

# Limits to Growth

- **Limiting Factor** • A factor that causes a population to decrease
- **2 types:**
  - **Density-dependent Limiting Factor** • Population size matters
  - **Density-independent Limiting Factor** • Not effected by population size

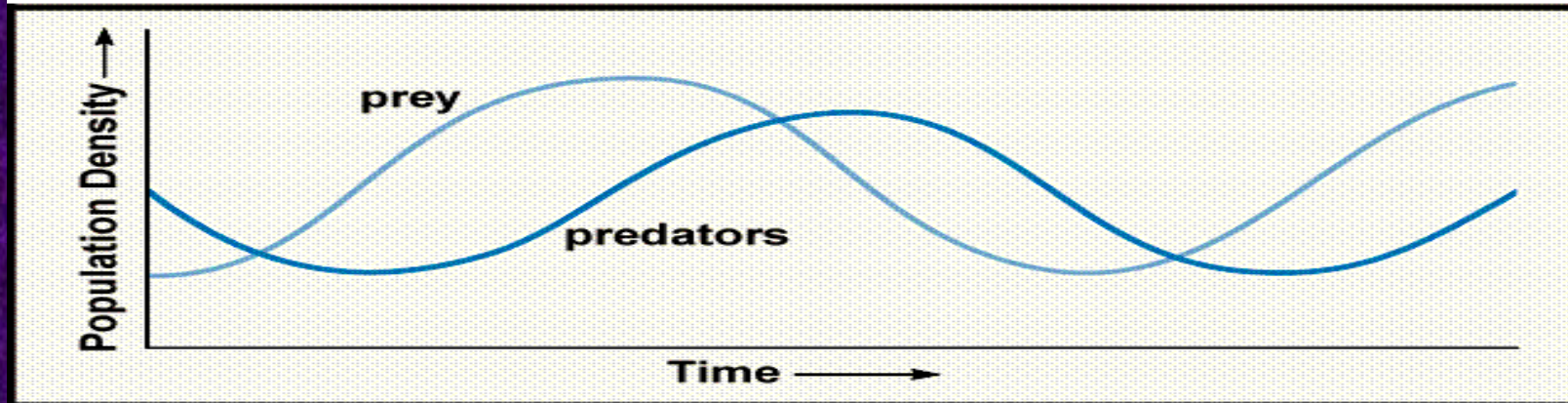
# Density-dependent Limiting Factors

- Limiting when the population density reaches a certain level.
- Examples:
  - **Competition** - food, space, water, sunlight
  - **Predation** - Eating of other organisms
  - **Parasitism** - Cause death and Disease

# Predator-Prey Relationships

Sylvia S Mader, Biology, 6th edition. © 1998 The McGraw-Hill Companies, Inc. All rights reserved.

## Comparison of Prey and Predators' Populations



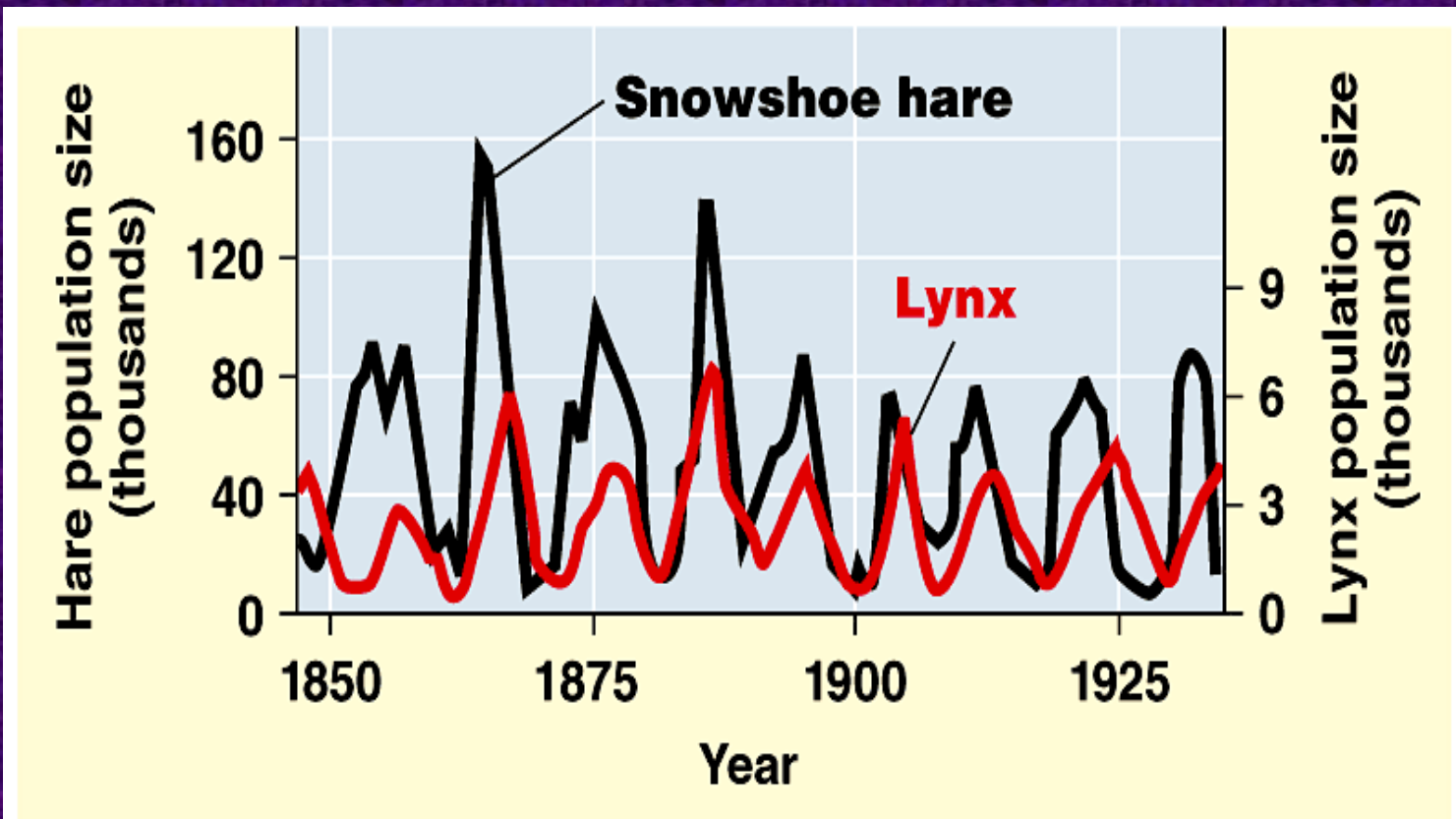
**As prey #'s increase the predator #'s increase shortly after - More food**

**Then increase in predators causes decrease in prey populations – More hunters**



**Predator – Lynx**

**Prey - Hare**





# Density-Independent Limiting Factor

- Affect populations regardless of population size.
- Examples:
  - **Natural Disasters** -Hurricanes & fires
  - **Unusual Weather** -Droughts & extreme temps
  - **Seasonal Cycles**- Excessive Rain & Seasonal frosts
  - **Human Activities** -Damning Rivers & cutting forests



## PREDATOR PREY RELATIONSHIPS



## POPULATION CYCLES





*Aquatic*

# PREDATOR - PREY INTERACTIONS