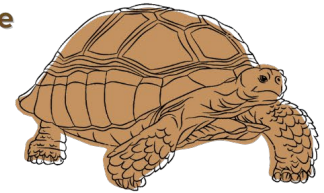




# DESERT INDOORS

Environmental education activities for students at home



## Module: Habitat Health: *What do Animals Eat and How do they Walk*

**Topic:** Animal Tracks and Scat Identification, Understanding Habitats

**Objective/Learning Goal:** Students will engage in research about adaptations that animals have made to live within the California desert. They will investigate animal adaptations by examining tracks and learning how to identify scat. Students then will learn how tracks and scat are used by scientists to help determine what species reside in the environment and why that knowledge is important. They will also learn about modern tracking techniques.

### Glossary:

- **Adaptation-** a change or the process of change by which an organism or species becomes better suited to its environment.
- **Biodiversity-** the number of living organisms living in an environment together.
- **Environment-** the surroundings (both living and non-living) of a geographical area in which species live.
- **Habitat-** the place where organisms (plant and animal) live and survive with adequate access to food, shelter, and water.
- **Scat-** an animal's fecal droppings, animal feces.

**Materials:** Scat and track guide, a small mixing bowl, oatmeal, cocoa powder, water, and sugar.

### Indoor and Outdoor Activity:

Build Background Knowledge - Ask students what they already know about the relationship between different kinds of desert animals. What do they know about desert animals? What do students know about other ways scientists learn about habitat health?

For thousands of years people have been tracking animals, though not always for altruistic purposes. Modern-day scientists are more interested in studying animal behavior and protecting species. By following animal prints and trails people have been able to follow animal movements throughout the landscape and study their **environment**. Modern scientific research has been improved by using new technology.

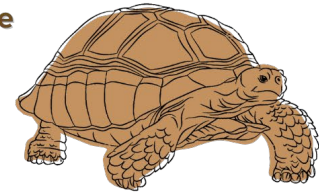
In the early 1800s, James Audubon set to catalog all bird species in the US by capturing birds, placing silver strings on their legs, and hoping to see them again. He was very successful in his bird studies and bird banding is still used by scientists today.

One of the other ways scientists track animals is by following their tracks! You can tell a lot about the **biodiversity** of an environment by looking at all the tracks you see in the area. Scientists look for the tracks of both predators and prey to monitor populations and **habitat** health.



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Some changes have been made to monitoring and tracking animals in the more recent decades. Now a lot of animal tracking is done using GPS (Global Positioning System), satellite, and radio tracking. By capturing animals and then tagging them with special devices, scientists are better able to track specific movement of animals by monitoring their exact patterns, migration routes, and population sizes. This type of tracking has also helped in the protection of endangered species by monitoring their behavior. But this type of tracking also has some drawbacks. Ask students what they think some drawbacks are? For example, some GPS units have been hacked by poachers. There is also the potential risk of tagging the animals themselves, for example, adding weight or restricting movement. But overall, these tracking techniques have been one of the most beneficial and important advancements in biological research.

Now let's talk about **scat**, also known as animal poop. Scientists study scat for the same reasons they study tracks. It tells you a lot about habitat health. Researchers dry scat, dissect it, and then study the contents. Some scientists even study the DNA found in scat to learn about the specifics of a species. Studying scat is also beneficial because it's a non-invasive way of learning about animals without tagging or handling them.

Have students pull out the track and scat guide. Discuss what students notice about coyote tracks and how they might differ from other types of predator tracks. Look at the mountain lion and coyote for a good comparison. One of the biggest differences between coyote and mountain lion tracks is the width and lack of claw marks since mountain lions have retractable claws like other cat species.

Introduce the Hands-on Indoor Activity- Students can gross out their families by creating fake animal scat. They can do this by mixing  $\frac{1}{2}$  cup oatmeal and 2 teaspoons of cocoa powder and 1 teaspoon of sugar, then add small amounts of water until the mixture is moldable, like playdough. Using the guide, they can mold this mixture to resemble some scat - and even eat it. Gross! (Don't eat real scat, it contains harmful bacteria!)

