

Impact of **ONE** population on an ecosystem

Do you think presence or absence of  
one population really affect the  
ecosystem?

1. LETS IMAGINE A FOREST!!!What kind of forest you like?

2. Do you like a forest with a dangerous animals? How about a lion? Tiger? Wolf?

3. Lets take the example of Wolves. Is it good or bad? Lets divide ourselves into groups and discuss.





**The story of Yellowstone National Park**



# Group activity

Divide the students into groups of 5 each , discuss among yourselves and each group present one of the following.

1. What are the benefits of presence of wolves?
2. What are the ill effects caused by presence of wolves?
3. What are the benefits of absence of wolves?
4. What are the ill effects caused by absence of wolves?



What happens to a forest without animals like lion tiger wolves??

What sort of animals might be present there??





The number of deer were too many before the wolves were introduced.

What does deer eat?



What do you think would happen if there are too many grazers?





Yes, you are right! That's exactly what happened.

The deer over grazed the place and left almost nothing of the vegetation. The land became barren.

What do you think might happen if a land piece is overgrazed?

How can we remediate?





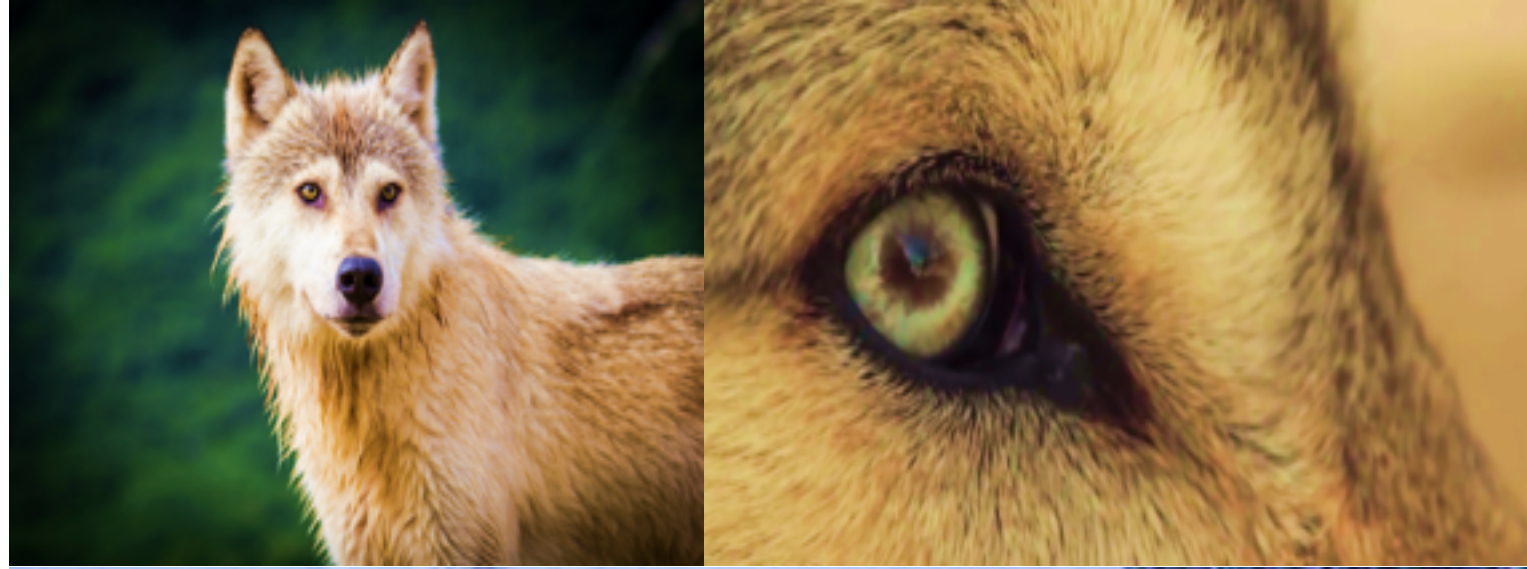
# Then introduced the wolves...!!

What kind of food does a wolf eat?

What could happen to the population of deer?

The wolves hunted down the deer. Due to the fear of predator, they was a remarkable change in the behaviour of deer.

Lets see what was the change.....



# The behavioural change in DEER



As the population of deer went down, they started fearing the predator, in this case **WOLVES.....**



They started hiding and grazed very less.

What happens when deer reduce grazing?



# Then what happened?

The heights of trees increased in less than 6 years

The barren valleys became forests of cotton wood and willow trees.

If trees grows tall and many, what happens?

Who lives in trees?





**And then...**

The birds started nesting... the migratory birds visits became more..

The sun bird was found very often.







# Do you know Beavers??

The population of **Beavers**, the squirrel like animals became more as they eat trees.



They also are known to build dams at river banks which provide habitat for **fish, amphibians, otters etc.**

Then the wolves killed the Coyotes...!!





# Do you know what Coyotes ate?



The coyotes ate mice and rabbits.

What happens if coyotes die?



