



5. Scavenger Hunt

Human Signs in the Bosque

Description: Students search for impacts of humans in the bosque by walking a bosque trail and using a scavenger hunt list to keep track of human signs.

Objectives: Students will:

- identify human signs in the bosque;
- understand impact of human activity in bosque; and
- evaluate their own actions while in the bosque.

Materials: Student Activity Sheet: Scavenger Hunt—Human Signs in the Bosque, one per student
pencil
optional: field journal

Background: The bosque reflects the many activities of homesteaders, visitors, developers and agencies, which alter bosque plant and animal communities and the hydrological system. Every activity has results, some of which we are just beginning to see. Some of these activities are beneficial, while many others produce long-term detrimental effects.

Saltcedar or tamarisk trees were originally planted along riverbanks during the reclamation projects. They were to serve as windbreaks and to hold soil in place when the river flooded. They have now become “naturalized,” meaning they reproduce and spread on their own.

5. Scavenger Hunt—Human Signs in the Bosque



Grades: 3–8

Time: material preparation: 10 minutes
class activity: one hour

Subjects: science, social studies

Terms: sign, scat, trash, salt deposit, domestic, tree carving, graffiti, vandalism, detrimental, exotic, naturalized, acequia



Other exotic plants such as elm, kochia and alfalfa have been blown in by the wind from nearby neighborhoods, vacant lots and farms.



Salt deposits, a white crusty substance on the surface of the ground, occurs when water evaporates and the salt that the water contained is left behind. Where does the salt come from? It is within the soil deposited there from the river or from salt-concentrating plants such as tamarisk (also called saltcedar).

Exotic animals have also been introduced. Starlings were brought to America in 1890 by the American Acclimatization Society who wanted to establish all of the birds mentioned in Shakespeare's works into the Shakespeare Garden in New York City's Central Park. The house sparrow (English sparrow) was introduced to New York City in 1852 or 1853 and by 1900 was one of the most abundant birds in North America. Since their introductions, both starlings and house sparrows have spread across the United States.

Drain canals, connected by metal culverts, form a significant part of the irrigation and flood-control infrastructure of the Rio Grande below Elephant Butte Dam. These canals return irrigation water to the Rio Grande from agricultural fields.

Feral dogs and cats have been abandoned in the bosque by people no longer wanting them as pets. Also abandoned are the domestic ducks, rabbits, and chickens often given to children at Easter. When the animals have lost their appeal they are abandoned here.

Sawn logs and stumps tell of cleanup or removal projects..

Burned logs indicate a fire. Lightning causes a very small percentage of bosque fires, about 2% according to one study. Smoking, weed burning, fireworks and arson are the most common causes of bosque fires.

Tagging and graffiti became a sport of dare in recent years, as have paint guns.

Chicken wire wrapped around cottonwood pole plantings helps protect the young trees from hungry beavers.

A **sneaker print, bike track or horseshoe print** is a record of your visit to the bosque. Unfortunately, some visitors would rather blaze their own trails (which can damage the soil and vegetation) than stay on established trails.

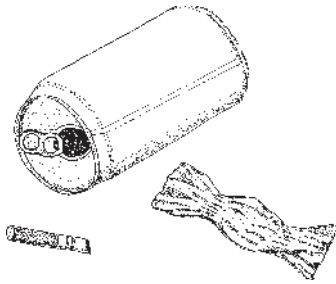




Utility poles carry electricity to customers who live far from the generating source. Often taller than most trees, they provide high perches for birds of prey. Unfortunately, they also carry the risk of electrocution if the birds' wings touch live wires.

Pecans are a major crop along the lower Rio Grande in New Mexico. Orchards now stand where upland shrubs or screwbean mesquite groves once grew. Crows and ravens are fond of stashing pecans for future meals; later they leave the broken shells behind.

Barbed-wire fences are iconic of the western U.S., especially where livestock needs to be confined or restricted or where property lines are delineated.



Trash: The bosque has a long history of being used as a dumping ground. Tons of garbage were removed from the bosque including old household appliances, car bodies, trees, broken-up concrete from sidewalks and streets, stumps and logs from cut trees. Some of this rubbish remains. Present-day trash consists of cigarette butts, candy wrappers, honey sticks, and tissues. Beer and soft drink cans, glass and plastic bottles and dog poop show a lesser degree of care. Plastic bags used by hikers or picnickers blow away and land in trees, stuck forever, as they become tattered flags of human disrespect for natural areas. Some people carve their names and dates in trees, opening the tree's protective bark to disease and insects.

Floating debris in the river itself: Plastic and aluminum containers, pieces of Styrofoam coolers, plastic six-pack rings, and tires are seen. Motor oil is washed from city streets into the storm drains that discharge into the river. Some people dump their used motor oil directly into city drains causing a detrimental effect on the plants and animals of the river community.

Procedure:

1. Just like finding signs of wildlife in the bosque, students are to look for evidence of human activity in the bosque.
2. Explain that since the time of indigenous people of North America and as the Spanish began to settle along the Rio Grande, people have made changes to the bosque. Some changes were to trap floodwater or dig acequias to divert river water to irrigate crops. All of these manipulations have impacted the ecological system. In the last 100 years large-scale changes have altered the river. Introduced plants and animals, roads, levees and drain canals, irrigation systems, homes, farms and recreational activities have altered the natural flow of the river.



3. Question students about how their activities during a field trip in the bosque may also cause changes. Dropping trash or trampling plants are two effects. Reseeding native grasses, clearing deadwood or installing nesting boxes are others.
4. Distribute student activity sheet “Scavenger Hunt: Human Signs in the Bosque.”
5. Have students circle or draw the signs of human activity as they find them on their walk. Have students add other things they see that are not on the list.

Assessment: Discuss the impact of the human signs.

1. What human activity caused this sign?
2. Was this item introduced, released, placed here or planted for a purpose? What was that purpose?
3. What other signs of human influence can you find?
4. How many of the signs you have found result from intentional vandalism?
5. How many signs are unintentional results of other actions?

Extensions: Have students carry a litter bag on their walk.

Have students plan and carry out a service-learning project (see Chapter 7 of the Middle Rio Grande edition of this guide).

Back in the classroom, have students draw a human impact bosque scene and a scene as it might be without human impact.





Scavenger Hunt

Human Signs in the Bosque

Sometimes the only proof of animals in the bosque is the sign they leave which tells of their activities. A feather from a preening bird falls to the ground; scratches in the soil mark the hole of a hiding mouse. Perhaps scat on the trail tells the story of a night's hunt. Tracks in mud record the passage of those who came to drink. Humans also leave signs of their activities. As you walk the trail, check your list for signs of human activity.

drain canals	wire around trees	starling
saltcedar	salt deposit on ground	dog
elm	sawn log	barbed-wire fence
metal culverts	burned log	graffiti
utility poles	pecan trees/shells	sneaker print
trash	trail	bike track
carving in tree bark	floating trash	plastic in tree

Discuss the human signs noticed.

What human activity caused this sign?

Was this item introduced, released, placed or planted for a purpose?

Was the introduced item useful or harmful?

What other signs of human influence can you find?

How many of the signs you've found are the result of intentional vandalism?

How many signs are unintentional results of other actions?