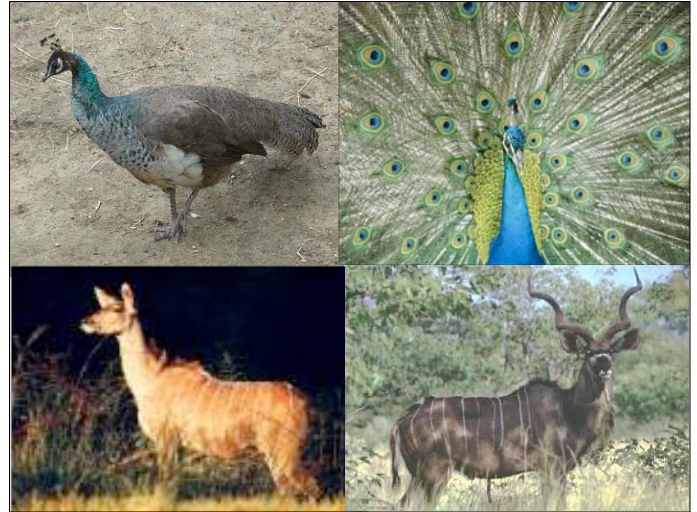


Sexual Selection I: male-male competition

1

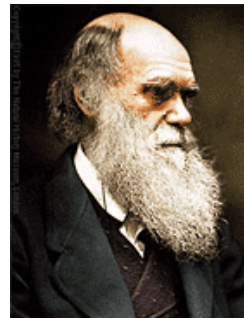


4



Sexual dimorphism e.g. *Metrioclinemus* 'msobo'

2



'The Descent of Man & Selection
in Relation to Sex'

C. Darwin (1871)

"Sexual selection depends on the success of certain individuals over others of the same sex, in relation to the propagation of the species; whilst natural selection depends on the success of both sexes, at all ages, in relation to the general conditions of life."

5



Exaggerated traits
e.g. Argentine Lake Duck
(male)

(McCracken et al 2001)

3

Sexual Selection:

A difference, among members of the same sex, between the av. mating success of individuals with a particular phenotype versus individuals with other phenotypes



See some of Duffy's cartoons online: DesMoinesRegister.com/duffy

6

Male Preferences

1. Attractiveness
2. Commitment
3. Social skills
4. Resources
5. Sexiness

Female Preferences

1. Commitment
2. Social skills
3. Resources
4. Attractiveness
5. Sexiness

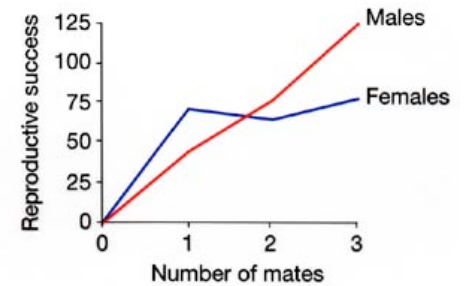
Dunbar 1999

7

Bateman (1948): *Drosophila melanogaster*
3 virgin males + 3 virgin females,
each with dominant marker...



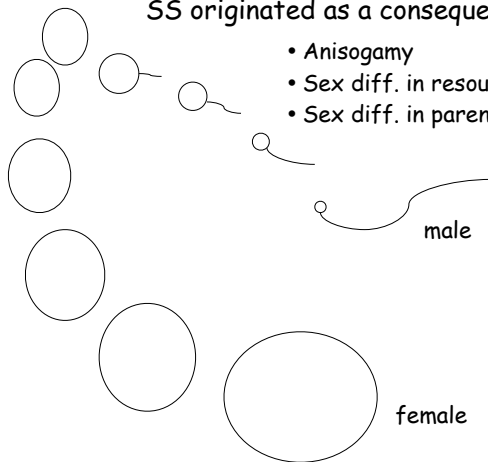
(a) Reproductive success versus number of mates:



10

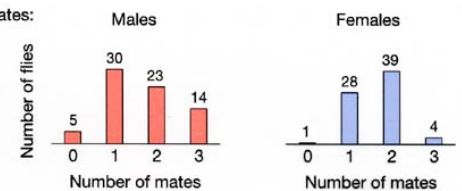
SS originated as a consequence of...

- Anisogamy
- Sex diff. in resource allocation
- Sex diff. in parental care



8

(b) Variation in number of mates:



(c) Variance in reproductive success in four groups of experiments:

	Male Variance	Female Variance	Male Variance / Female Variance
Group 1	1604	985	1.63
Group 2	1700	209	8.14
Group 3	2798	993	2.82
Group 4	1098	277	3.97

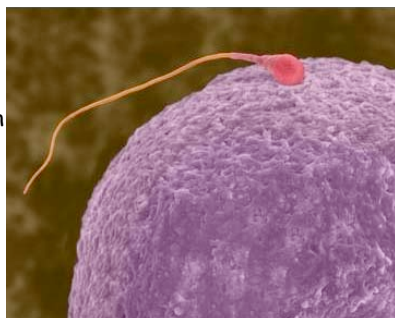
SS - a more potent evolutionary force in M than F

11

Female reproductive success limited by # eggs

Male reproductive success limited by # matings

⇒ **predict**
less variation among
females & more variation
among males ?



