The Mississaugas of the Credit First Nation, whose treaty lands include the Long Point Biosphere, are of the Ojibwe Nation. The Ojibwe belief is that everything has a souland a purpose and that everything ex-ists in balance with one another. In hunting and trapping, the Ojibwe people do not waste anything and take only what is needed. It is believed that when a hunter kills an animal, the animal is giving themselves to the hunter to provide for them and for their family to live. The hunter respects the animal and their gift with a tobacco offering and traditional procedures which depend on the ani-mal.

Information from https://ojibwehunter.pressbooks.com/chapter/traditional-ojibwe-hunting/

This is a _____ track.

Draw the animal track here.

Size of track:

_____

Shape of track:

_____

Patterns of tracks:

_____

Places I might find this track:

_____

This is a _____ track.

Draw the animal track here.

Size of track:

_____

Shape of track:

_____

Patterns of tracks:

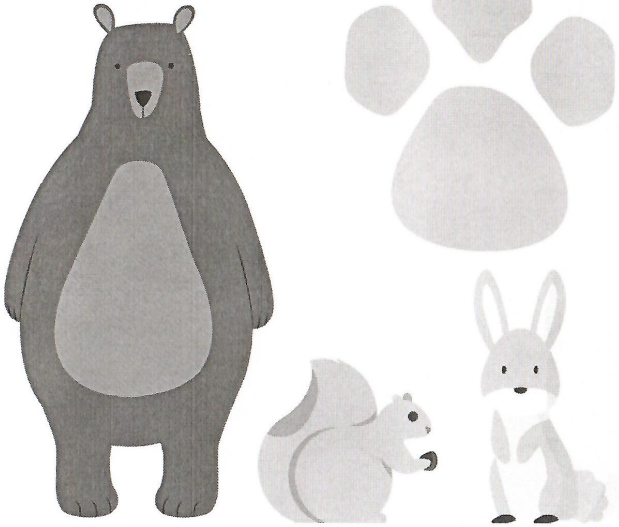
_____

Places I might find this track:

