It's all about habitat!

What could you do to the pyramid if you wanted to increase the number of prey animals in the middle (rabbits, etc.) AND keep the pyramid stable and balanced, avoiding any undesirable chain reactions?

The answer is to **expand the habitat base,** keeping the predators in place. With a larger base, more prey can be added and more predators too - to keep the balance.

The Migratory Bird Treaty Act and state laws make it illegal to kill, capture, possess, harass, or harm any bird of prey. Violations are punishable by fines of $5,000 to $250,000 or more, jail sentences, confiscation of possessions, and revocation of licenses.

Red-tailed hawks are the most regularly seen, large, sit-and-hunt, small mammal predator. They seem to be everywhere in the fall as young disperse and northern birds move in to take advantage of open hunting ground. This changes by late February. The resident nesting pairs clean house by chasing all other hawks out of their territories.

SOAR
Saving Our Avian Resources
https://soarraptors.org

Protected Predators Keep the Balance

Photo Ron Huelse

Birds of prey, also called raptors, help keep prey species in balance.

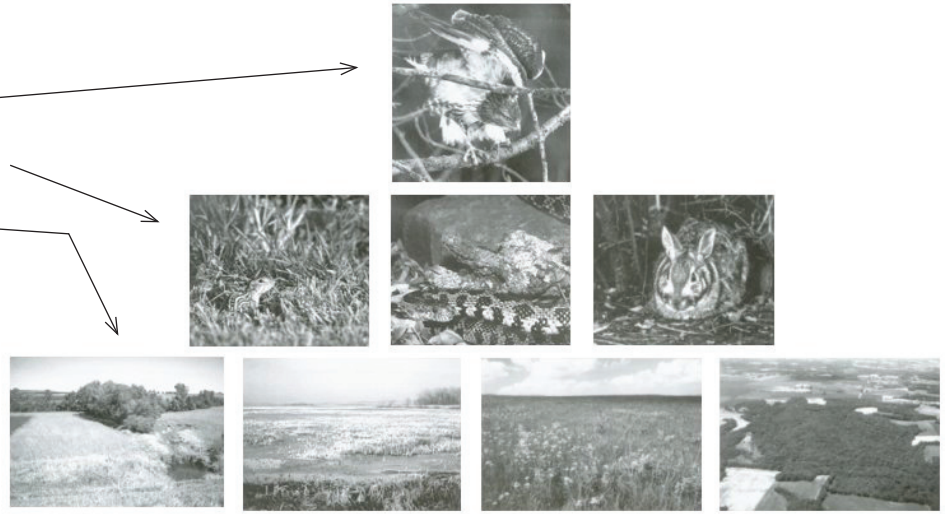
SOAR is a 501(c)3 dedicated to raptor rehabilitation, raptor education, and raptor research serving primarily west-central Iowa.

SOAR

Raptors in the Food Web

You can think of a food web as a balancing act in the shape of a pyramid.

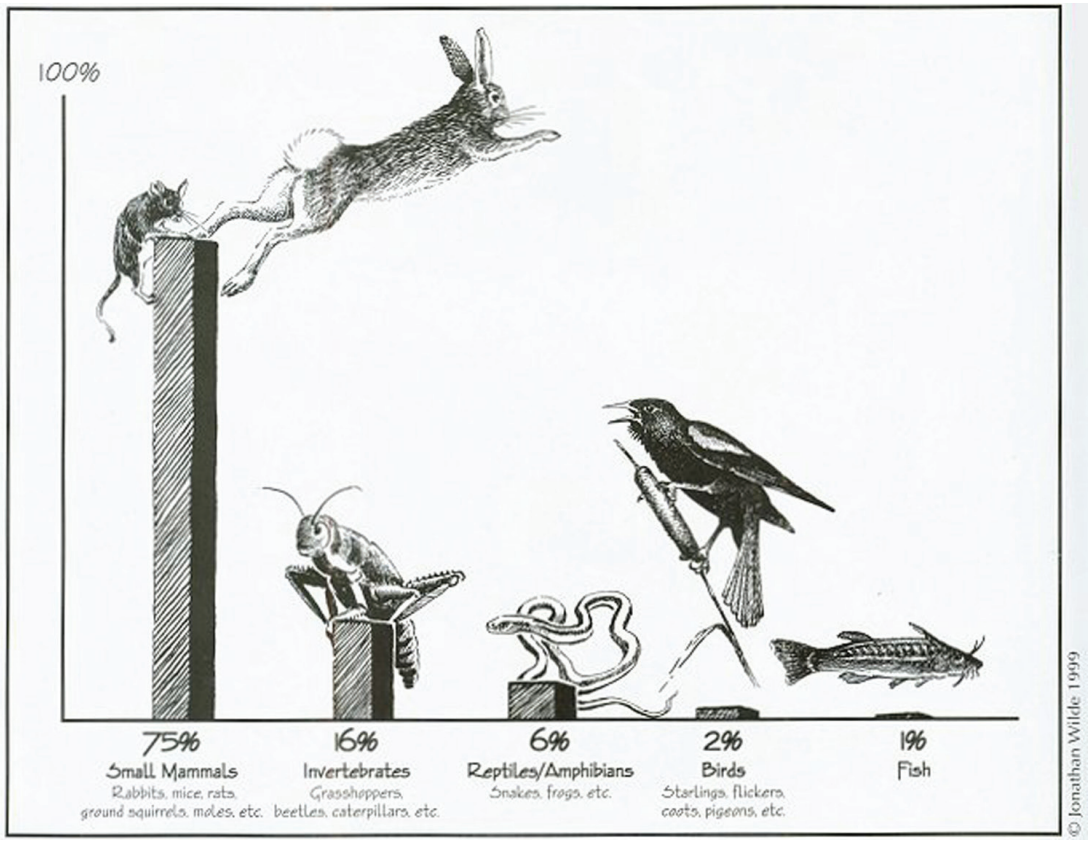
- The top of the pyramid is the predator, the hawk.
- The middle of the pyramid is the prey species, ground squirrel, snake, rabbit.
- The base of the pyramid is habitat.



If you remove the predators at the top of the pyramid, will there be more room for prey in the middle? No. But removing a predator could ***temporarily*** allow a higher survival of more young, old, or sick individuals. Temporarily is the key word. What happens if you try to squeeze another rabbit block into the prey level of the pyramid? The addition puts the pyramid out of balance - something will crash.

This illustrates how prey species can "eat themselves out of house and home" and may cause population crashes. The habitat can support only a limited number of rabbits. This is the habitat's carrying capacity for rabbits.

Don't get caught believing that hawks are eating all the game birds! Here's what red-tailed hawks really eat.



Predators keep prey in balance at or near the carrying capacity of their habitat. Without a balancing predator, prey populations can go through huge number fluctuations and can cause an unpredictable chain reaction of events.

Photo S Argotsinger

Here's some possible reactions.

- Mice are the main ingredient in a red-tailed hawk's diet. Rodents have an amazing reproductive potential. With an average litter size of eight and becoming mature at eight weeks, two mice can turn into more than 2,000 in only six months. This can happen only when all limiting factors are removed.
- What might happen if rodents were temporarily out of balance? More rodents could compete with game birds and other animals for a limited food supply of seeds, especially in the winter.
- What might happen if egg predators like snakes and ground squirrels were temporarily out of balance? Ground-nesting birds could experience a higher rate of egg loss. They may need to make more renesting attempts or they might not bring off a successful brood.