

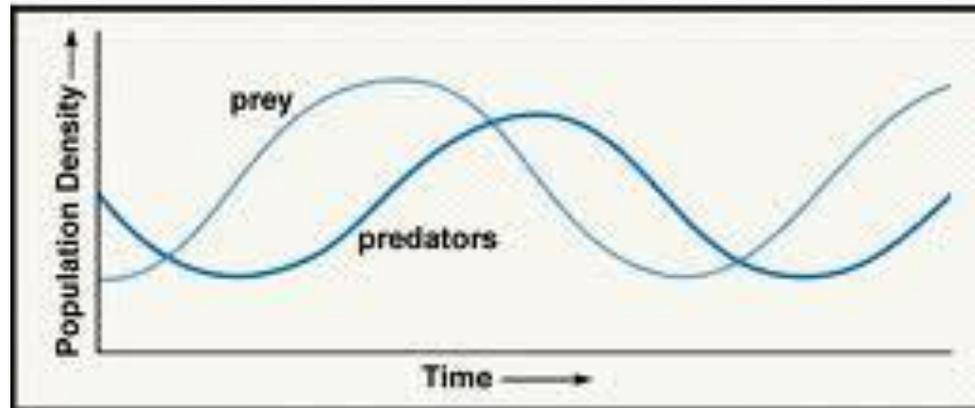


# Population Cycles:

- Some animal populations fluctuate or go through periods of extreme highs & lows (in some cases almost to extinction).

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## Comparison of Prey and Predators' Populations



# Examples of population cycles

- Lemmings = population peaks every 4 yrs
- Voles = cycles every 3 yrs
- Snowshoe hare = every 12 yrs
- Many insects = yearly



# Factors that limit and control population growth:

1. Nutrients = too much or too little affects growth of plant or animal



2. Temperature - too hot = dehydration/death; too cold = cells freeze/death



3. Disease = wipe out part of a population.



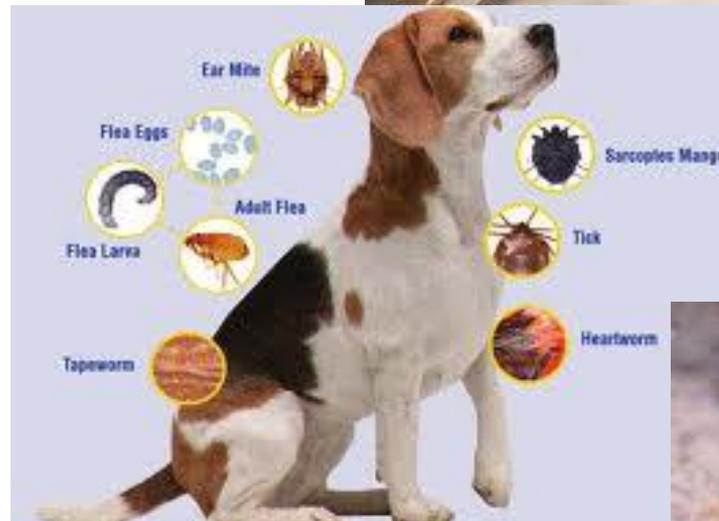
"The good news is that we're going to name the disease after you."

# Factors that limit and control population growth:

4. Starvation = lack of food &/or water



5. Parasites = weakens host



6. Predation = too many causing decline in prey #'s



## Factors that limit & control population growth continued:

7. Competition = for limited space & resources
  
8. Stress = brought on by overcrowding; need space to hunt, nest, exist...
  - leads to more fighting and less breeding.
  - Immune system weakened by stress leading to disease



## Factors that limit & control population growth continued:

9. Natural disasters =  
flood, fire,  
earthquake,  
tsunami...



10. Pollution = causes  
birth defects, illness



# 3 types of symbiosis:

1. **Parasitism** = feeds off of a living organism – one benefits; one harmed



2. **Commensalism** = one member benefits; while other not hurt or helped



3. **Mutualism** = both members benefit