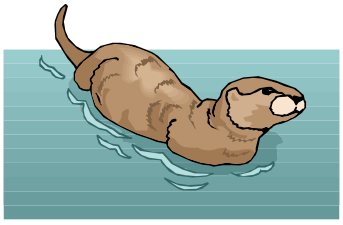
_____

Lessons in a Backpack

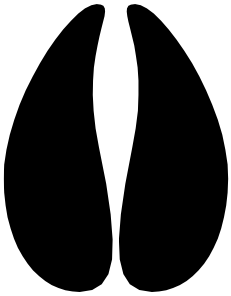
_____'s Animal Tracks Reference Tool

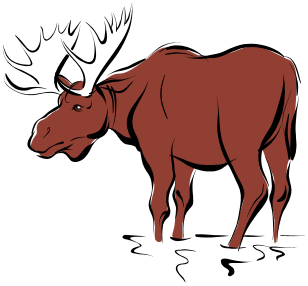


Animal Tracks Matching Game

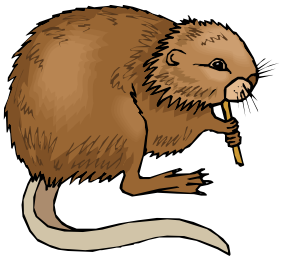


Otter





Moose

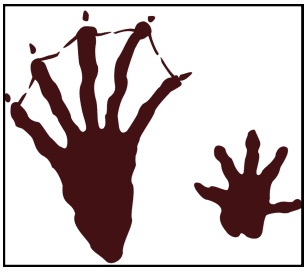


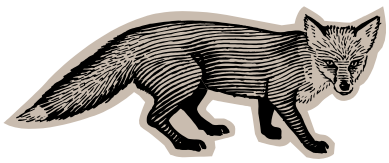
Muskrat

Wolf

Beaver

Squirrel





Red Fox

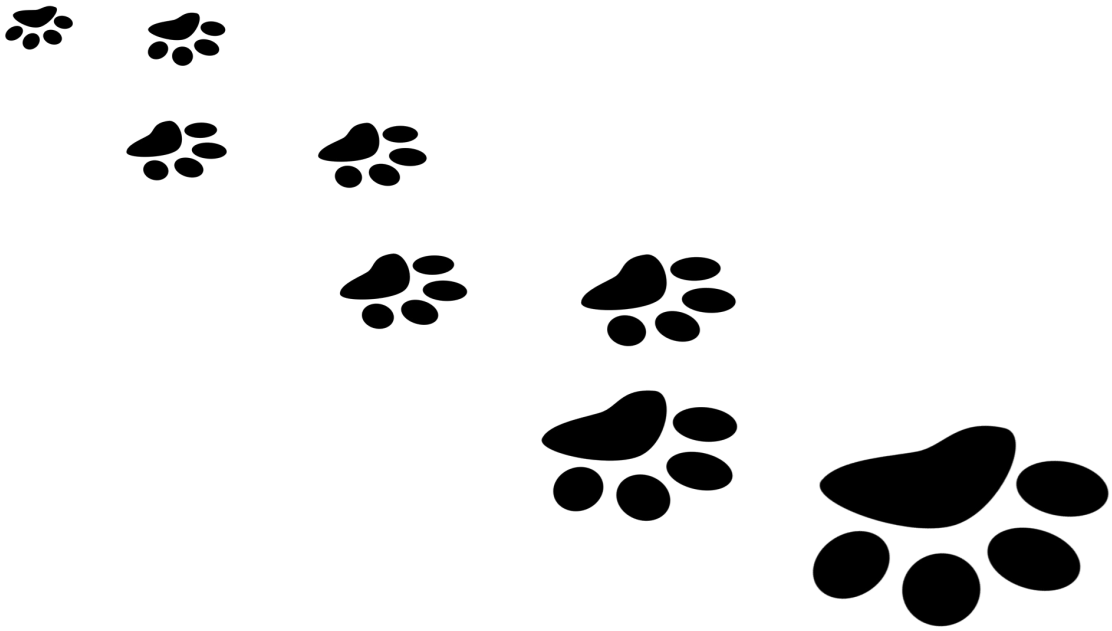
Animal Track I.D. Worksheet

# of Toes	Family	Animal	Approx. Size	Clues	Identify (A-J)
2	Deer	Moose	15cm long/ 10cm wide	**Heart-shaped** Very large (twice as large as deer tracks!) Alternating tracks with hind prints registering on front prints When snow or mud is deeper than 3 cm, the dewclaws (which give extra support to the weight) show up far back from the print	
		Deer	7.5cm long/ 5cm wide	**Heart-shaped** Alternating tracks with hind prints registering on front prints	
4	Rabbit	Snow shoe Hare	**Front Foot** 6 cm long/ 4cm wide **Hind Foot** 11cm long/ 6cm wide	MOST IMPORTANT FEATURE - Very large hind foot (**snowshoe-shaped**)	
	Dog	Red Fox	**Front Foot** 6cm long/ 5cm wide (hind foot is slightly smaller)	Oval-shaped tracks Fox have very hairy feet, so details of print are very visible	
		Eastern Grey Wolf	**Front Foot** 10cm long/ 7cm long (hind foot is smaller)	**Oval-shaped tracks** Shows four claws	
5	Weasel	Mink	4cm long/ 4cm wide	Track shows five toes with five loosely connected palms pads in an arch	
		Otter	**Front Foot** 7cm long/ 6cm wide **Hind Foot** 8cm long/ 6cm wide	Webbing between toes show in track print	
		Fisher	6cm long/ 6cm wide	Small inner toe often doesn't show on track	
	Other	Skunk	**Front Foot** 3.5cm long/ 3cm wide **Hind Foot** 5 cm long/ 3.5cm wide	Smaller front feet are pigeon-toed Long claws are usually evident in the print	
		Raccoon	**Front Foot** 6cm long/ 5cm long **Hind Foot** 7cm long/ 6cm long	**Human hand shaped print** Small claws appear as dots Front feet rarely leave heel prints, but hind feet do show heel prints	
		Black Bear	**Front Foot** 15cm long/ 14cm wide **Hind Foot** 25cm long/ 15cm wide	**Human foot print shaped** About the size of a human print, except wider with claw marks Largest toe on outside of foot (opposite of humans, whose baby toe is on the outside) 5 toes, but often the smallest toe doesn't show up in the track	

