

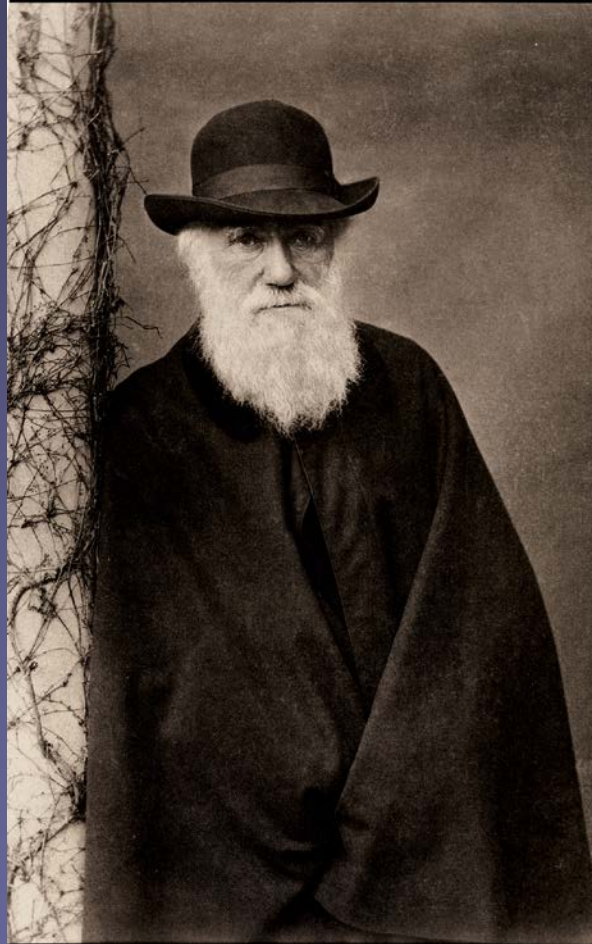
Sexual Selection



Darwin & Evolution

- Evolution by natural selection
 - Struggle for existence
- Adaptations increase individual survival
 - 'Good' traits should be most common

Charles Darwin



“The sight of a feather in a peacock’s feather, whenever I gaze at it, makes me sick”

Hmm what's that about...



Darwin on Sex...

- Why do males & females of the same species differ from one another, with males exhibiting morphological and behavioral phenotypes more exaggerated than those of females?



Darwin on Sex...

- Why do males of closely related species exhibit much greater differences in morphology and behavior than the females of closely related species?



He also noticed that

- Exaggerated characteristics were more prevalent in males
 - Why are they adaptive for male & not female
- Characteristics like, color, behavior, morphology are correlated to but not essential for reproduction



And that...

