Elk Migration: Yellowstone Ecosystem Research Guide

Answer Key

Name

Group Project Animal

PART I:

1. Draw a food web for elk that shows what it eats and which predators eat the elk.

Predators: wolves, cougars, bears (which mostly only take calves)

Students may also show scavengers: coyotes, eagles, and both black and grizzly bears

What elk eat: grasses, twigs, shrubs, berries

2. What are the different kinds of ecosystems inside the Greater Yellowstone Ecosystem? Create a series of symbols to depict each one and label what each symbol means.

- Temperate forest
- Mountains
- Plains
- Rivers
- Ponds
- Hydrothermal vents
- Sagebrush scrub

3. List at least five abiotic (nonliving) factors and at least five biotic (living) factors in the Greater Yellowstone Ecosystem.

Abiotic Factors	Biotic Factors
Water (rivers, ponds, precipitation), rainfall, sunlight, temperature, rocks/terrain, wind, geysers	Elk, wolves, coyotes, bears, grass, (all food web members), disease (germs)

4. Write a short story (a few sentences) from the perspective of the elk about how one biotic and one abiotic factor affect elk migration.

The elk migration is driven by the presence of grasses and is impacted by predation by their predators. Additionally, elk move through different terrain (mountains, plains) to make their migration. Abiotic factors such as melting snow and warmer temperatures indicate that it is time to migrate, and differences in these things (e.g., different snow depths each year) may change the elks' migration pattern each year. Where the elks are located in relation to other species (e.g., domestic cattle) may impact the spread of disease.

5. Now switch perspectives and write about how elk migration affects the ecosystem.

They control grass populations and are prey for wolves, bears, foxes, coyotes, etc. Keeping their predator populations healthy means that many other prey populations stay in check as well. As they move through the ecosystem, they create paths in the terrain.

6. How and where do humans fit into this ecosystem?

Humans use the Yellowstone Ecosystem for recreation, hunting, and making a living. Humans can negatively impact the ecosystem in a number of ways (leaving trash, changing the terrain, scaring away or injuring wildlife) and are also greatly impacted by the elk migration. It matters where the elk are during hunting season, and how the elk migration influences other populations of animals.

7. Explain what you think the explorer from the *Yellowstone's Great Migration* video meant when he said, "The elk migration shapes the ecosystem. The elk migration are the veins and arteries of the Greater Yellowstone Ecosystem."

PART II

Cascading effects diagram: *What would happen if the temperature got too hot for grass to grow where it normally does?*