As a result, **Mice, Rabbit** began to rise.

# Then the wolves killed Coyotes....

To eat mice and rabbits came hawks, weasel, more foxes etc.

Crows and eagles came to feed on what wolves had left.

Bears fed on them too. Their population began to rise, also because of the berries and greens of trees.





**What else do you think the wolves could change....??**



**Could you believe that the wolves changed the behaviour of rivers??**

# The behaviour of RIVERS

There was less erosion.

Channels were narrowed and pools were formed.

Thanks to Wildlife habitat!! Rivers changed in response to the wolves.





# How did Wolves change rivers....?



The regenerating forests stabilized the banks of the river.



Hence the river banks did not collapse themselves and the rivers became more fixed in their course.

Similarly, the soil erosion in the valleys was stabilised by wolves keeping a check on deer's population.

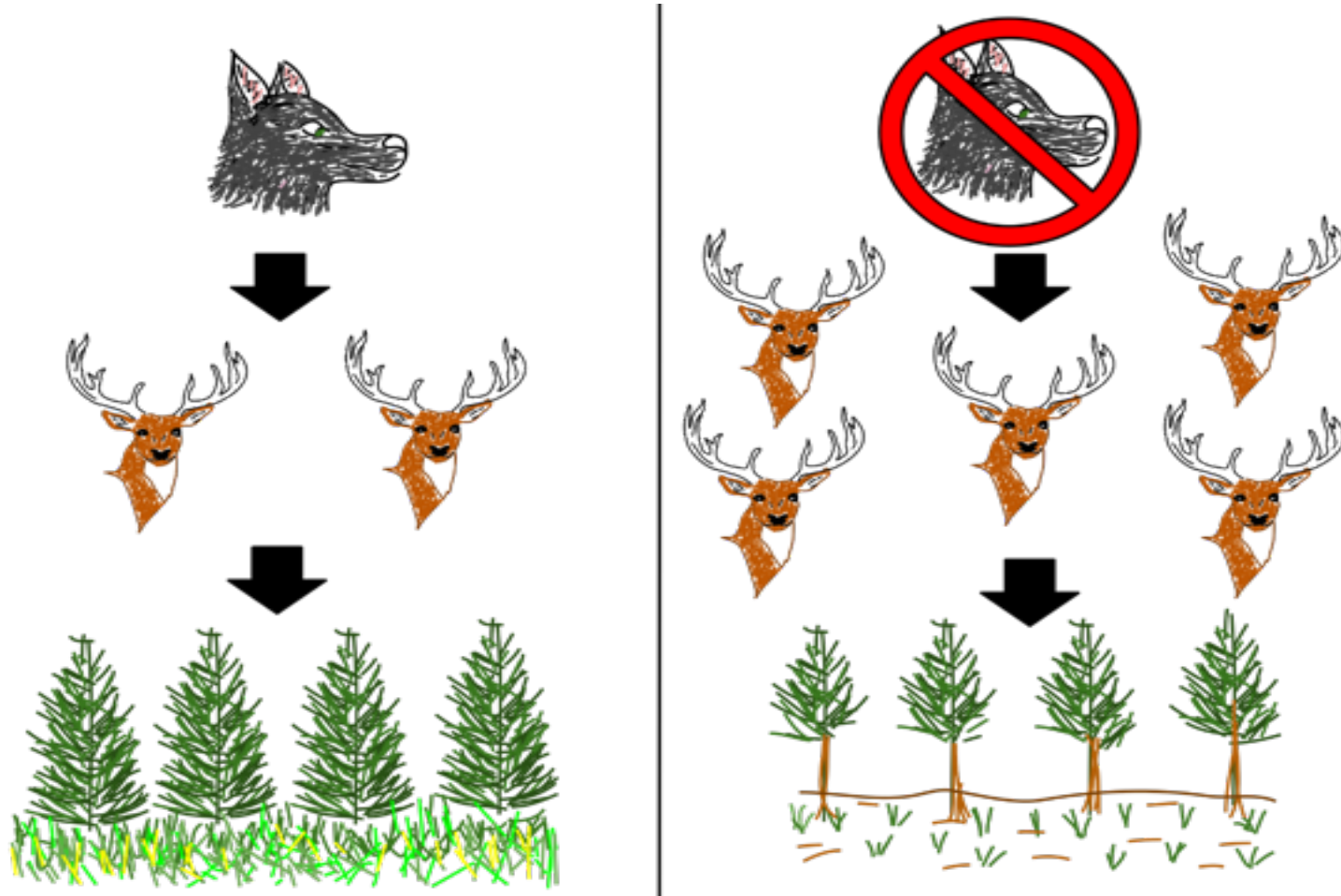
So.....,

The wolves small in number transformed not just the ecosystem of Yellowstone National park with its huge area of land but also its physical geography.

And this is an example of Trophic cascade.







This is what happened at  
Yellowstone National Park

- What happens to the plants if there are more number of deer in a forest?
- What happens to the grass if there are more cows in the grassland?
- If there are no plants what happens to the forest?

