

**Population Growth
& Regulation**

Population Ecology

- 4 characteristics of a population:
1. dispersion – range of distribution
 2. density - amount of growth
 3. size – total number of individuals
 4. age structure

Biotic vs Abiotic Factors

- | <u>Density-dependent</u> | <u>Density-independent</u> |
|--------------------------|----------------------------|
| • food supply | • climate |
| • predation | • temperature |
| • disease | • soil contents |
| | • wind |

Changes in a Population

- 3 factors determine population changes
 - births
 - deaths
 - migration
 - immigration
 - emigration

Cycles

- Regular interval changes in population density

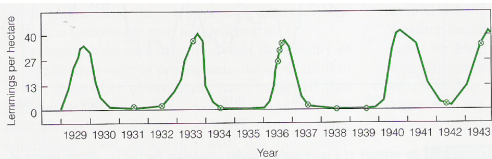


FIGURE 5.4 The roughly four-year population cycle of the lemming (*Dicrostonyx groenlandicus*) at Churchill, Manitoba. (From Shelford 1945)

Irruptions

- Occasional, unpredictable population explosions

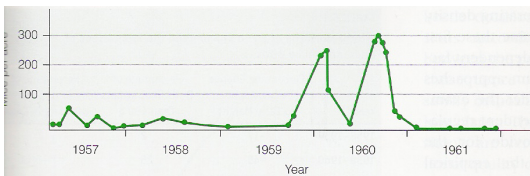
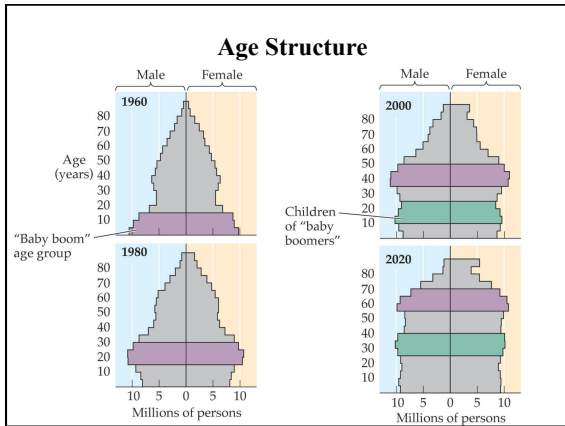
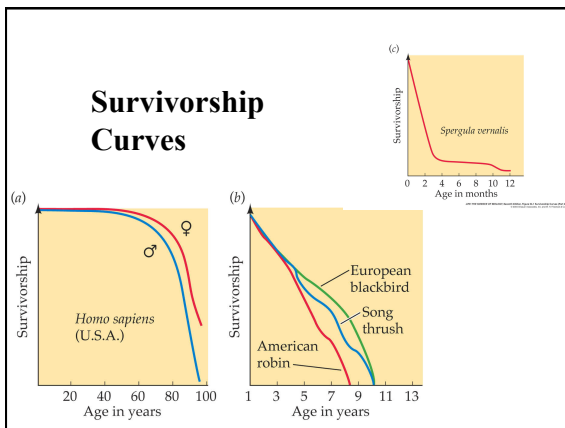
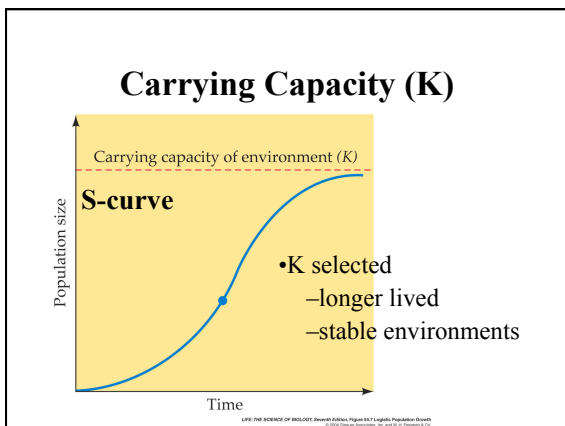
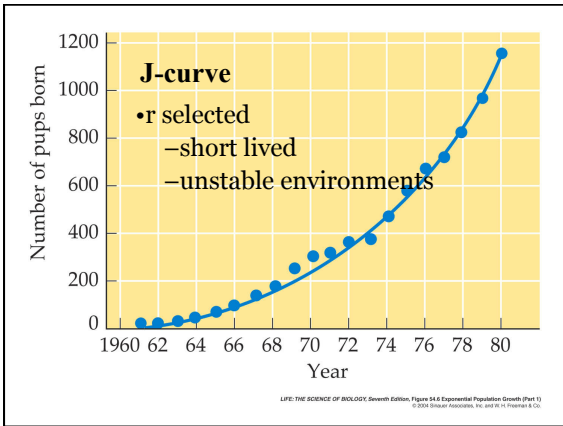


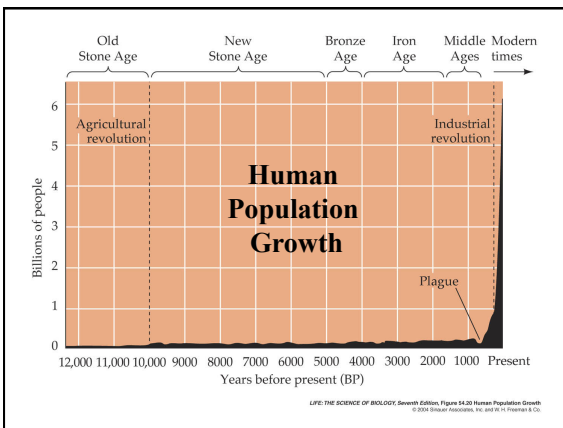
FIGURE 5.6 Irruption of feral house mice (*Mus musculus*) in California. (From Pearson)











Humans are K-selected but we...

- alter our environment
- technological advances
 - the cultural revolution
 - the agricultural revolution
 - the industrial-medical revolution