# of Toes	Family	Animal	Approx. Size (in cm)	Clues	Identify (A-J)
5	Rodent	Beaver	**Front Foot** 8cm long/ 7cm wide **Hind Foot** 15cm long/ 12cm wide	Noticeable webbing between toes Tracks often covered by marks from its large, scaly tail Hind foot is large, **triangular-shaped** Front foot is much smaller with five toes, but rarely are marks from all toes to be seen	
		Muskrat	**Front Foot** 3 cm long/3cm wide **Hind Foot** 4.5 cm long/4cm wide	Front foot – inner toe of the five rarely shows up in print Hind foot – shows five long, finger-like toes	
4 Toes Front, 5 Toes Hind	Rodent	Grey Squirrel	**Front Foot** 3cm long/ 3cm wide **Hind Foot** 4.5cm long/ 2.5cm wide	Very small tracks Front foot – a clear print will show four toes with sharp claws, four fused palm pads and two heel pads Hind foot – tracks shows five toes and four palm pads Tracks are common between trees and near holes in the ground where they have dug up buried cones. Squirrels place their feet next to each other rather than one in front of the other. In deep snow their tracks are characterized by two diamond shapes next to one another. A clear imprint will reveal five long toes with claws similar to the skeleton of a human hand and may or may not have a heel print. The heel is as long again as the toes and a rough oval shape.	
		Porcupine	**Front Foot** 6cm long/ 4 cm wide **Hind Foot** 8cm long/ 4cm wide	Very long claw marks On clear prints, the heel pads show up as very pebbly Porcupine tracks often are obscured by marks from its long, spiky tail	

Teacher Key for Animal Track I.D. Worksheet

A. Beaver
B. Deer
C. Fisher
D. Squirrel
E. Mink
F. Muskrat
G. Porcupine
H. Raccoon
I. Red Fox
J. River Otter
K. Snowshoe Hare
L. Skunk
M. Wolf
N. Bear
O. Moose

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A

Hind Foot

Front Foot


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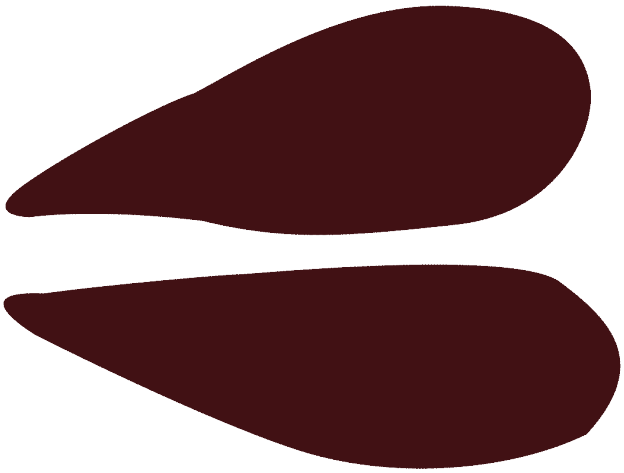

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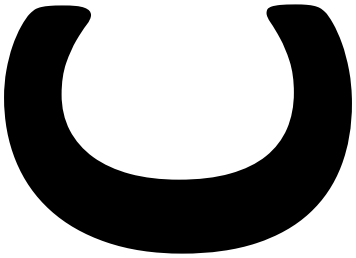


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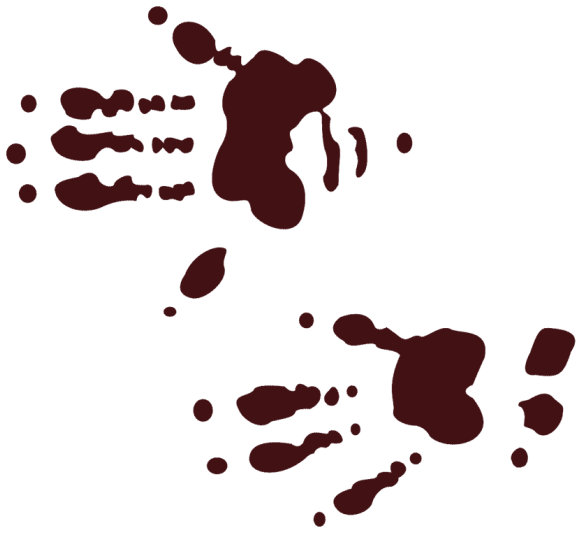


