

TheMustangNation.com - Please Pass the Wheatgrass

This activity aligns with the following National Science Education Standards:
Content Standard C: Life Science—Organisms and Their Environment; Populations and Ecosystems

Background

Most American wild horses and burros live on public lands in the West in distinct areas known as Herd Management Areas (HMAs). They share the land with numerous species of native wildlife as well as grazing livestock. In natural ecosystems, each animal species occupies its own niche, which enables the animals to share the same habitat. Most wildlife biologists would argue that a wild horse and burro HMA is not a natural ecosystem. Both wild horses and/or burros as well as livestock have been introduced to an area where various species of wildlife already lived. Niches overlap and, to further complicate matters, most herd areas are dry and sparsely vegetated. The limited food and water resources of an HMA must be shared among all the resident animals. Conditions vary greatly according to the location of a particular HMA, the season, and other factors, such as the amount of recent rainfall. In general, however, cattle consume mostly grasses (60–80 percent of their diet), with 10–20 percent of their diet being flowers and weeds (forbs), and another 5 percent consisting of shrubs. Horses have a similar diet, although they may consume slightly less grass and more shrubs than cattle do. Wildlife also enter the picture. Deer tend to prefer forbs and shrubs, while elk eat more grass.

Depending on which animals live in a particular area and which types of forage grow there, and numerous other conditions as well, the amount of food available may decline quickly or slowly. In attempting to manage the land for a variety of animals, land managers must monitor the forage and water as well as the number and types of animals present. Adjustments must be made so that the animals do not suffer and the rangelands don't deteriorate.

The following demonstration shows how complex the management of an HMA is and how important it is to monitor the kinds of forage available and the number and types of animals present in an HMA.

Materials Needed:

Bags of three different kinds of dried beans—pinto beans, kidney beans, and navy beans would be good choices. (The beans should be different colors, and there should be enough so that each student will be able to gather several of each during the course of the activity—see specific recommendations on quantities below.)

Procedure

1. Each type of bean represents a different food type found on the range. Kidney beans can represent grasses; pinto beans flowers and weeds; and navy beans can represent shrubs. Count out eight kidney beans, four pintos, and two navy beans per

student. Spread the beans out on a large tabletop in an open area. This area represents the available forage in a given herd management area.

2. Next, divide students into three groups. One group will represent wild horses, a second will represent cattle, and the third group will represent elk. There should be approximately equal numbers of horses and cattle and about half as many elk. For example, in a class of 25 students, there could be 10 each of horses and cattle and five elk. The students should stand along the edges of the cleared area.

3. Now pretend it's early in the spring. Snows are beginning to melt, plants are starting to grow, and the wild horses have returned to this area from their winter range. Each "horse" goes to the table and removes two beans. For authenticity's sake, inform the students about the types of food that horses prefer (grasses, then forbs, then shrubs); however, students should feel free to take any type of food they want. After all, all plants are particularly tasty in the early spring.

4. Next, it's the elks' turn. They move into the area, and each "elk" takes two kidney beans, because the favorite food of elks is grass.

5. Now it's time for the cattle to return to the range. Cattle also prefer to eat grasses, so each "cow" should also take two kidney beans.

6. All the animals are now on the range. The members of each "herd" will now go to the feeding area—one at a time. The first animal will take one bean, then return to the herd and tag a second member to go to the feeding area. Each feeding animal takes one bean at a time—choosing any type of food they wish. This process continues until the supply of one type of food is exhausted.

7. Discuss with students how this demonstration reveals some of the problems land managers face in maintaining the health of a herd management area. What do they think animals are likely to do if their preferred food supply runs out? (Animals could eat something else, move to another part of the range, or go hungry and die.) What would happen if the number of horses in the area doubled? (The amount of food in the area—particularly their favorite foods, such as grasses and shrubs—would decline more rapidly.) How would this affect the food supply of cattle and elk? (Their food supply would decline as well.) How might the situation change if the dominant form of wildlife in the area was deer, which tend to eat more forbs and shrubs? (The supply of grass for horses and cattle would last longer.) What other factors might alter the situation? (Many answers are possible, including drought, fire, and a prolonged winter.) What are some ways in which land managers can maintain the food supply as well as the health of the range and its animal inhabitants? Removing animals from the range is one answer, but the question remains: Which animals?

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