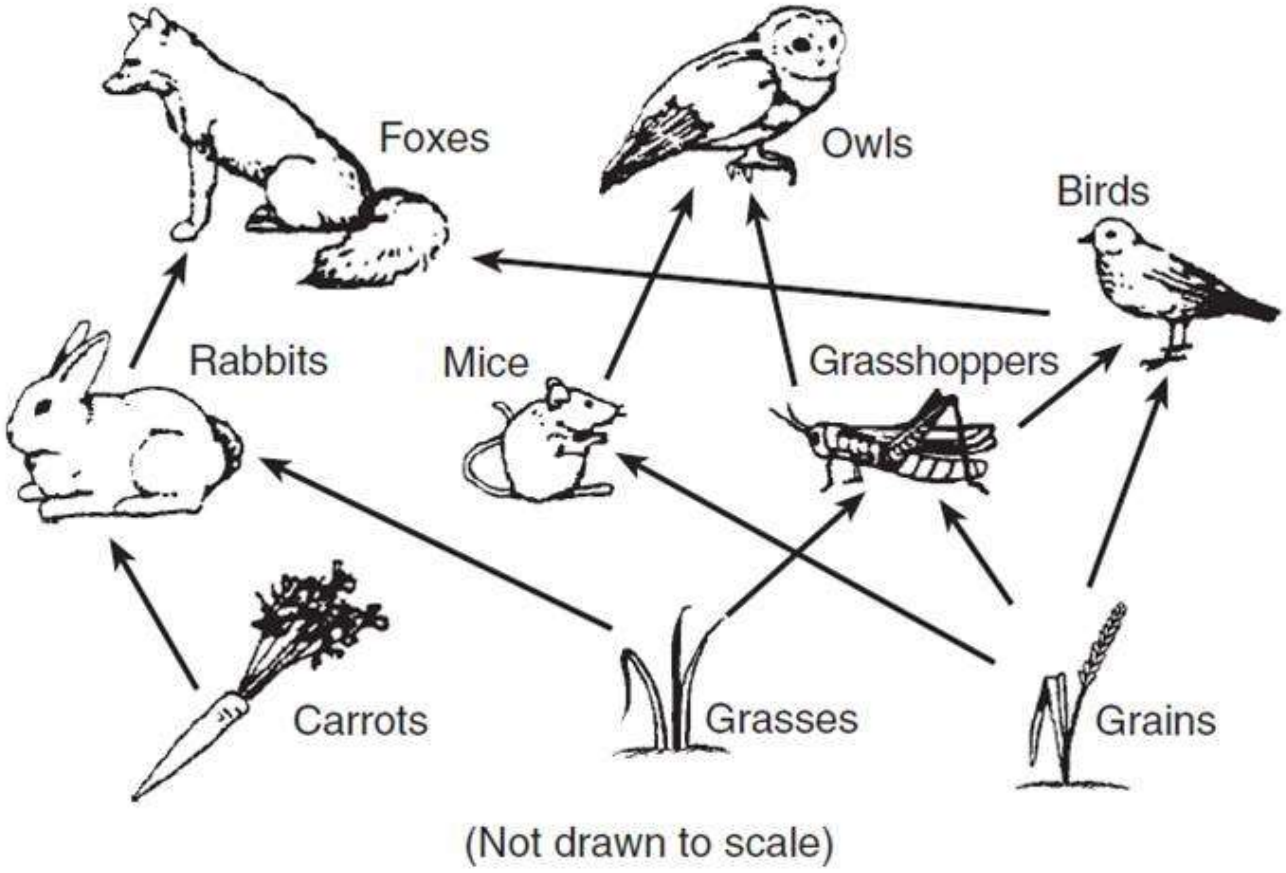
BELL RINGER

List the organisms that belong in the following categories based on the food web.

