

## Section 5: Home on the Range—Wildlife and Livestock

1. What is Habitat?
2. What's for Dinner?
3. Ice Cream Plants and Animal Skull Discovery
4. How Much Food do Animals Eat?
5. Skills Challenge—Animal Identification

### Learning Objectives:

- Identify and describe the four essential components of habitats: food, water, cover, and space.
- Describe factors that limit habitat
- Recognize that rangeland plants are a renewable resource
- Analyze the effect of different types of forage on different grazing animals.

### Idaho General Education Performance Standards

- LS2-5-3, LS2-4-4, LS2-MS-2, LS2-MS-5, LS2-MS-3, LS2-MS-1

#### 1. What is Habitat?

**Time:** 20-25 minutes

**Supplies:** Habitat worksheet for each student.

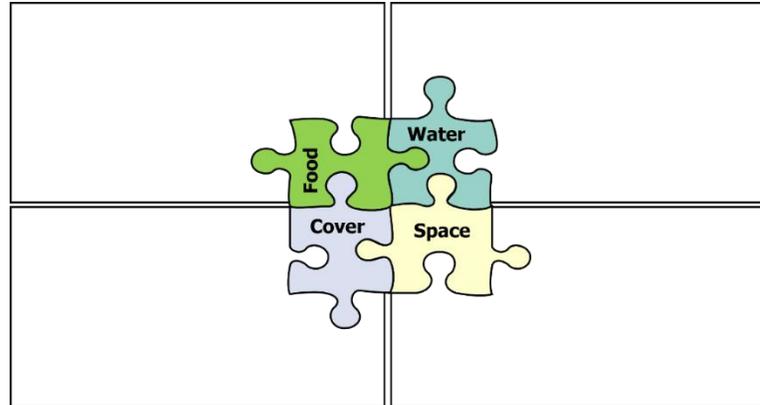
#### Introduction:

Rangelands (both private and public) provide essential **habitat** for livestock and wildlife. Their rich ecological diversity provides food, cover, and rearing-ground necessary for countless mammals, birds, amphibians, reptiles, fishes, and insects. A great majority (84%) of mammals found in North America spend at least a portion of their life in rangeland ecosystems. Large hoofed animals, called ungulates, are perhaps the most iconic rangeland animals. Wild grazing animals such as elk, pronghorn, and deer, as well as livestock species including cattle, sheep, goats, and horses, all inhabit rangeland landscapes. Other mammals commonly found on rangelands include rodents and rabbits.

A variety of birds make their home on the range, either seasonally or year-round. Large game birds such as grouse, pheasants, and chukars call rangelands home. Migratory songbirds including meadowlarks, buntings, sparrows, and doves fill the grasslands, shrublands, and woodlands with color and song. Raptors such as hawks and falcons can often be found in the rangeland skies. Some birds are so attached to rangelands that vegetation types are in their name: prairie falcon, meadow lark, sage thrasher, and scrub jay. All wildlife and livestock require four basic habitat elements in order to survive, thrive and reproduce: food, water, cover, and space. The specific combination of food, water, cover, and space required by a given species, called its niche, is unique to every species that lives on rangelands. Because of these specific and varied requirements, any time the habitat is altered, it is improved for some species but made worse for others.

**Do:**

- Describe the components of a habitat. Explain why each component is essential, just like each piece of a puzzle is essential.



- **Food:** requirements for all animals, including those on rangelands, include energy, nutrients, and minerals. Energy in plants comes from starches, sugars, fats, and cellulose. Nutrients include protein and vitamins. Mineral requirements include phosphorus and potassium. The types of vegetation on the land, the diet preferences of animals, and the arrangement of available food plants must be assessed to determine the food or forage value of rangeland habitat.
- **Water:** requirements vary depending on the animal species and weather conditions. In general, sheep and goats require 1-1½ gallons of water once every two days; donkeys require 3-4 gallons of water every day; horses require 5-8 gallons of water each day; and cattle and bison require 8-10 gallons of water every day or two. Wildlife, such as whitetails need about ½-¾ a gallon of water per day per 100 pounds of body. Black bears need large amounts of water to process the large amounts of food consumed and rid the body of waste; daily urine volumes for one bear averages 1-2 gallons! Rangeland animals meet their water requirement by drinking fresh water and obtaining water from forage. Green plants can contain significant amounts of water. For example, immature grasses may be up to 75% water by weight. If an animal eats 28 pounds of immature forage, it will consume about 2.5 gallons of water.
- **Cover:** is required for shelter from weather conditions and from predators. Thermal protection is provided by plants when animals are shaded in the summer and sheltered from cold in the winter. Thermal cover for rangeland animals is provided mostly by trees and shrubs. Plants can also offer hiding cover for animals to protect them from predators. Many animals use large plants to hide under or to gain protection through visual obstruction. However, other animals, like pronghorn and prairie dogs, gain protection from predators by a lack of visual obstruction. These animals prefer to be out in the open where they can see predators coming and escape by running away or retreating underground.
- **Space:** is an important consideration for breeding and nesting, home range, and disease transmission. An animal's home range is the area in which an individual animal conducts its normal daily and yearly activities. This area can be shared with members of its own species, or with other species. The home range of an animal is directly related to its body weight: larger animals generally have a larger home range. Home ranges also vary by foraging habits: carnivores have very large home ranges, while the home ranges of herbivores are comparatively smaller.

**Reflect/Apply:**

Location and size of home ranges and habitats are set by **limiting factors** such as water, food, climate, and topography. These factors are basic requirements that restrict the size, growth, and/or vigor of an animal population.

- Rangeland habitats can be influenced by human activities that either add or remove limiting factors.

Have students brainstorm ideas of how they can positively or negatively influence habitat.

- For example, when ranchers add water tanks to pastures, they may remove a habitat-limiting factor (i.e., access to water) for wild and domestic animals. On the other hand, building roads and housing subdivisions may create factors that limit access to food and cover. However, habitat modification does not always affect a wildlife species' ability to survive, thrive, and reproduce.