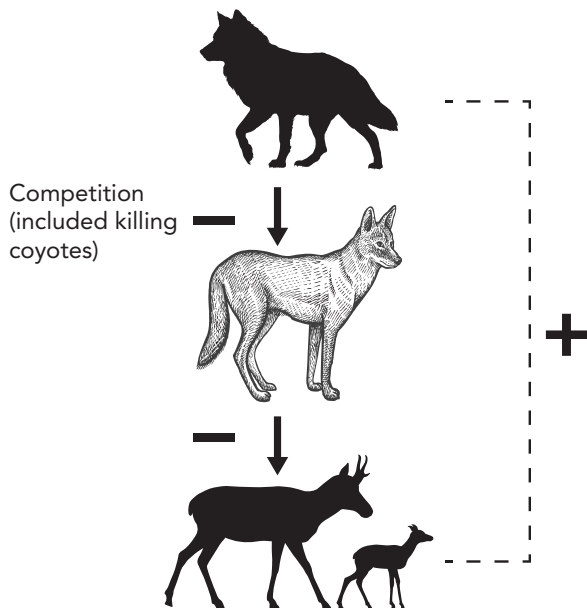


Interaction Cascades

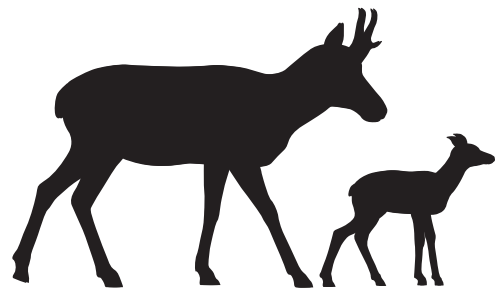
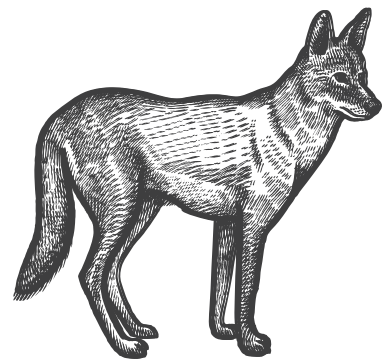


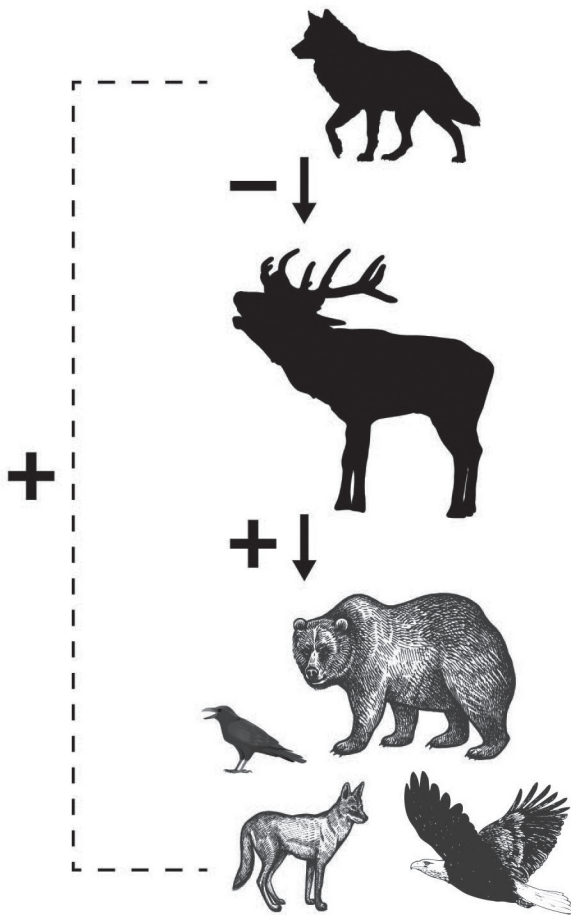
Interaction cascade 1

Wolves see coyotes as competitors and will kill them if found in the wolf pack's territory. Because of this threat and the competition for food, coyotes avoid areas with wolves. Historically, wolves influencing coyote behavior and populations were important in maintaining the stability of the Yellowstone ecosystem. In a study in Grand Teton National Park, part of the Yellowstone ecosystem, 36% of pronghorn fawns survived in areas where wolves were present. In areas without wolves, but higher coyote populations, only 10% of the pronghorn fawns survived.

