

## Notes on “Wolves of Yellowstone”

### Wolves taken out of Yellowstone:

1. All life is linked to each other. Nothing is self-sufficient.
2. Earth relies on the balance that every being has a role to play and exists only through the existence of another being.
3. By the late 1900s the landscape of Yellowstone tragically shifted.
4. River erosion and habitat loss began.
5. Trees began to disappear—the aspen, cottonwood, and willows mostly.
6. It was suspected that climate change and fires were the blame, but only the trees in Yellowstone disappeared and not the rest of the trees in the Rocky Mountains.
7. It must have been something else for the Aspen trees had not regenerated since the 1930s.
8. The only change during that time was the wolves being totally taken away.
9. Due to the taking away of the wolf packs, the elk had nothing to hunt them. As a result, the population thrived tripling just after three years.
10. As elk began to browse on vegetation in the rich areas along the sides of riverbanks, the plants no longer were able to regenerate. The young sprouts were eaten too quickly to reseed the area.
11. This led to the mass erosion because of the wide meandering of the streams eroding away valuable soil.
12. Many plant species were lost because of this great erosion devastation.
13. There was also a great loss of other species that depended on those lost plant species.
14. The soil that was eroded away was a highly valuable resource to all ecosystems because the soil holds nutrients for things to grow.
15. As the water eroded deep into the of the volcanic rock it put dangerous toxins in the water that later became polluted, killing many aquatic lives. Many important acids were lost in the water as a result.
16. This put humans and other species at risk.
17. The rivers being toxic brought in a national epidemic.

### Wolves taken brought back into Yellowstone:

1. Figuring out that it all began to change for the worst in the 1930s when all the wolves were gone, wolves were brought back in 1995.
2. As a result, the wolves began killing many elk decreasing the elk population.
3. Many of the carcasses that were left on the ground caused many scavenger species to returned to eat the dead meat, namely ravens and bald eagles.
4. As the dead animals bodies decayed, this put important nutrients back into the soil.
5. Wolves began to alter the behavior of the elk. Elk were avoiding certain areas of the park along valleys and streams where there were no forest coverage. That made them easy prey.
6. Almost immediate when the elk left those areas, those areas along the valleys and streams began to regenerate.
7. Barren valleys began to flourish again.

8. New cottonwood, aspen, and willow trees began to appear after being gone for almost a decade.
9. As soon as trees appeared, many birds returned. The number of songbirds and migratory species increased rapidly which caused the reappearing of the native snakes.
10. The number of beavers began to increase as the vegetation they depend on began to grow.
11. Beavers are ecosystem engineers. They create habitats niches for other wildlife species.
12. The dams they built slowed down the rivers providing habitats for foxes, muskrats, ducks, trout, salmon and other aquatic species.
13. Beside the elk, the wolves killed over populated coyotes. This resulted in a large number of rabbits and mice began to rise which meant that more hawks, more weasels, more foxes, and more badgers had a food source.
14. Even bears benefited from the introduction of wolves as they fed off the left over carcasses of wolf kill, and their population began to rise.
15. Also, more berries were growing on the regenerating shrubs and the abundance of fish in the streams that bears like to eat began to flourish.
16. The introduction of wolves changed the behavior of the rivers. As the riverbanks began to stabilize, this allowed volcanic soils to build up and settle under the riverbed making the water safe again for aquatic life.
17. The fresh water nourished the aquatic life and in turn benefited both the native flora and fauna.
18. The wolves not only transformed the ecosystem in Yellowstone National Park, but also its physical geography.