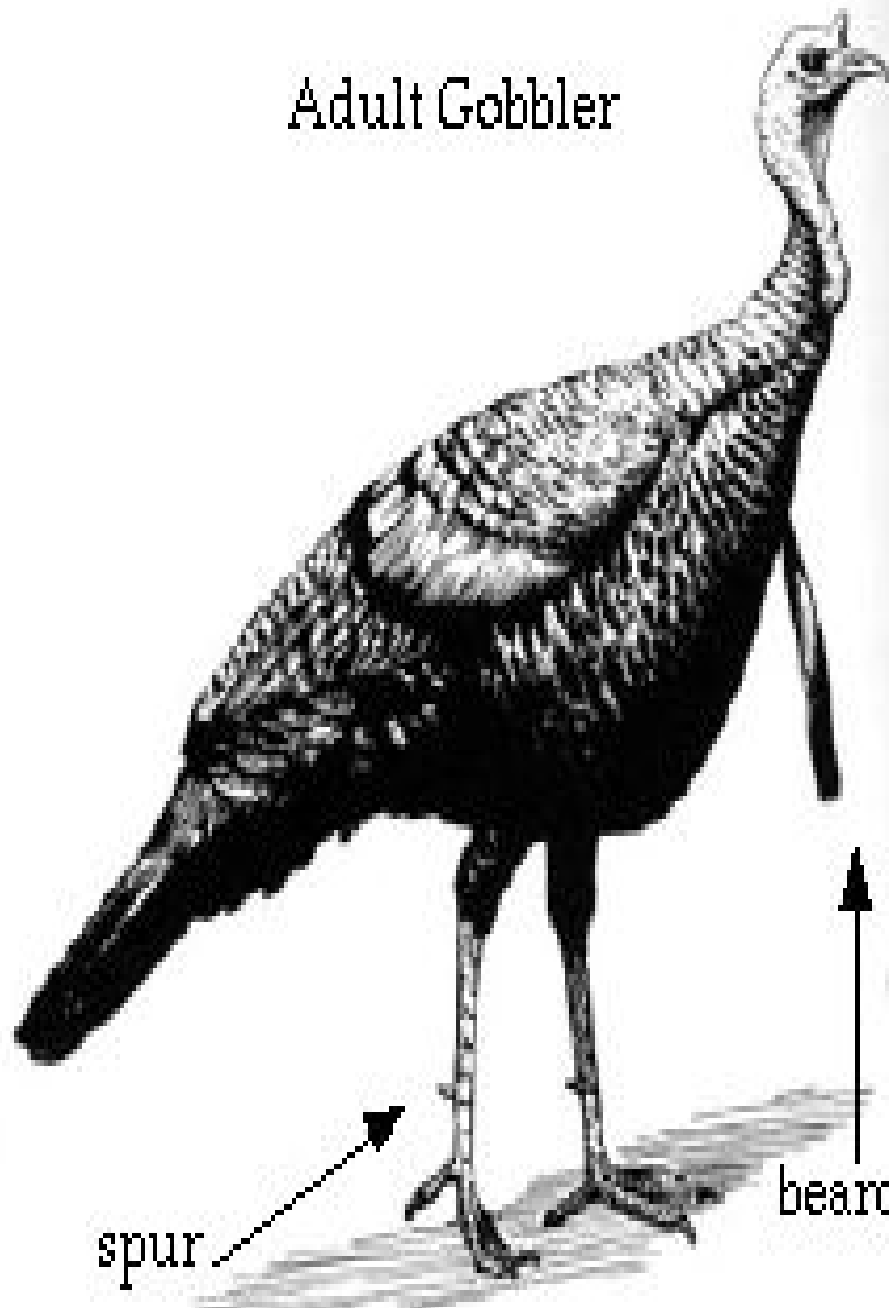
- May or may not involve physical competition
- Adaptation not always beneficial to an individual's survival



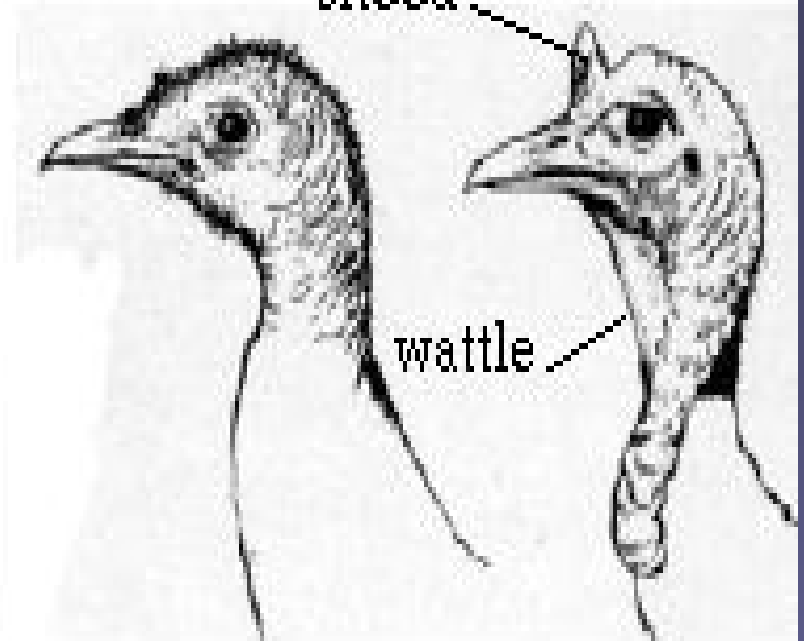
Sexual Characteristics

- Primary sexual characteristics
 - Structures needed for reproduction
 - ex/ Genitalia
- Secondary sexual characteristics
 - Structures not necessarily needed for reproduction
 - Large peacock tail, beard
 - Aids in attracting mate
 - Often energetically costly