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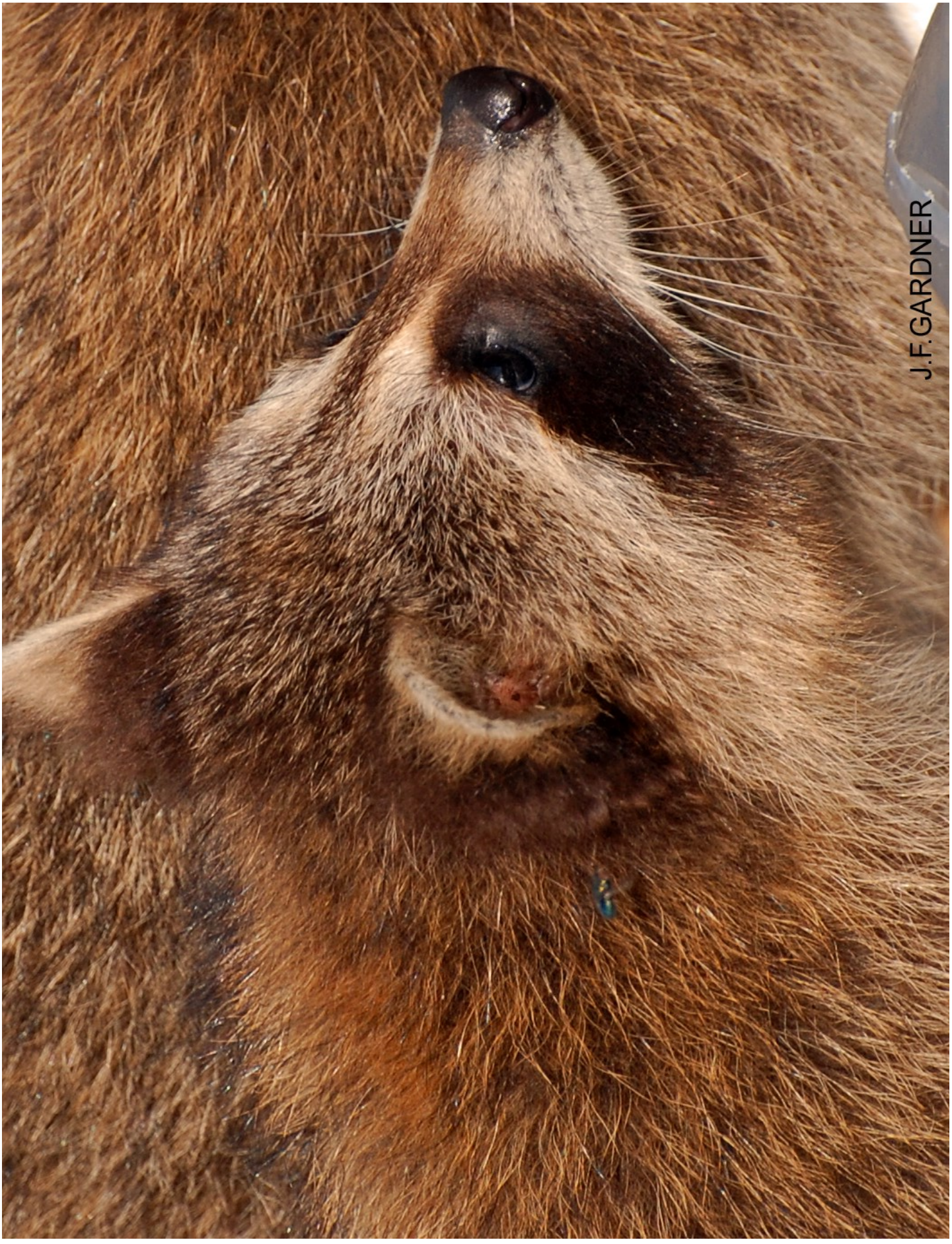
Hind Foot

