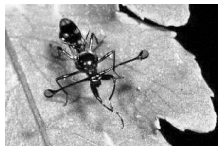
Lect. 15: Sexual selection



- Sexual dimorphism
- Secondary sexual traits
- Sexual selection defined
- Bateman's principle
- Male-male competition; Intrasexual
- Male display, Female choice : intersexual
- Runaway sexual selection

Evolution of extravagant traits

- Sexual dimorphism

Evolution of extravagant traits

- **Secondary sexual traits: sex-limited in expression (but not directly associated with reproduction)**

Selection for sexual dimorphism?

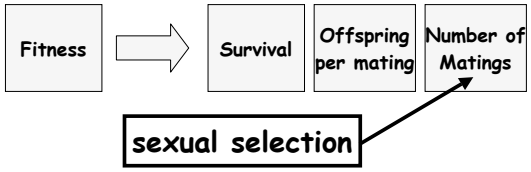
- Fitness under natural selection: typically same for both sexes

Selection for sexual dimorphism?

- Must act on sexes differently
- Process of finding and attracting mates differs between the sexes

Sexual selection

- Differential reproductive success due to variation among individuals in ability to obtain mates

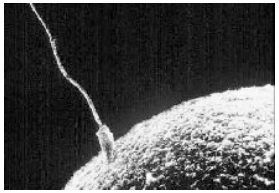


Why finding mates differs by sex?

Parental investment

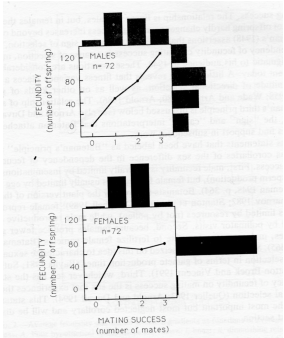
- Larger in females (typically)
  - eggs are larger than sperm
  - Incubation/pregnancy
  - parental care
- Fitness limited by number of eggs, pregnancies (not by the number of mates)

- Males: reproductive success limited by number of mates
- The sex with the exaggerated traits must be more limited by the number of mates



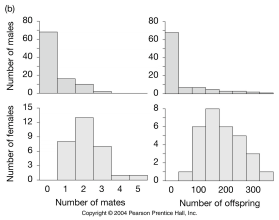
Bateman's principle

- Differential selection between sexes on mating success
- Drosophila
  - Females: all females mated, same # offspring
  - Males: # of mates effects reproductive success



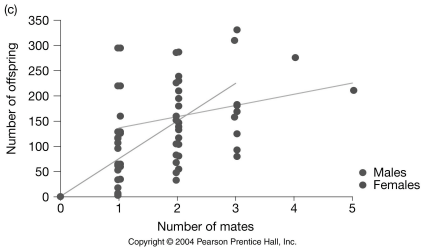
Newts

- Males have crests on their tail
- Males:
  - Mating more than once -> more offspring
  - More variation in fitness

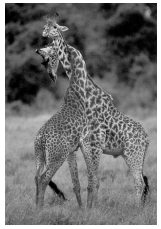


Newts

- Bateman's gradient: male reproduction increases faster with number of mates



Outcome of sexual selection



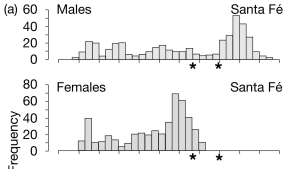
- Intrasexual selection (male-male competition)
  - Compete for access to mates
- Intersexual selection (Female choice)
  - advertise, display for mates

Intrasexual selection

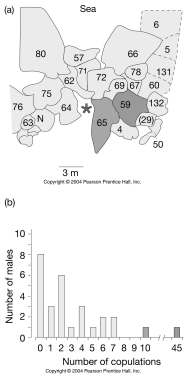
- Combat
- Sperm competition
- Infanticide

Combat: Marine iquanas

- Sexual size dimorphism
- Large variation in male size
- Fig 10.8

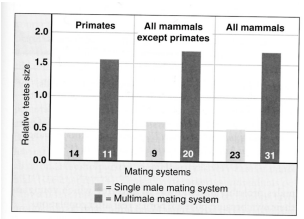


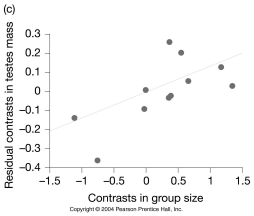
- Large variation in male reproductive success
- Two males obtained majority of mates



Sperm competition

- Mating, but:
- Females mate with more than one?
- Do sperm fertilize eggs?
- Sperm in race to fertilize eggs



Sperm competition in bats

- Flying foxes, fruit bats
- Males compete to fertilize females
- Species that evolve larger groups also evolve larger testes
- Fig 9.14