4. *Wildlife Detectives*

Description: Students look for signs of wildlife living in the area.

Objectives: Students will:

- find out what wildlife is living in the bosque or other natural area;
- examine habitat needs of different wildlife species; and
- use observation skills.

Materials: Field journals / paper and pencils, pens

Student handout pages (below); natural history guides (tracks, scat), see *Appendix B: Annotated References*

Phenomenon: Many animals live in the bosque (or other natural area), but I don't see them very often.

Lesson Questions:

- *What signs of animals can I find, and what do they tell me about the animals that made them?*

4. Wildlife Detectives

Grades: 3–8

Time: 30 to 60 minutes, depending on student interest levels

Subject: science

Terms: *habitat, invertebrate, scat, tracks, vertebrate*

New Mexico STEM Ready! / Next Generation Science Standards
NOTE: see **NGSS Connections to *Going Out: Field Activities*** at the end of this chapter for more possible field trip NGSS connections and for suggestions using each standard.
3.LS4.C Adaptation
3.LS4.D Biodiversity & Humans

Background:

Numerous animals live in the bosque, but they are not always easy to find. **Vertebrate** animals (those with backbones) tend to stay in cool places during the heat of the day. They also may hear or smell humans and hide away from them. While most birds are active during the day (owls in the bosque being an exception), they are often more visible in the early morning and late evening. Fortunately, animals leave behind many signs that tell us they are in the area. These include **tracks, scat** (poop), bird nests, holes in the ground, mounds of dirt, feathers, fur, bones, scratches, bite marks, and more. Signs left by **invertebrates** (animals without backbones, including insects, spiders, isopods, etc.), include spider webs, cicada shells, rolled leaves, old cocoons, holes in the ground or bored into logs, and chewed leaves. Remember, invertebrates are wildlife, too!

These signs can tell us not only what animals live there, but also a great deal about the habitat needs of the animal that left them behind. **Habitat** includes the food, water, shelter and space suitable to an animal's needs; an appropriate arrangement of all of these is required for a given species to live in a certain location. By looking at where animals leave tracks, what they leave behind in scat, where they locate their nests, and so on, we are able to learn about their habitat requirements. In this activity, we search for signs of animals.

Procedure:

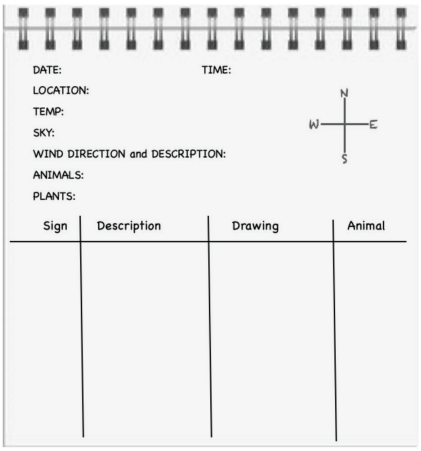
- It may help to scout out the area for this activity before your field trip. Some bosque trails now have gravel, which is not conducive to finding tracks. Find a location that has dirt trails, many trees and other vegetation as well as open areas. You might find an area with gopher mounds, bird nests or other obvious signs.

- Start by asking students what animals live in the bosque. Remember to accept invertebrates in their answers, as they are animals, too! *Ask if any students have been in the bosque before, and if so, what types of animals did they actually see?* There might be fewer animals listed now. Tell them that animals are often very hard to find, so today you will look for signs of animals, things that tell us that an animal is nearby. For older students, you may want to include the terms **vertebrates** and **invertebrates**.

- Divide the class into small groups. Assign each group a search area with clear boundaries. It can be "stay between this path and the river" or "within ten paces of this path" or whatever is appropriate. Many areas in the bosque look alike and if separated from the group, students can get disoriented and feel lost.

- Students should look carefully throughout the area for signs of animals. Look first; never put your hands, feet, or face where you have not looked. Things to look for include tracks, scat (poop), bird nests, holes in the ground, mounds of dirt (left by gophers), feathers, fur, bones, scratches, bite marks, spider webs, cicada shells or old cocoons, chewed leaves or sounds made by the animals.

- Record observations in field journals. Have students create a data chart in their journals with four columns:
  - **Sign**: Record the sign observed (e.g., "nest," "tracks," "scratch marks")
  - **Description**: Provide details about the sign, including the environment in which the sign was found (e.g., "in a cottonwood tree," "in sandy soil under a willow"). Include a tally when appropriate (e.g., number of small bird tracks, coyote tracks, etc.).


DATE: TIME:
LOCATION:
TEMP:
SKY:
WIND DIRECTION and DESCRIPTION:
ANIMALS:
PLANTS:
N
W E
S

Sign	Description	Drawing	Animal

  - **Drawing**: Draw the sign and include labels as appropriate and measurements, when possible.
  - **Animal**: If possible, identify the animal that created the sign.

NOTE: Do not collect the evidence!

- If time permits, have students use natural history guides, or the guide included below, to identify their finds, if possible. If there is not time while in the field, try to identify signs when back in the classroom.

- At the end of the allotted time, bring students together to share findings. Use the following questions to lead a discussion of their discoveries.

  How many different types of animals did you detect?

  How many of each animal might live here? How do we know?

  How many of these animals live underground? In the trees? On the ground?

  Introduce the concept of habitat (the arrangement of food, water, shelter or cover and space suitable to animals' needs). *What can we learn about an animal's habitat needs by the signs they leave behind?*

  How might each of these animals find food?