- Producer:
- Primary consumer:
- Secondary consumer:

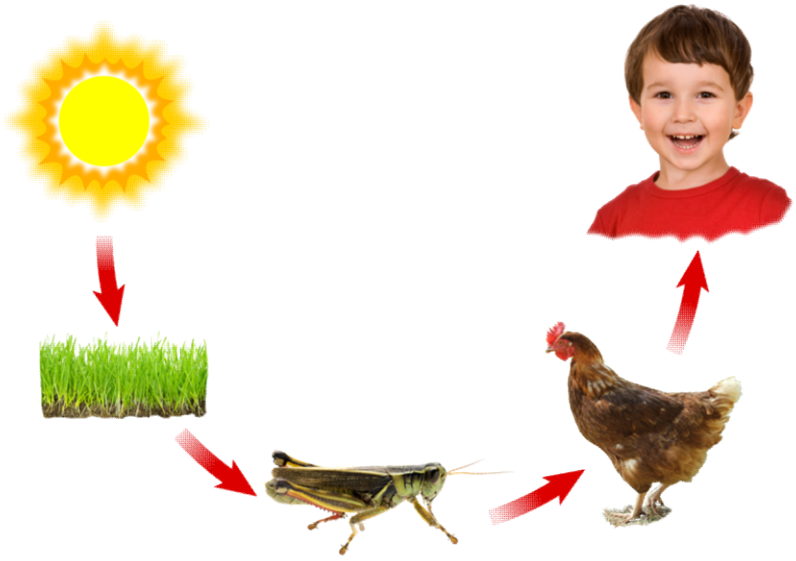



Keystone
Species

Review Food Chains

A food chain shows the transfer of **energy** in an ecosystem.

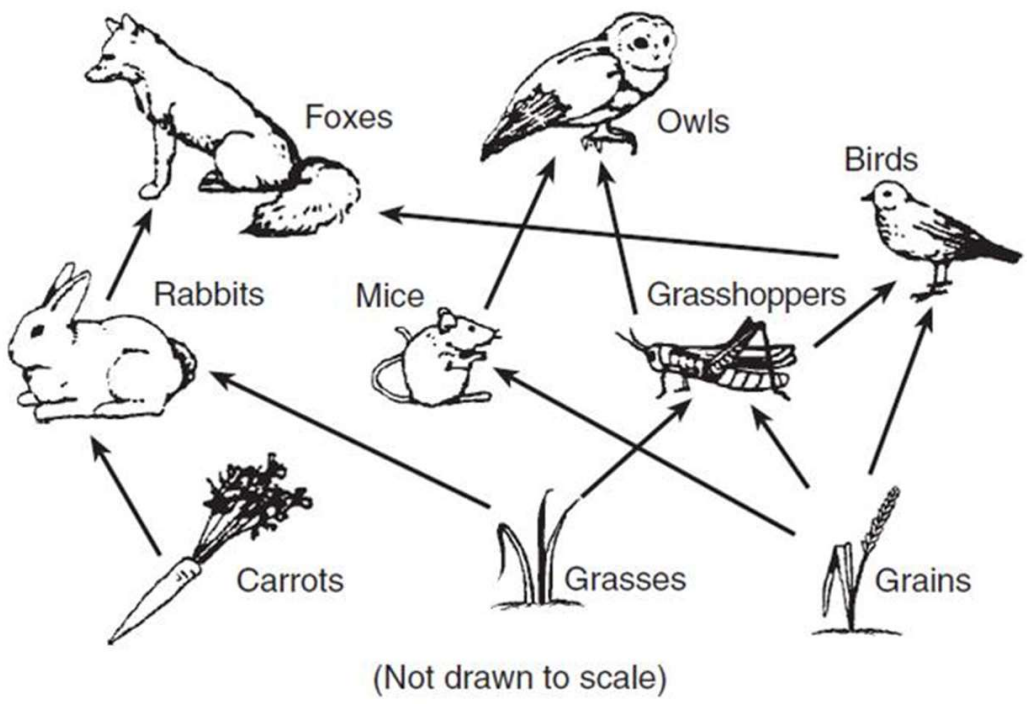
Arrows should energy transfer not “who eats who”



Review Food Webs

Food chains can be interconnected into a web structure.

A species that is a primary consumer in one chain could be a secondary consumer in another, etc.



