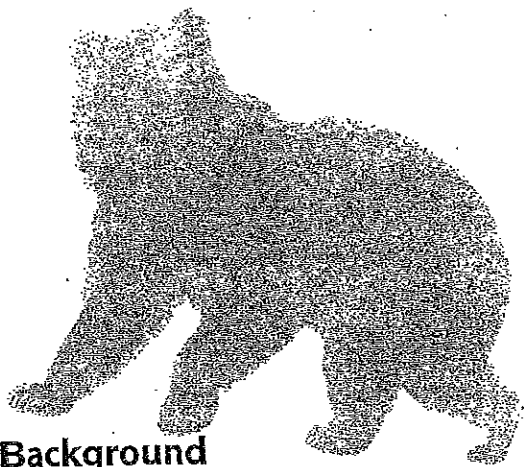


How Many Bears Can Live in This Forest?

Objectives

Students will (1) define a limiting factor, and (2) describe how limiting factors affect animal populations.



Background

Black bears are the focus of this activity that illustrates the importance of suitable habitat for wildlife. The activity demonstrates the consequences for a population of bears if one or more habitat components is relatively scarce. When any element or factor in a habitat is inappropriate or exceeds the tolerance range for an animal or population, it directly affects the well-being of the animal(s) and may result in death or population reduction. This factor "limits" the animal or population. Limiting factors may include habitat components such as food, water, shelter, and appropriate space, as well as life history parameters such as disease, predation, and climatic conditions. Limiting factors also may be related to human activity such as development, pollution, and hunting. Populations tend to increase in size until limited by one or more of these factors.

Black bear habitat limits black bear populations, especially through the influences of shelter, food supply, and the social tolerances or territoriality of the animal. Shelter or cover is a prime factor. Black bears need cover—for feeding, hiding, bedding, traveling, raising cubs, and denning. With limits of space, adult bears will kill young bears or run them out of the area. These young bears must keep moving around either until they die or until they find an area vacated by the death of an adult.

When food supplies are reduced by factors such as climatic fluctuations, competition becomes more intense. Some adult bears might temporarily move to seldom-used areas of their home range, sometimes many miles away. They must live on what food is available in the area. These individuals may become thin and in poor

condition for winter hibernation or, in the case of young bears, be forced from the area by more aggressive adults.

Colored Cards:

- Nuts _____
- Berries and Fruit _____
- Insects _____
- Meat _____
- Plants _____
- Water Source
(light blue) (river, lake, stream, spring, marsh) _____

White Cards:

- B (Bedding sites) _____
- T (Travel Ways) _____
- D (Dens) _____
- H (Hiding Cover) _____
- F (Feeding Sites) _____

Bedding Sites

Black bears are usually active in early morning and late evening, and bedded most of the rest of the day and night. Bedding sites are usually in areas of dense vegetation, steep topography, or large trees where the bears feel secure.

Travel Ways:

Bears require corridors of cover (made up of thick vegetation or steep topography) to enable them to travel between areas of food, water, and shelter within their home range.

Dens:

Black bears use dens as shelter for hibernation from November to April in each year. Bears have been found denning in hollow logs, caves, holes dug into hillsides, under buildings on top of the ground, and even in culvert pipes. Bears often prepare and may use more than one den; they may change dens during the winter because of disturbance or a leaky den. Bears seldom reuse dens from year to year.

Hiding Cover:

Black bears evolved as animals that escape danger from predators and other bears by hiding in thick cover.

Feeding Sites:

Bears often will use areas with less cover than hiding areas or bedding sites for feeding. Feeding sites are, however, often found close to thick hiding cover to allow the bear to quickly escape danger if necessary.

orange—nuts (acorns, pecans, walnuts, hickory nuts)

blue—berries and fruit (blackberries, elderberries, raspberries, wild cherries)

yellow—insects (grub worms, larvae, ants, termites)

red—meat (mice, rodents, peccaries, beaver, muskrats, young deer)

green—plants (leaves, grasses, herbs)

The following estimates of total pounds of food needed for one bear for 10 days are used for this activity:

Nuts	20 pounds	(25%)
Berries and fruit	20 pounds	(25%)
Insects	12 pounds	(15%)
Meat	8 pounds	(10%)
Plants	20 pounds	(25%)
	80 pounds	(100%)

NOTE: These figures represent the food of a typical black bear in Arizona. The components of an actual bear's diet will vary between areas, seasons, and years. For example, a bear in the state of Alaska would likely eat more meat (fish) and fewer nuts than a bear in Arizona. One similarity among black bears everywhere is that the majority of their diet is normally made up of vegetable material.

