

National monuments

- Antiquities Act of 1903
 - “declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest”
 - “may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected”
- Can be managed by any federal agency
- Congress also has power to designate monuments

Population Dynamics

Population Concepts

- Cornerstone of wildlife management
- *Population* – group of organisms of the same species that interact and interbreed in a given place at a given time
 - demographic independence
 - may exchange individuals with other populations
- *Population dynamics* - The study of processes affecting population abundance through the annual cycle

Population characteristics

- Birth rate (natality)
- Mortality rate
- Sex ratio
- Age structure
- Immigration rate
- Emigration rate
- Density

Natality

- Expressed as offspring per breeding female per unit time
- Birds: clutch size (young/female/year)
- Large mammals: young/100 females
- Small mammals: litter size
- Can be expressed as age-specific
- Fecundity
 - Actual number born
- Fertility
 - Potential number born
- Strongly tied to nutrition

Mortality

- Expressed as percentage dying in a given time period
- Varies by age
- Expressed by age class
- Survivorship (probability of surviving to a given age class)

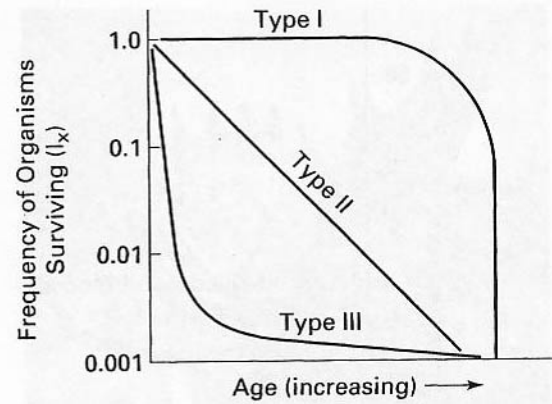


Figure 2-7 Three forms of survivorship curves.

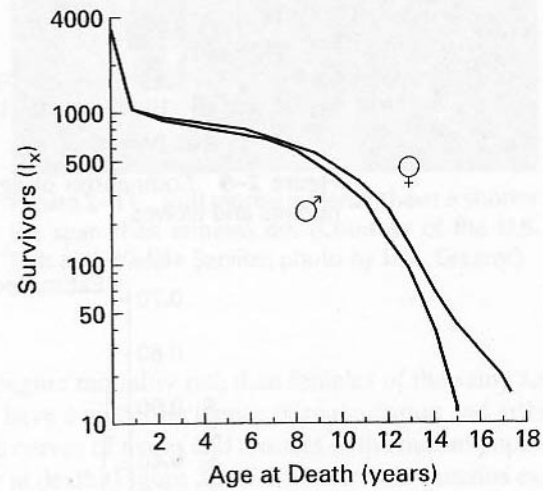


Figure 2-8 Survivorship curves for male and female adult moose on Isle Royale.

Sex ratio

- Primary sex ratio
 - Sex ratio at fertilization; normally 50:50
- Secondary sex ratio
 - Sex ratio at birth; can be skewed
- Adult sex ratio
 - Important for breeding strategy
- Breeding strategies
 - Monogamy
 - Polygamy (polygyny, polyandry)
 - Promiscuity