Where might each of these animals find water?

What types of homes did you find? Does that tell us anything about where the animal lives?

What would happen to these animals if these areas changed – there were no longer large trees, or the river dried up, or the plants died, etc.?

Can you name any animals that likely wouldn't be able to survive in this habitat based on their needs?

3.LS4.C, 3.LS4.D

Assessment:

Have students write about their findings, either in their field journal or as an assignment. Students should answer appropriate discussion questions as well.

Extension:

- For each sign that was found, draw or find a picture of the animal to match with a picture of its sign.
- Pick one of the animals discovered in the bosque. Research specific habitat needs for this species. Create a poster, model, etc. to share this information with the class.
- Additional activities in this *Guide* that would be appropriate follow-ups are "*The Web*" and "*Who Lives Where?*"
- Older students could discuss or learn more about what you can learn from tracks (size of animal, direction they were going, interaction with other animals), scat (diet, illness), etc.

Reference:

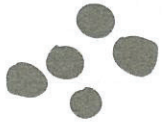
Track and Scat guides provided by the **Albuquerque Bernalillo County Water Utility Authority** Education Program. https://www.abcwua.org/education/

Animal Scat

Pellets, piles, splats & cylinders...

Pellets

Round - small
Rabbit



Round -tiny
Worm

Oval - small
Gopher
Squirrel
Mouse

Oval - medium
Porcupine

Redondo - pequño
Conejo

Redondo - minísculo
Lombíz

Óvalo - pequeño
Tuza
Ardilla
Ratón

Óvalo - mediano
Puercoespín

Bolitas

Piles or Splats

Loose pile
with seeds
Coyote, sometimes

Large white splat
may have dark splotches in it
Crow
Owl
Hawk

Small white splat
may have dark splotches in it
Robin
Dove or pigeon
Other small bird

Pila suelta
con semillas
Coyote, a veces

Salipicadura blanco y grande
con morado o verde
Cuervo
Buho
Gavilán

Salipicadura blanco y grande
con morado o verde
Mirlo
Paloma
Otra ave pequeña

Pilas o Salpicaduras

www.abcwua.org/education

These drawings are not to scale!

Excrementos de animales

Bolitas, pilas, salpicaduras & cilindros...

Cylinders

Blunt, Medium
Seeds
Raccoon

Blunt, Medium
Broken
House cat

Blunt, Short
Bug parts
Skunk

Redondado, largo
Semillas
Mapache

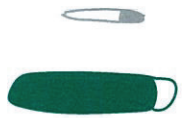
Redondeado, mediano
Descontinuado
Gato domestico

Redondeado, corto
Partes de bichos
Zorillo/mofeta

Pointy, large
Pet dog, coyote, fox
Pet scat is all one texture;
Coyote/fox scat contains
fur, bones, fruit, seeds, grass

Pointy, twisty
Weasel
Twisty with fur, bones

Pointy, white end
Tiny: Lizard, Flicker
Large, green: Goose, crane
All one texture



Apuntado, grande
Perro doméstico, coyote, zorro
De perros es todo una misma
textura; de coyotes/zorros
contiene pelo, huesos, fruta,
semillas o sacate

Apuntado, sinuoso
Comadreja
Retorcido con pelo
y huesos

Apuntado, termino blanco
Minisculo: Lagartijo,
Grande, verde: Ganso, grulla
Todo una misma textura

Caution: do not touch animal scat, use a tool to investigate
Precaución: no toque los excrementos de animales, use un implemento para investigar

¡Estos dibujos no guardan las propociones!

www.abcwua.org/education

Animal Tracks

How many toes?

0 or 1 or 2

Long and narrow
Human wearing shoes

Largo y angosto
Humano llevando zapatos

Short and round
Horse

Corto y redondo
Caballo

Small with 2 toes
Deer (unlikely in the bosque)

Pequeño con 2 dedos
Cervo (poco probable en el bosque)

3

Webbed
Duck
Goose

Palmeado
Pato
Ganso

Partly webbed
Coot

Parcialmente palmeado
Gallareta

Not webbed
Most birds

No palmeado
Casi todo los aves

Not webbed
Sandhill Crane

No palmeado
Grulla Gris

4

X-shaped
Roadrunner
Woodpecker

Forma de X
Correcaminos
Carpintero

Nails (Canine)
Pet dog
Coyote, Fox

Uñas (canino)
Perro (mascota)
Coyote, Zorro

No nails (Feline)
Pet cat

No uñas (felino)
Gato (mascota)

No nails (rabbit)
Cottontail rabbit
(One foot Trail)

(Un pie Rastro)
No uñas (conejo)
Conejo del desierto

www.abcwua.org/education

Huellas de animales

¿Cuántos dedos?

These drawings are not to scale!

¡Estos dibujos no guardan las propociones!

4 or 5

5 hind toes and 4 front toes
Sets of 2 tracks Porcupine

4 dedos en las patas frentes y 5 en las traseras

Grupos de 2 huellas
Puercoespín

Sets of 4 tracks
Squirrel

Grupos de 4 huellas
Ardilla

Sets of 4 tracks
Mouse

Grupos de 4 huellas
Ratón

5

Raccoon

Mapache

Weasel

Comadreja

Beaver

Castor

Barefoot human

Humano descalzo

Other tracks and trails

Turtle/tortuga

Snake/serpiente

Bicycle tire/llanta de bicicleta

Beetle/escarabajo

www.abcwua.org/education