POPULATION REPRODUCTION

1. INTRODUCTION

'strategy' - not a conscious plan
- analyze factors in evolutionary history

reproduction - criterion for fitness (also survival)
- produce offsprings
- increase or maintain population

ideal - repro after birth, repeat often
- lots offspring & parental care

reality - life is full of compromises

2. ASEXUAL & SEXUAL REPRODUCTION

asexual - organisms split in half
- rapid but no genetic variation
- sm. inverts & vegetative propagation

sexual - combine gametes from diff organisms
- increase genetic variation
- but inefficient (time, energy, cells)

spermatozoa - small, numerous, motile

ovum - larger, fewer, non-motile, food

3. GONADS & SEX DETERMINATION

dioecious - 'two-houses'
- gonads in separate organisms
- must cross-fertilize

monecious - 'one-house' or hermaphroditic
- both gonads in same organisms
- sequential or simultaneous
- parthenogenesis (without sperm)

genetic S.D. - sex established at fertilization
- determined by sex chromosomes

environmental S.D.
- sex depend on chem, sun, or temp
- adjust sex ratio to optimize survival

4. SEXUAL SELECTION & DIMORPHISM

sexual selection - evolve to maximize repro
(at expense of own survival)

sexual dimorphism
- sex differences unrelated to gonads

females - cryptic & inconspicuous
- large investment in fertilized egg
- goal to select 'best' male for repro

males - larger & colorful, contrib sperm
- goal to reproduce with many females
- outcompete other males, attract pred

5. MATING SYSTEMS

monogamy - form a single pair bond
- all males repro, dimorphism reduced

polygyny - one male mates with many females
- only a few males can repro
- dimorphism pronounced

polyandry - rare (phalaropes)
- one female mates with many males
- reversal of sex roles & dimorphism

others - promiscuity (no pair bond)
- polygynandry (collective bonds)

6. OFFSPRINGS

when more
- minimum investment, smaller body
- no parental care, lower survival
- incr own fitness (but not offsprings')

when fewer
- invest more in each, larger body
- more parental care, higher survival
- decr own fitness (in favor of young)

precocial - born advanced, less care

altricial - born helpless, more care

age of maturity
- early - more offsprings possible,
  decr own chances of survival
- delayed - fewer offsprings possible,
  incr own chances of survival

7. r & K STRATEGISTS

	r–selected	K–selected
species	opportunist	equilibrium
environment	harsh & unpredictable	stable & predictable
mortality	density-independent	density-dependent
competition	less	more
investment	reproduction	non-repro
r (growth rate)	high	low
body size	small	large
lifespan	short	long
reproduction	early & single	delayed, repeated
offsprings	many	fewer
parent care	minimum	more
dispersion	wide	limited
population	fluctuates	stabilizes at K