9

2 mechanisms.....

- Intrasexual selection -- competition
- Intersexual selection -- choice of mates



12

Evidence for intrasexual selection...



"I've heard this is a great bar for picking up birds"



13

• Contests

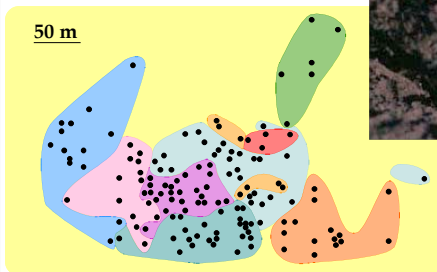


Northern elephant seals

16

Before/during mating....

• Scramble competition



Richardson's ground squirrels

14



Tragelaphus strepsiceros Owen Smith (1993)

Mortality = until 3 yr
Male full weight 6 yr; survival P 50%
Max age 9 vs 15 yr

17

• Endurance rivalry



Antechinus

15

Other weapons...

Reproductive success depends on:

- harem size
- successful defense

Roaring > Parallel walk > Fighting



Cervus elephas

18



Stag beetles



Gryllus bimaculatus

19



22

Alternative male strategies...

- Satellites



Grey treefrog (*Hyla versicolor*)

- Alternative morphs



Bladder grasshopper

20

for size comparison, this is a
US quarter= approx 1in./2.54cm around



CHINCHILLA ESTRUS (MATING) PLUG

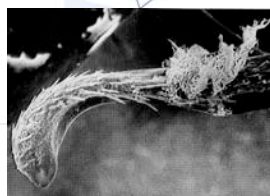
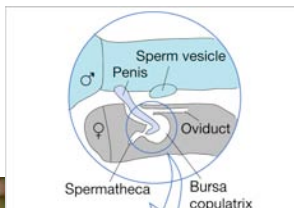
Copulatory plugs

23

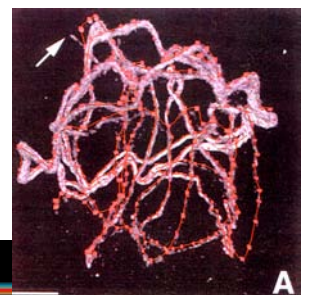
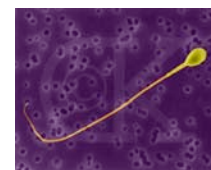
After mating, but before fertilization....

Sperm competition

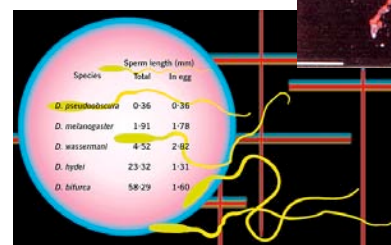
- sperm displacement in odonates
- sperm precedence in rats
- sexual interference in salamanders
- mate guarding in odonates



21



Sperm competition



24

After mating & fertilization.....

- Abortion induction



25



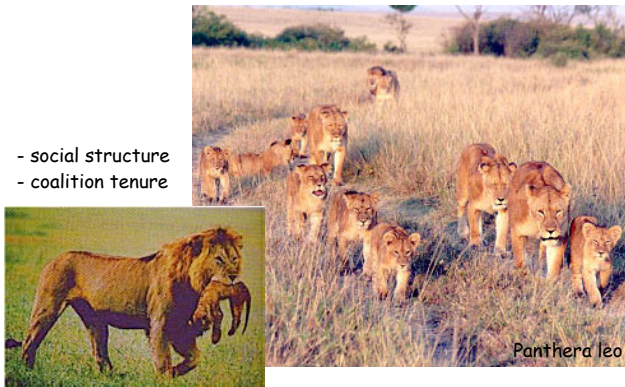
strong SS = competitive sex
weak SS = choosy sex

Oreophryne

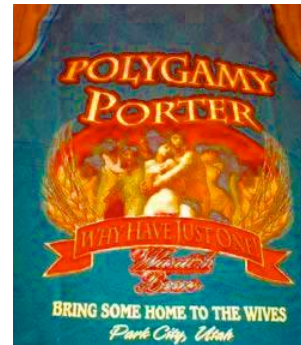


28

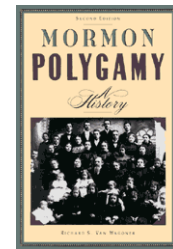
- Infanticide



26



Humans are not exempt...



29

Strength of SS

- Potential reproductive rate & operational sex ratio
- Mating system & pattern of parental care



27



Mobile phones as lekking devices
among human males.
- Lycett & Dunbar (2000)



30