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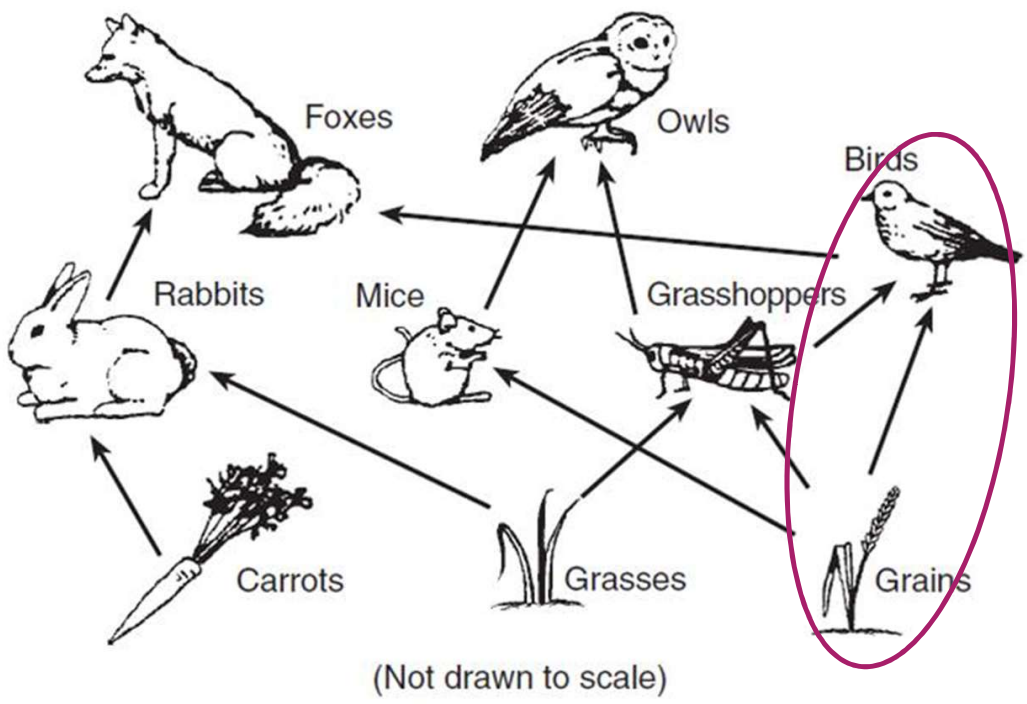

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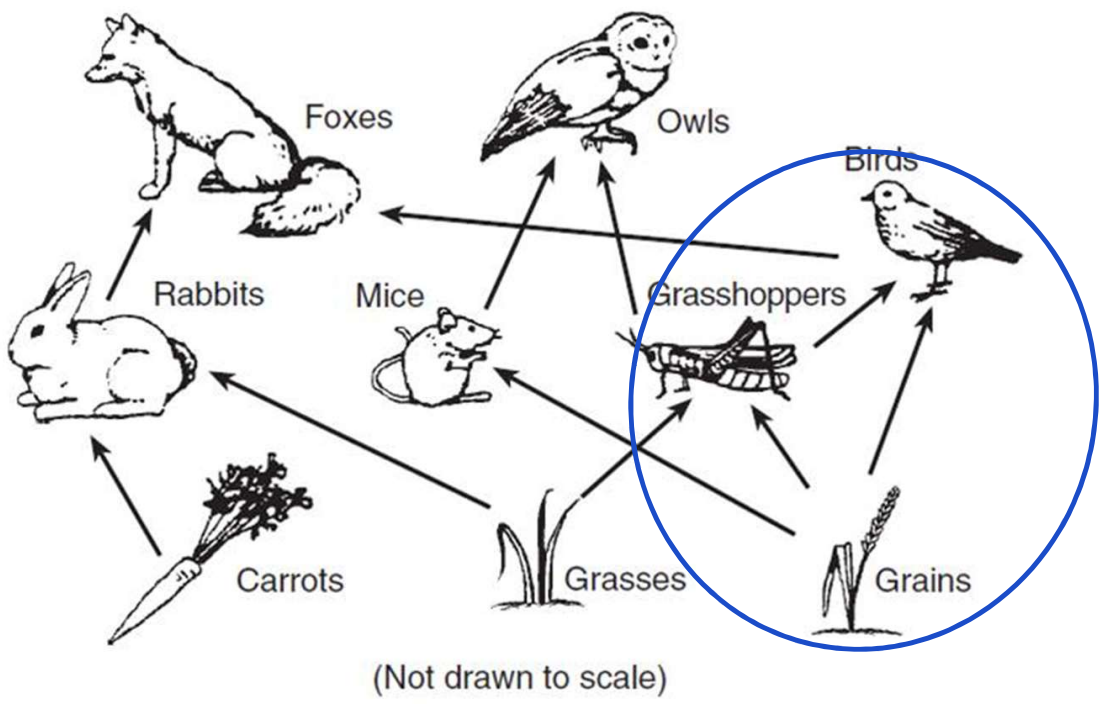


Keystone species

An organism that plays a crucial role in the way an ecosystem functions.

