

Session: Introduction

Activity: Oh, Deer (from Project WILD)

Objectives: Participants will

- 1) Identify 3 components of habitat – food, shelter and water.
- 2) Identify population changes based on changes in available habitat components: Limiting Factors.
- 3) Explore the concept of Carrying Capacity.

Method: Students portray deer and habitat components in an active activity.

Materials Contained in Activity Tub:

None.

Materials Needed to Conduct Activity:

Large open area. White board or flip chart are optional to record deer population after each round.

Duration: 30-45 Minutes

Group Size: 10-15 Students

Setting: Indoors or Outdoors; requires large area for running

Key Terms: Habitat, limiting factor, Carrying Capacity

SET Ability: Model/Graph/Use Numbers, Predict

Background Information:

Carrying capacity refers to the number of animals the habitat can support. A variety of factors affect carrying capacity. The most fundamental of life's necessities for any animal are food, water, shelter, and space in a suitable arrangement. Without these habitat components, animals cannot survive.

Wildlife populations continuously fluctuate in response to a variety of (limiting) factors.

Carrying capacity limitations can result in competition between and among domestic animals, wildlife, and humans.

This activity is a simple way for students to understand some basic concepts: first, that everything in a natural system is interrelated; second, that populations of organisms are continuously affected by elements of their environment; and third that populations of animals continually change

This activity illustrates that:

habitat is the key to wildlife survival;
a population will increase when habitat components are abundant
a population will decrease when habitat components are scarce (limiting factor);
nature is constantly is changing

Activity:

Before the activity

1. Select a suitable area

Procedure

1. Tell students they will be participating in an activity that emphasizes the most essential things animals need in order to survive. Review the essential components of habitat with the students: food, water, shelter, and space in a suitable arrangement. This activity emphasizes three of those habitat components—food, water and shelter—but the students should not forget the importance of the animals having sufficient space in which to live, and that all the components must be in a suitable arrangement for wildlife populations to reach their maximum size
2. Ask the students to count off in fours. Have all the "ones" go to one area; all "twos", "threes", and "fours" go together to another area. Mark two parallel lines on the ground or floor 10 to 20 yards apart. Have the "ones" line up behind one line; the rest of the students line up behind the other line, facing the ones
3. The "ones" become "deer". All deer need good habitat in order to survive. Again, ask the students what the essential components of habitat are: food, water, shelter, and space in a suitable arrangement. For the purposes of this activity, assume that the deer have enough space in which to live. The deer (the "ones") need to find food, water, and shelter in order to survive. When a deer is looking for food, it should clamp its "hooves" over its stomach. When it is looking for water, it puts its "hooves" over its mouth. When it is

- looking for shelter, it holds its "hooves" together over its head. A deer can choose to look for any one of its needs during each round or segment of the activity; the deer cannot, however, change what it is looking for (e.g., when it sees what is available during that round). It can change what it is looking for in the next round, if it survives.
4. The "twos", "threes" and "fours" are food, water and shelter—components of habitat. Each student is allowed to choose at the beginning of each round which component he or she will be during that round. The students depict which component they are in the same way the deer show what they are looking for; that is, hands on stomach for food, etc.
 5. The activity starts with all players lined up behind their respective lines (deer on one side, habitat components on the other side) — and with their backs facing the students along the other line
 6. Begin the first round by asking all of the students to make their signs—each deer deciding what it is looking for, each habitat component deciding what it is. Give the students a few moments to put their hands in place—over stomachs, mouths or over their heads. (The two lines of students normally will display a lot of variety—with some students portraying water, some food, and some shelter. As the activity proceeds, sometimes the students confer with each other and all make the same sign. That's okay, although don't encourage it. For example, all the students in habitat might decide to be shelter. That could represent a drought year with no available food or water.)
 7. When the students are ready, say: "Oh Deer!" Each deer and each habitat component turn to

face the opposite group, continuing to hold their signs clearly

When deer see the habitat component they need, they are to run to it. Each deer must hold the sign of what it is looking for until getting to the habitat component student with the same sign. Each deer that reaches its necessary habitat component takes the "food", "water", or "shelter" back to the deer side of the line. "Capturing" a component represents the deer successfully meeting its needs and successfully reproducing as a result. Any deer that fails to find its food, water or shelter dies and becomes part of the habitat. That is, any deer that died will be a habitat component in the next round and so is available as food, water, or shelter to the deer that are still alive

8. When deer see the habitat component they need, they are to run to it. Each deer must hold the sign of what it is looking for until getting to the habitat component student with the same sign. Each deer that reaches its necessary habitat component takes the "food", "water", or "shelter" back to the deer side of the line. "Capturing" a component represents the deer successfully meeting its needs and successfully reproducing as a result. Any deer that fails to find its food, water or shelter dies and becomes part of the habitat. That is, any deer that died will be a habitat component in the next round and so is available as food, water, or shelter to the deer that are still alive.
NOTE: When more than one deer reaches a habitat component, the student who

arrives there first survives. Habitat components stay in place until a deer chooses them. If no deer needs a particular habitat component during a round, the habitat component just stays where it is in the habitat. The habitat component can, however, change which component it is from round to round.

9. Record the number of deer at the beginning of the activity and at the end of each round. Continue the activity for approximately 15 rounds.
10. At the end of the 15 rounds, gather the students together to discuss the activity. Encourage them to talk about what they experienced and saw. For example, they saw a small herd of deer (seven students in a class size of 28) begin by finding more than enough of its habitat needs. However, because the population of deer expanded over two to three rounds of the activity until it exceeded the carrying capacity of the habitat, there was not sufficient food, water, and shelter for all the members of the herd. At that point, deer starved or died of thirst or lack of shelter, and they returned as part of the habitat. Such things happen in nature also.
11. What is realistic and unrealistic about this simulation? (Deer that don't survive do become recycled as nutrients but it is not instantaneous. Deer need all habitat components to survive. Poor habitat usually results in a weakened individual that succumbs to disease, etc., not instant death.)
12. In discussion, ask the students to summarize some of the things they learned from this activity. What do animals need to survive? How do these

components influence carrying capacity? What are some

"limiting factors" that affect the survival of animals? How do factors limiting carrying capacity affect the health, numbers, and distribution of animals? How do these factors affect competition within a species? Why is good habitat important for animals? Are wildlife populations static, or do they tend to fluctuate as part of an overall "balance" of nature? Is nature ever really in "balance" or are ecological systems involved in a process of constant change?

Variations:

After the students have played several rounds of "Oh Deer!", introduce a predator such as a mountain lion or wolf into the simulation. The predator starts in a designated "predator den" area off to the side. The predator

has to skip or hop. This impediment reduces the possibility of violent collisions between deer and predators. The predators can tag deer only when they are going towards the habitat and are between the habitat and deer lines. Once a deer is tagged, the predator escorts the deer back to the predator den. The time it takes to escort the deer simulates the time it takes to eat. The "eaten" deer is now a predator. Predators that fail to tag someone die and become habitat. That is, in the next round the predators that died join the habitat line. They will become available to surviving deer as food, water, or shelter. During each round, keep track of the number of predators as well as the number of deer. Incorporate these data into the graphs.