Reading 9.2 – A stable ecosystem in the park

Getting Ready

In a zoo, you can see bears, wolves, elk, birds, fish, bison, and other animals. In Yellowstone National Park, you can see all of these animals in their natural environment. At Yellowstone, the variety of organisms seems endless. How do they survive when they live beside one another instead of in separate cages? A zookeeper makes sure all of the animals get the food they need to survive. In a park, in nature, how do animals get the food they need?

Highlight the answer in the text: What is a national park? →

Life in Yellowstone National Park

A huge stone arch greets you with words carved near the top, "For the Benefit and Enjoyment of the People." When you pass through the arch, you find much to enjoy in Yellowstone National Park. A national park is an area of land the United States government determines is valuable to the whole nation. The land is protected and monitored to make sure organisms can live naturally in their habitats.

How Does the Wildlife in Yellowstone Get the Food It Needs to Survive?

In this lesson, you worked with a computer model to explore one type of relationship: predator and prey. If you were successful building your model, you were able to create a stable model of the ecosystem.

An ecosystem is stable when all of the populations in it are able to survive. Because the populations of foxes, rabbits, and grass all survived, the model showed that you understand these relationships:

> fox and rabbits = a direct relationship = more foxes result in fewer rabbits
>
> rabbit and grass = a direct relationship = more rabbits results in less grass
>
> fox and grass = an indirect relationship = more grass because there are fewer rabbits to eat it

So, if something happens to the fox population, there will be more rabbits and less grass. If something happens to the grass, there will be fewer rabbits because they have less food. Then, there will be fewer foxes because their food is decreasing. A food web in Yellowstone Park involves the many organisms that live there. The stable ecosystem allows each population to find the food it needs to survive within the park.

What Predator/Prey Relationships Are in Yellowstone's Food Web?

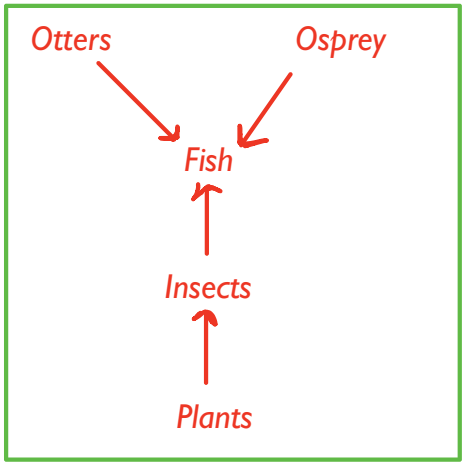
One of the animals people hope to see when they go to Yellowstone is a Grizzly bear. Grizzly bears eat elk and bison, nuts from the white bark pine, and some moths. Bison eat grass. Fish prey on insects, smaller fish, and fish eggs. Smaller fish feed on insects that feed on plants.

Bird watchers going to Yellowstone hope to see the osprey, a medium size bird of prey. The osprey's main food is fish. Bald eagles also eat fish and small mammals.

Grey wolves are one of the top predators in the park. One reason they are important to the food web is that they leave leftovers from their meals of elk and moose for other organisms in the food chain. This is especially important for other animals during the winter.

Ravens, hawks, bears, and other scavengers eat what the wolf leaves behind. Elk and moose feed on plants. Coyotes are meat eaters. They look for small animals like otters, sheep, and lambs from nearby ranches. Otters eat fish. ~~Use what you have read to identify three relationships in Yellowstone.~~

Use the reading and the mini food web below to circle the answer to each question.



1. What kind of a relationship do the otters and Osprey have?
Direct Indirect

2. What kind of relationship do the Osprey and plants have?
Direct Indirect

3. What kind of relationship do the otters and fish have?
Direct Indirect

Yellowstone's wildlife is one of reasons that people visit the park. As student biologists, you would also be amazed to watch these animals interacting with other organisms and their environment for survival.

At the beginning of this reading, you read about the arch that welcomes visitors to Yellowstone National Park. Based on what you have learned about Yellowstone, you can understand why the words carved in the stone are so perfect. Being able to watch organisms in their natural habitat is a wonderful opportunity. You do not have to go to Yellowstone, though, to enjoy wildlife. You learned during your field study that organisms are all around you. Go into your own yard, a park, or look out your window. List some of the organisms that you see. Then write about how their habitat remains stable.