Front Foot

Photo: Wikimedia Commons, Public Domain

Hind Foot
Front Foot
G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H

Front Foot

Hind Foot

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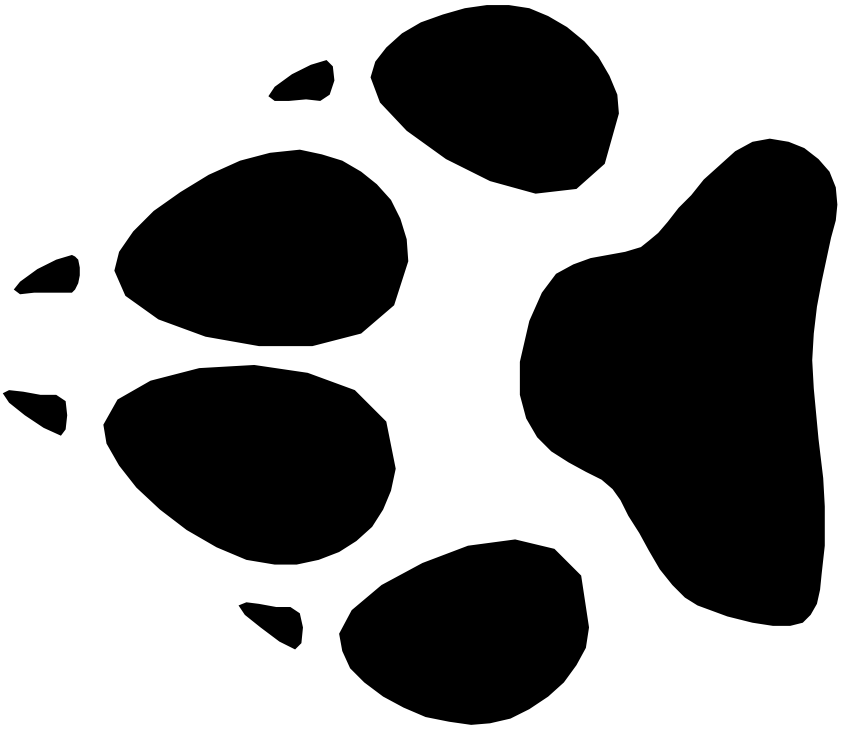
Photo: Algonquin Park Museum



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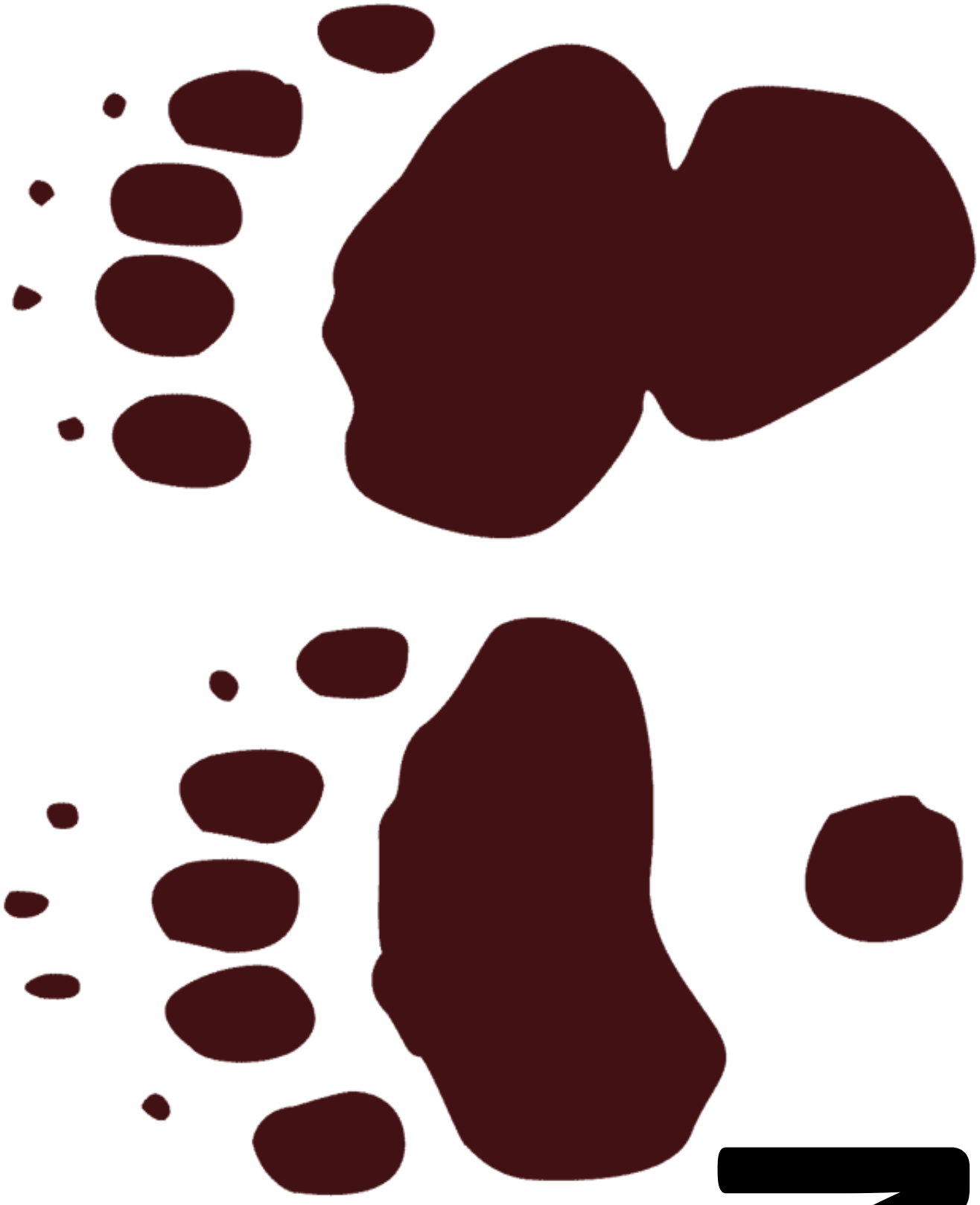