Use the symbols of arrows, + and –, and dashed lines on the diagram below to indicate how this historical interaction cascade would be changed after the wolf is removed.

What would you predict would happen ...	The population would	
	Increase	Decrease
to the coyote population?		
to the pronghorn population?		
to the prairie plant population?		





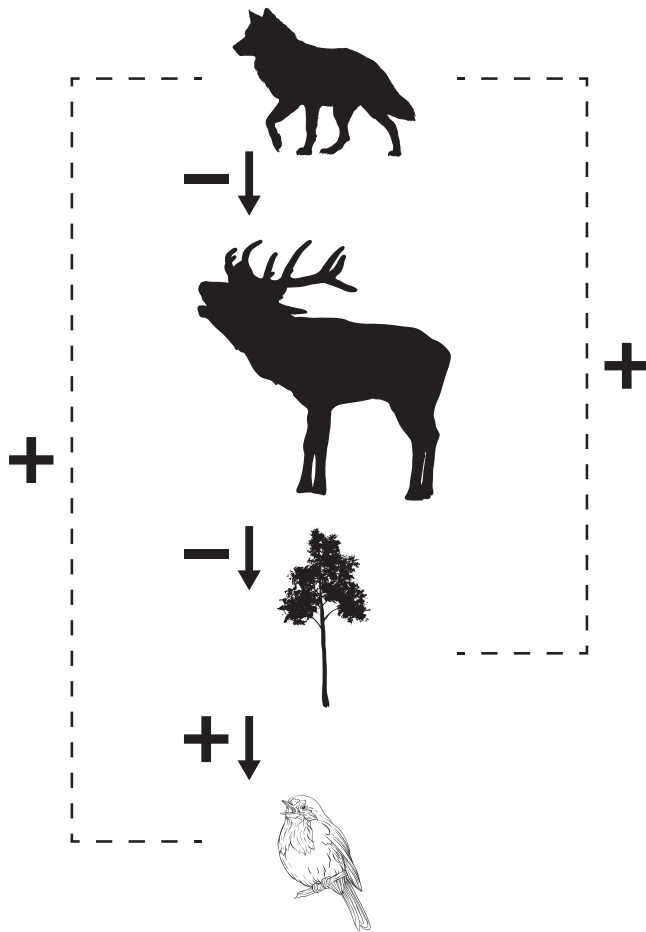
Interaction cascade 2

When wolves kill and eat a prey species like an elk, the pack may leave parts of the dead animal. Other animals scavenge that carcass, or carrion, for food. Grizzly bears, black bears, bald eagles, ravens, coyotes, foxes, and other animals in the Yellowstone ecosystem rely on this food source. Once wolves were removed, elk carcasses were no longer easily available. While some elk still died during harsh winters, the number of carcasses was greatly reduced.

Use the symbols of arrows, + and –, and dashed lines on the diagram below to indicate how this historical interaction cascade would be changed after the wolf is removed.

What would you predict would happen ...	The population would	
	Increase	Decrease
to the elk population?		
to the amount of carrion?		
to the scavenger animal population?		





Interaction cascade 3

Elk are a main prey item of wolves in the Yellowstone ecosystem. One elk can feed a pack of 9 to 10 wolves and on average, a pack will kill about 16 to 22 elk in a year. Elk eat a lot of vegetation, and aspen tree branches, leaves, shoots, and saplings are part of that diet. Even the bark of aspens will be eaten in winter. Aspen bark has cells for photosynthesis so they make glucose all year long, unlike most deciduous trees. Elk herds split up and keep moving through their habitats when wolves are present. Keeping elk herds on the move prevents overbrowsing of the aspen groves, which are important nesting and feeding habitat for songbirds.

Use the symbols of arrows, + and –, and dashed lines on the diagram below to indicate how this historical interaction cascade would be changed after the wolf is removed.

What would you predict would happen ...	The population would	
	Increase	Decrease
to the elk population?		
to the aspen tree population?		
to the songbird population?		