Theory

First established by American zoologist Robert T. Paine in 1969

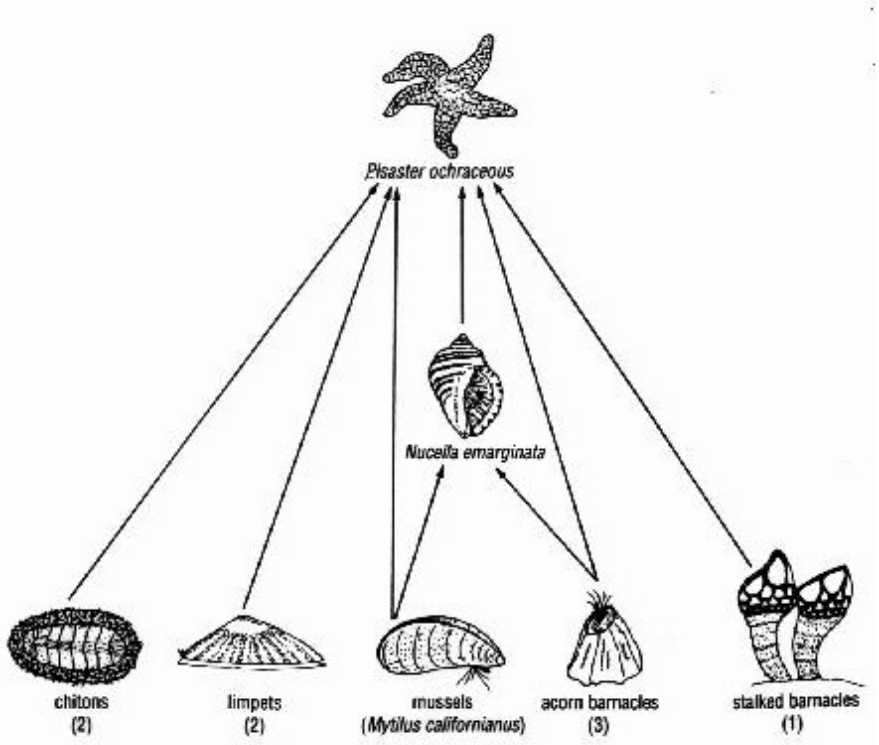
Conducted research on the sea star *Pisaster ochraceus* living in the tidal zones of Tatoosh Island, WA

Role of *Pisaster*

Pisaster is a major predator for mussels on Tatoosh Island.

Paine removed *Pisaster* from the ecosystem.