Follow-up Discussion and Outdoor Activity- Get outside! Go for a walk and look for scat and tracks. In open places nearby you might be able to find tracks or scat. Please only look at the scat. Do not handle it as it contains bacteria.

Use the guide to identify species that might be in your area. What does this tell you about your local biodiversity and habitat health? What does it look like animals are eating?

## References:

Davinci Science Center: Science at Home; [davincisciencecenter.org](http://davincisciencecenter.org)

Halfpenny, James. 2015. Scats and Tracks of the Desert Southwest: A Field Guide to the Signs of 70 Wildlife Species, Falcon Guides

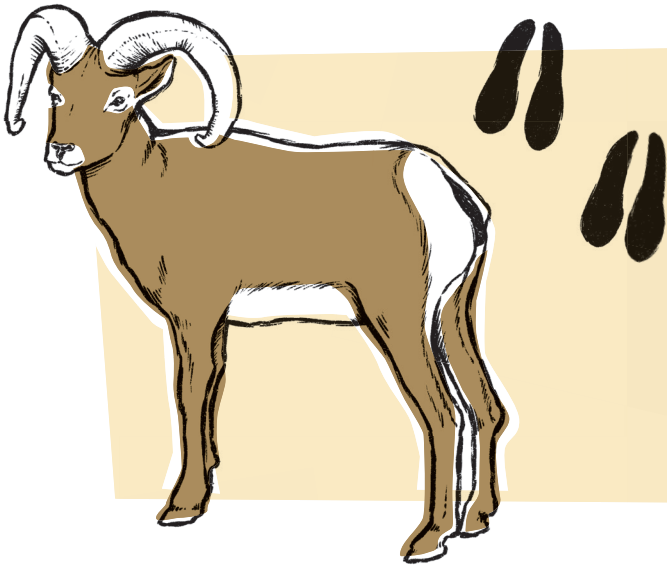
Mojave Desert Discovery: An Educator's Guide to Cultural and Natural History

# DESERT ANIMAL TRACKS & SCAT



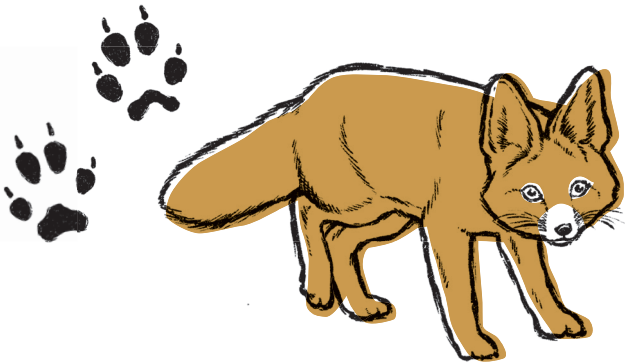
## ROADRUNNER

It's hard to track roadrunners since their prints look like a perfect X. You can't tell which direction they were headed! Scat is often small, rounded pebbles with a mix of black and brown and white spots.



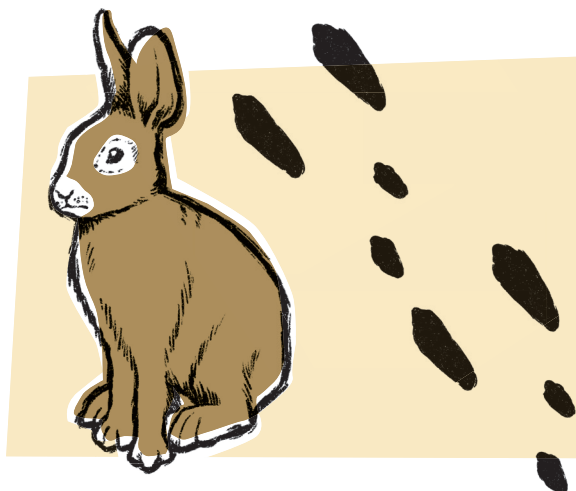
## BIGHORN SHEEP

They have two toes which are roughly teardrop-shaped, with the front of the hoof being slimmer than the back. Their hooves are set around  $\frac{1}{2}$  inch apart from each other. They have oval-shaped pellet scat that is usually found in a pile, though sometimes can be found in a line (as they walked). Scat is around  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in length and contains densely packed vegetation.