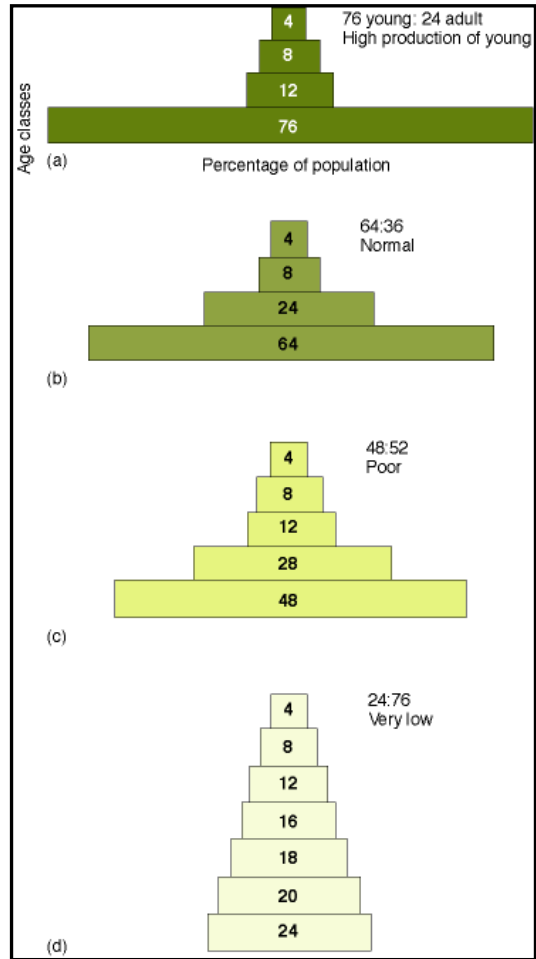
Sex ratio

- Most populations skewed toward females
 - Why?
- Moose in Denali National Park (unhunted)
 - 80♂:100♀
- ADF&G goals for managed moose populations
 - 20-30 ♂ :100 ♀

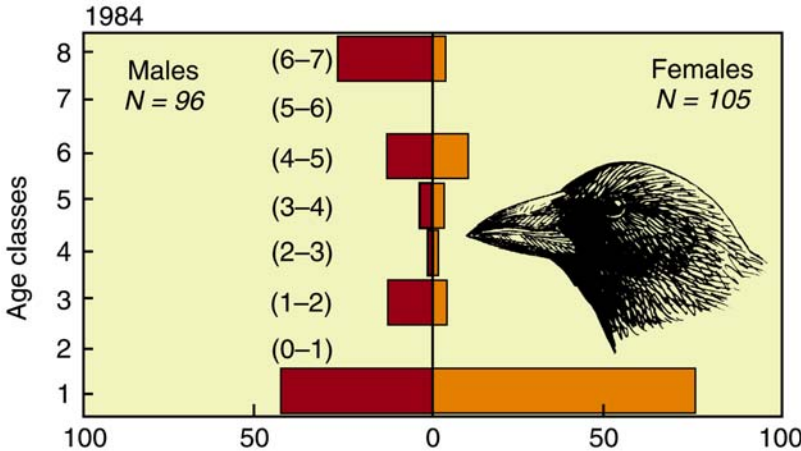
Importance of sex ratio

Sex ratio (♂:♀)	# nests Monogamous	# nests Polygynous
50:50	50	50
60:40	40	40
40:60	40	60

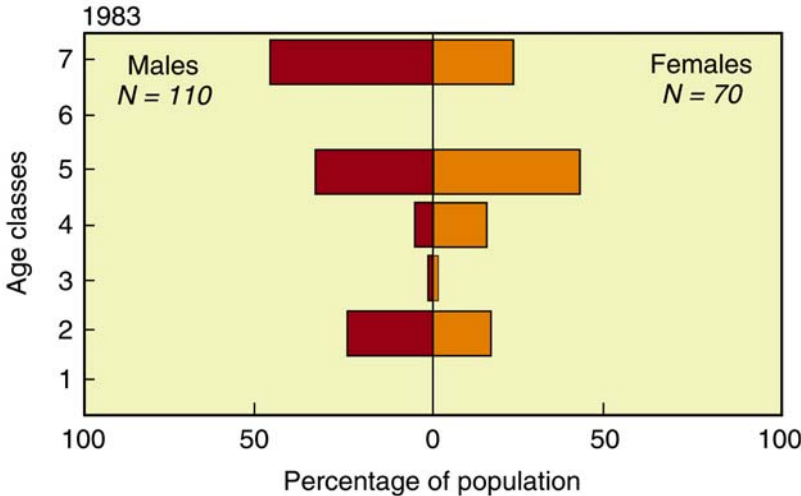
Age structure



Age structure



Copyright © Benjamin Cummings, an imprint of Addison Wesley Longman



Copyright © Benjamin Cummings, an imprint of Addison Wesley Longman