

What factors affect the
growth of populations?



Resources

= any necessity of life that is “used up” by one organism, making it unavailable for another organism to use.

What resources does a little brown bat need?



Population Density

= the number of individuals per unit area

How much space does each bat need? What about things further up or down in the food web?



Growth Rate

= how quickly a population increases or decreases

(# of births or individuals entering the population) - (# of deaths or individuals leaving)

Practice: What is the growth rate?

1. In my fishtank this month, two fish died but I bought 2 more from the store.
2. Two pet guinea pigs ran away into a field and had 6 babies. Two of the babies got eaten by foxes.
3. Five Vampires came out on Halloween night. Three were killed by a pack of werewolves, who chased the rest away from town so they couldn't find any new victims this year.



Carrying Capacity

= the maximum number of individuals of a particular species that an ecosystem can support.

Population size is limited by:

Density-Dependent Factors	Density-Independent Factors

Population Growth Lab: Bats vs Owls

*Two bats have moved into our ecosystem and are looking for resources. If they find what they need, the population will grow!

*What will happen when the population gets too dense?

Hypothesis:

*What will happen if an owl moves into the ecosystem?

Hypothesis:

*Grab your coats and head outside!!



Question: How does _____ affect
_____?

IV:

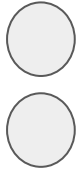
DV:

Hypothesis: If _____, then
_____, because.....

Exponential Growth

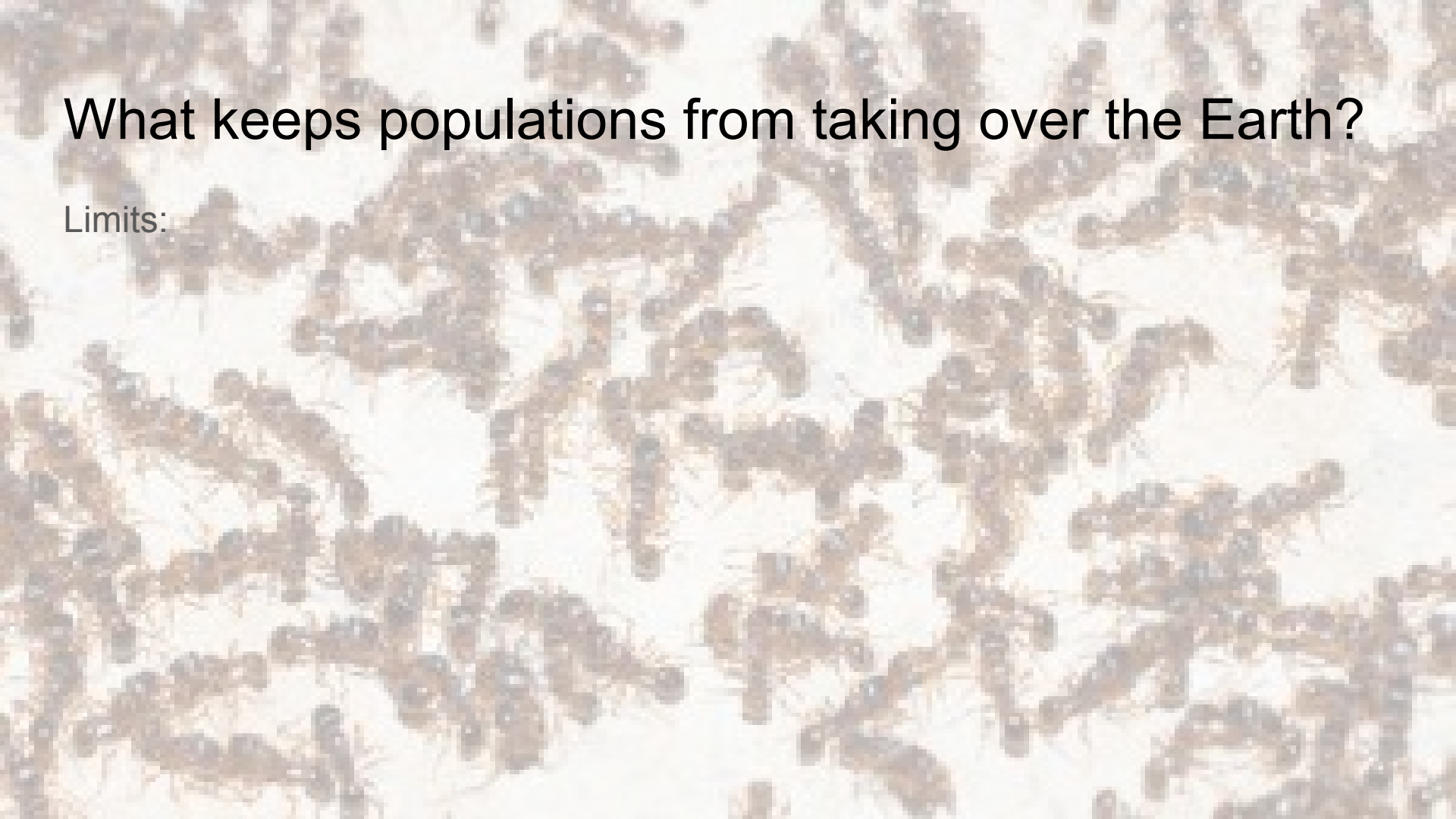
If there are no **limiting factors**, a population will grow and each generation will be larger than the last.

The larger a population gets, the faster it can grow!



What keeps populations from taking over the Earth?

Limits:



Predation: Keeping critters in check

<https://www.natureworkseverywhere.org/resources/wolves-of-yellowstone/>