What do you think happened to the mussel population without Pisaster *present?*

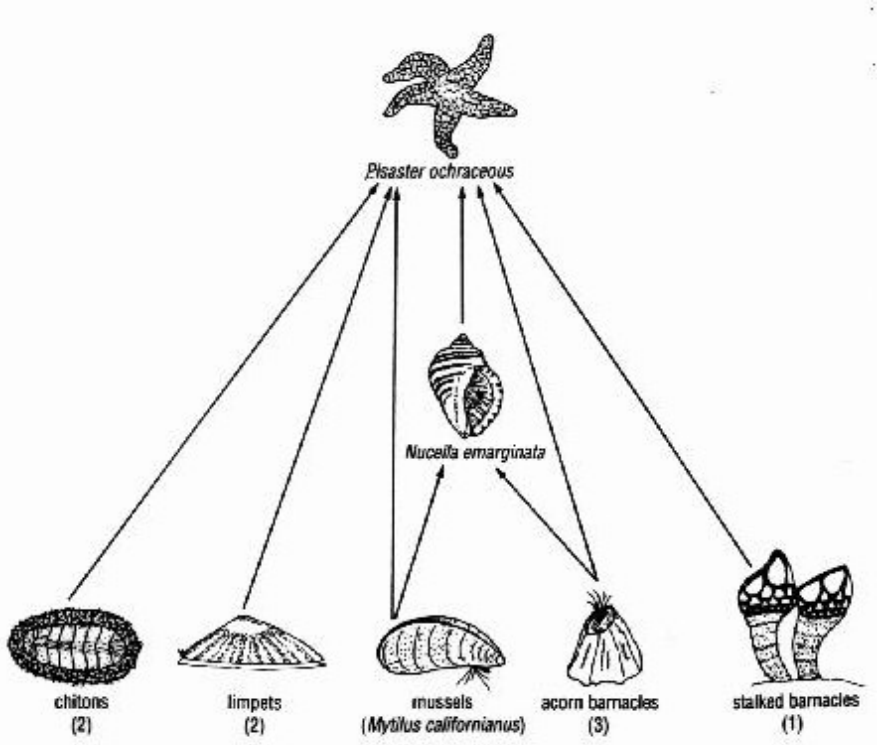


Role of *Pisaster*

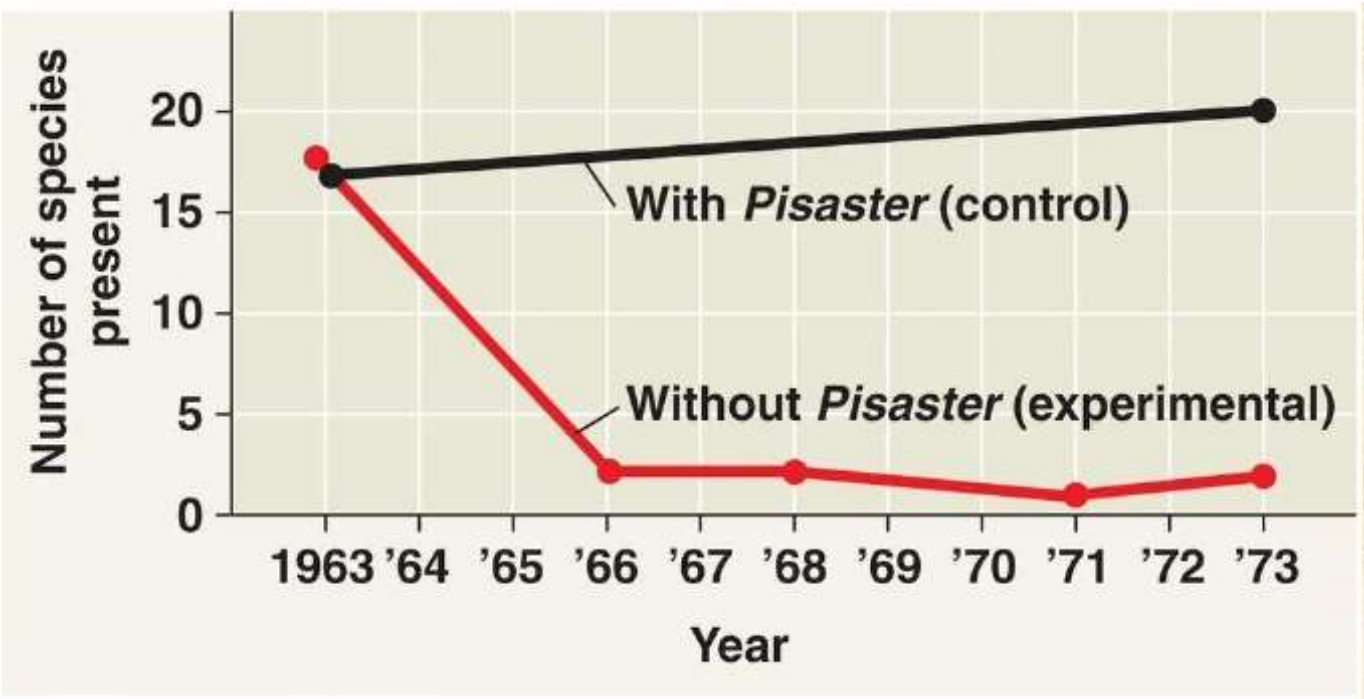
Pisaster is a major predator for mussels on Tatoosh Island.

Paine removed *Pisaster* from the ecosystem.

The mussel population increased dramatically.