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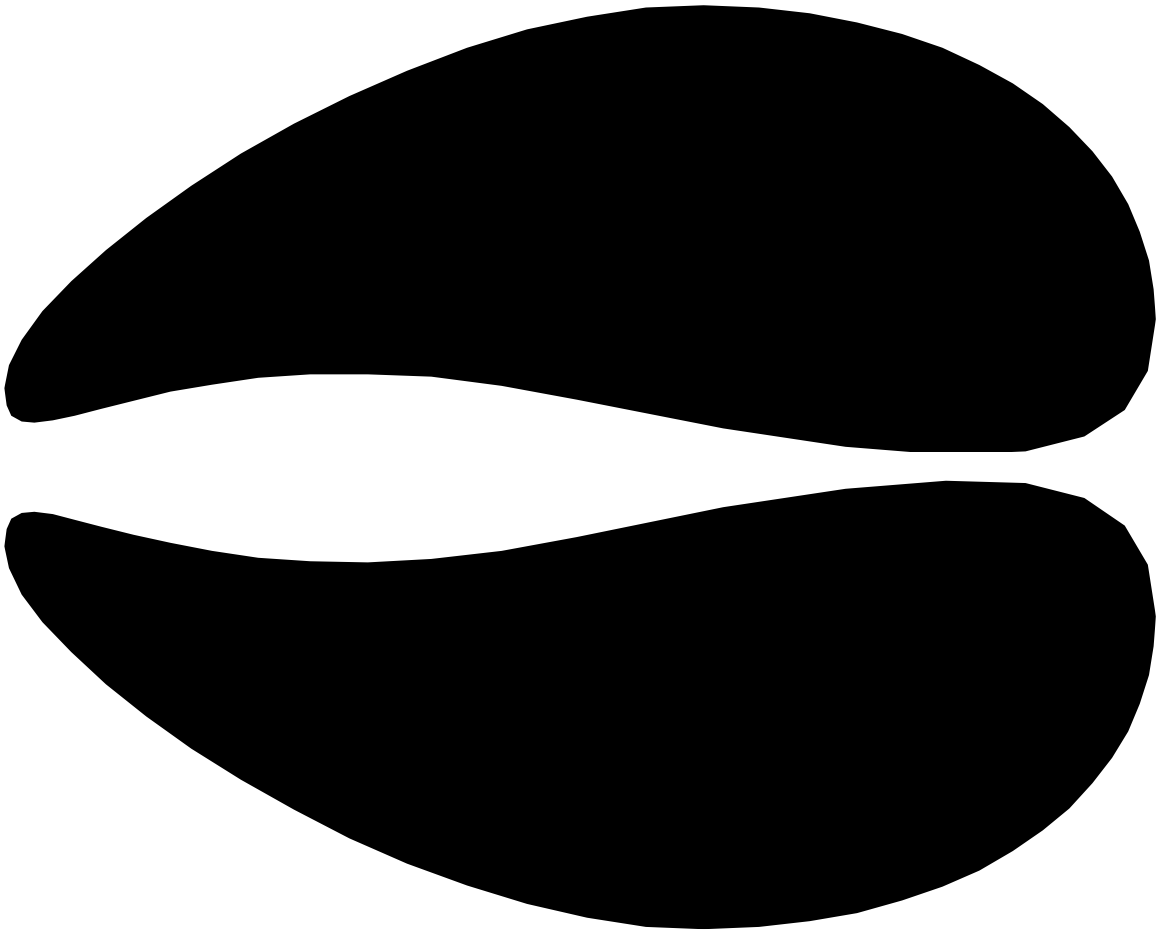

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Un organisme du gouvernement de l'Ontario

United Nations Educational, Scientific and Cultural Organization

GEORGIAN BAY BIOSPHERE
MNIDOO GAMII
Spirit of the Water