

Lab: Ripple Effect MAKEUP ASSIGNMENT

Remember: As per GHHS Policy, you have two days for each day absent to makeup assignments.

(modified from International Wolf Center)

Background:

Wolves constitute a major ecological force in ecosystems where they are present. Research continues to be conducted on wolf behavior, prey selection, the influence of prey on ecosystems, and the correlations between and among all ecosystem components. While the primary impact of one species on another (wolves killing prey) is comparatively easy to measure, the domino effect of multiple species affecting each other over time in varying weather conditions makes identifying secondary and tertiary effects more difficult to measure and therefore less certain. Proponents of wolf recovery often argue that wolves benefit their ecosystems. Science can establish that wolves have an impact, but the extent of the impact is largely unproven. Various studies demonstrate the wolf's influence on prey, such as deer, moose and elk. Other studies measure the influence of deer, moose and elk on vegetation. Yet further studies identify the importance of vegetation for migratory songbird habitat. This is an example of a *trophic cascade*; an ecological phenomenon triggered by the addition or removal of top predators and the reciprocal changes in relative populations of predator and prey, which often results in dramatic changes in ecosystem structure and nutrient cycling.

What We Did in Class:

Students read a series of cards that had information regarding wolves and their effect on prey, vegetation, scavengers and other large carnivores or mesocarnivores (medium-sized carnivores like foxes, coyotes, lynx and otters). They then recorded a sequence of connections as a flow chart/concept map.

Analysis:

1. Define trophic cascade.
2. The cards used were based on studies done in different ecosystems: Minnesota, Yellowstone National Park, Isle Royale and other places. Describe the limitations this presents on making connections and drawing conclusions.

Watch the video <https://vimeo.com/86466357> and answer the following

3. When were wolves reintroduced into Yellowstone National Park?
4. Describe the impact of wolves on vegetation in valleys and gorges.
5. Describe the impact of wolves on fish, reptiles and amphibians in Yellowstone National Park.
6. Describe the impact of wolves on the physical geography of river systems.
7. Where, if anywhere, are the roles of wolves in the ecosystem more important than human activities?
8. Where, if anywhere, are human activities more important than the roles of wolves in the ecosystem?
9. Do you think the U.S. government made the right decision when they reintroduced wolves into Yellowstone National Park? Why or why not?
10. What have you learned from this makeup lab?