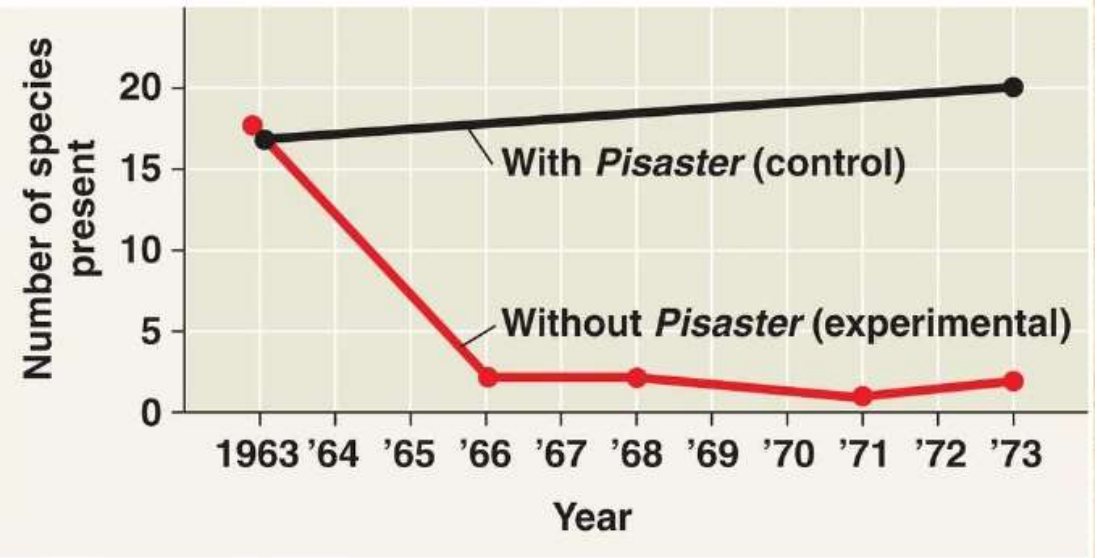


Pisaster data



Pisaster data

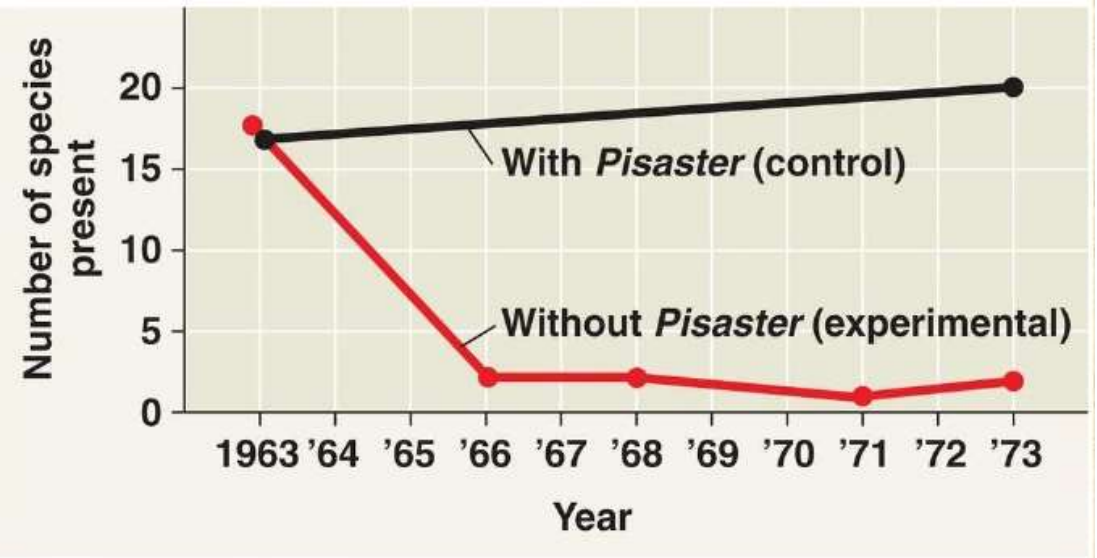
What does this data show about the effect of the increased mussel population on the tidal ecosystem?



Pisaster data

What does this data show about the effect of the increased mussel population on the tidal ecosystem?

The mussels took over the area and crowded out other species.



Keystone predators

Keystone species are often, but not always, a predator.

Only need a few predators to control the distribution and population of large numbers of prey species.

Keystone herbivores

African elephant eat small trees that grow on the savanna.

Keystone herbivores

Feeding behavior keeps the savanna as a grassland, not a forest.

Keystone herbivores

Grasses thrive and sustain grazing animals (antelope, wildebeest, zebra).

Keystone herbivores

Burrowing animals are able to create burrows in the warm, dry savanna soil.

Keystone herbivores

Predators depend on savanna for prey.

Summary

Summarize the effect of the disappearance of a keystone species.

RECAP

Summarize the effect of the disappearance of a keystone species.

Keystone species' disappearance would start a domino effect.

Other species would also disappear and decline in number/become extinct.

EXIT TASK

Using what you know about bioaccumulation and keystone species, how could human impacts decimate the biodiversity and health of ecosystems?