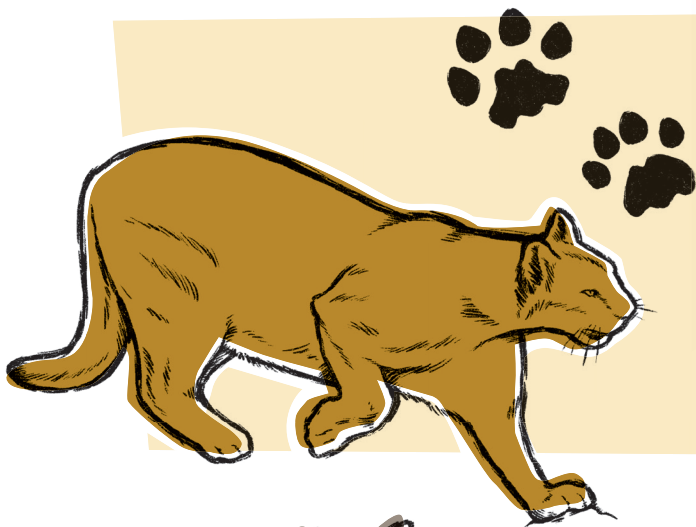
## KIT FOX

Kit fox tracks look like small coyote tracks. They have four toes with claw marks showing. Their toes are somewhat triangular shaped. Their scat is tubular with pointed ends, with a diameter of  $\frac{1}{2}$  inch, and is generally 2 inches in length. Very similar to coyote or small dog scat.



## DESERT COTTONTAIL

Hopping along the ground, cottontail tracks show the long back feet first, measuring about 3 inches in length. The small front feet are rounded, about 1 to 1  $\frac{1}{2}$  inches in width. The scat is round grassy pellets, about  $\frac{1}{2}$  inch in diameter. They are usually found in small piles.



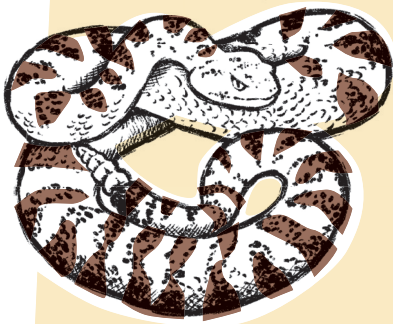
## MOUNTAIN LION

Tracks display no claw marks since its claws are retractable. The front of the heel has two lobes and the back of the heel has three. Toe prints are teardrop shaped. Scat is typically seen in segmented cords or smaller clusters, ranging from 5 to 9 inches in length and 1 inch in diameter. Commonly full of hair and bone fragments, but occasionally can be seen with small bits of grass.



## COYOTE

Coyote tracks are very similar to dog tracks. Its toes are rounded, with the front of the heel rounded to one lobe. Its back heel has two lobes. Scat is approximately 3 inches in length and ½ to 1 inch in diameter. In winter months, scat is often dark in color and contains fur. In summer months, scat is often lighter in color, containing a mix of vegetation and prey remains.



## RATTLESNAKE

Tracks are indiscernible from other snake tracks (minus the sidewinder), smooth undulations in sand of repeating S patterns. Scat is a black or brown oblong cord, with constrictions and undulations. A white cap of urea is attached to the end.



## LIZARD

Tracks can be seen as foot prints with small toes in alternating patterns. You can also see a line from the dragging tail as the lizard walks. Sizes range from small (Western Fence Lizard) to a little larger (Chuckwalla, shown here). Scat is black or brown skinny oblong ovals. A white cap of urea is attached to the end like many other reptiles.