Adult Gobbler



snood



hen

gobbler



1



2

Darwin's Theory of Sexual Selection

- "struggle between the individuals of one sex, generally the males, for the possession of the other sex"
 - *The Origin of Species*
- Reduced survivorship of males with elaborate characteristics is more than compensated for by increased advantage in mating
- Mechanisms
 - Male-male competition
 - Sexual characteristics are driven by male competition for less common females
 - Female choice
 - Females passively stand by and mate with winning males

Sexual Selection vs Natural Selection

- Sexual selection is different than natural selection
 - Evolutionary selection forces specific to sexual reproduction
 - Characteristics not always adaptive or 'good'
 - ex/ Peacock tail
- Individuals are favored by their fitness relative to other members of the same sex
- Natural selection works on the fitness of a genotype relative to the whole population

Sexual Selection - 2 Ways

- Selection on mating behavior, either through competition among members of one sex (usually males) for access to members of the other sex

or

- Though choice by members of one sex (usually female)

Sexual Selection Mechanisms

- Intrasexual selection
 - Male competition
 - Males compete for access to females
 - Phenotype with competitive advantage selected for
 - Physical, behavioral, physiological
- Intersexual selection
 - Female choice
 - Females prefer males with elaborate traits
 - Preferred males mate more often

Intrasexual Selection

Direct competition among individuals of one sex



Intrasexual Selection



Indirect competition among individuals of one sex

Intrasexual Selection



Intrasexual Selection



Intrasexual Selection



Intrasexual Selection



Intrasexual Selection



Intrasexual Selection



- <http://www.spike.com/video/flatworms-penis/2458366>

Intersexual Selection

- aka Female choice
- Individuals of one sex are choosy in selecting their mates from individuals of the opposite sex
- Results in secondary sexual characteristics that are not used for competition

Female Choice



Blasted Peacock

- Male peacock have an average of 150 eyes
- Males with fewer than 130 eyes rarely mate
- Illustrated female choice





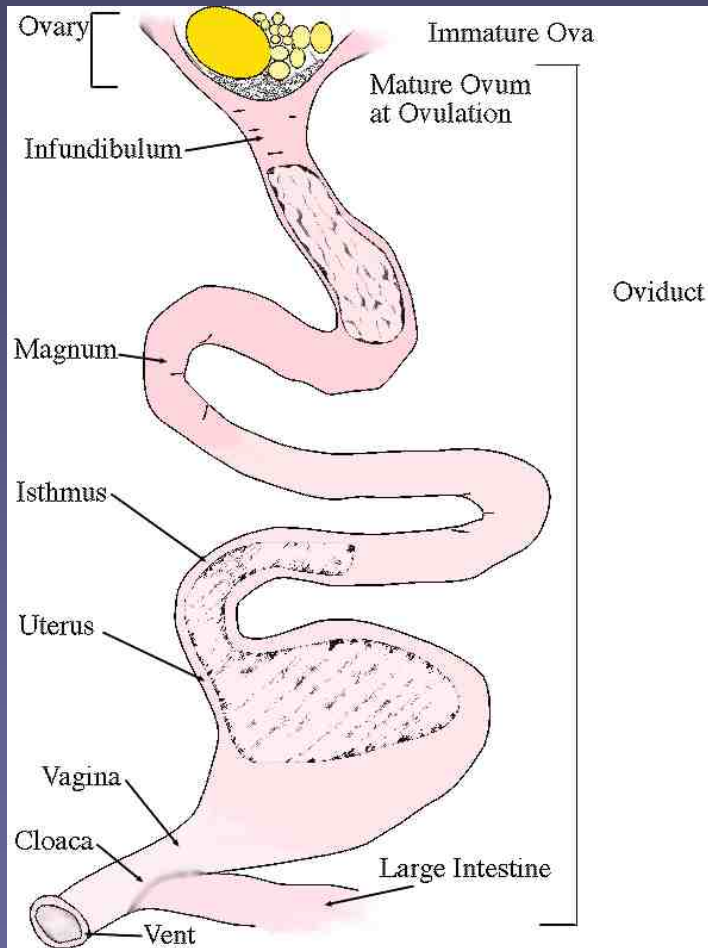




Tragopan Satyra - Courtship Display

<http://www.youtube.com/watch?v=7l79rgG9bDk&feature=related>

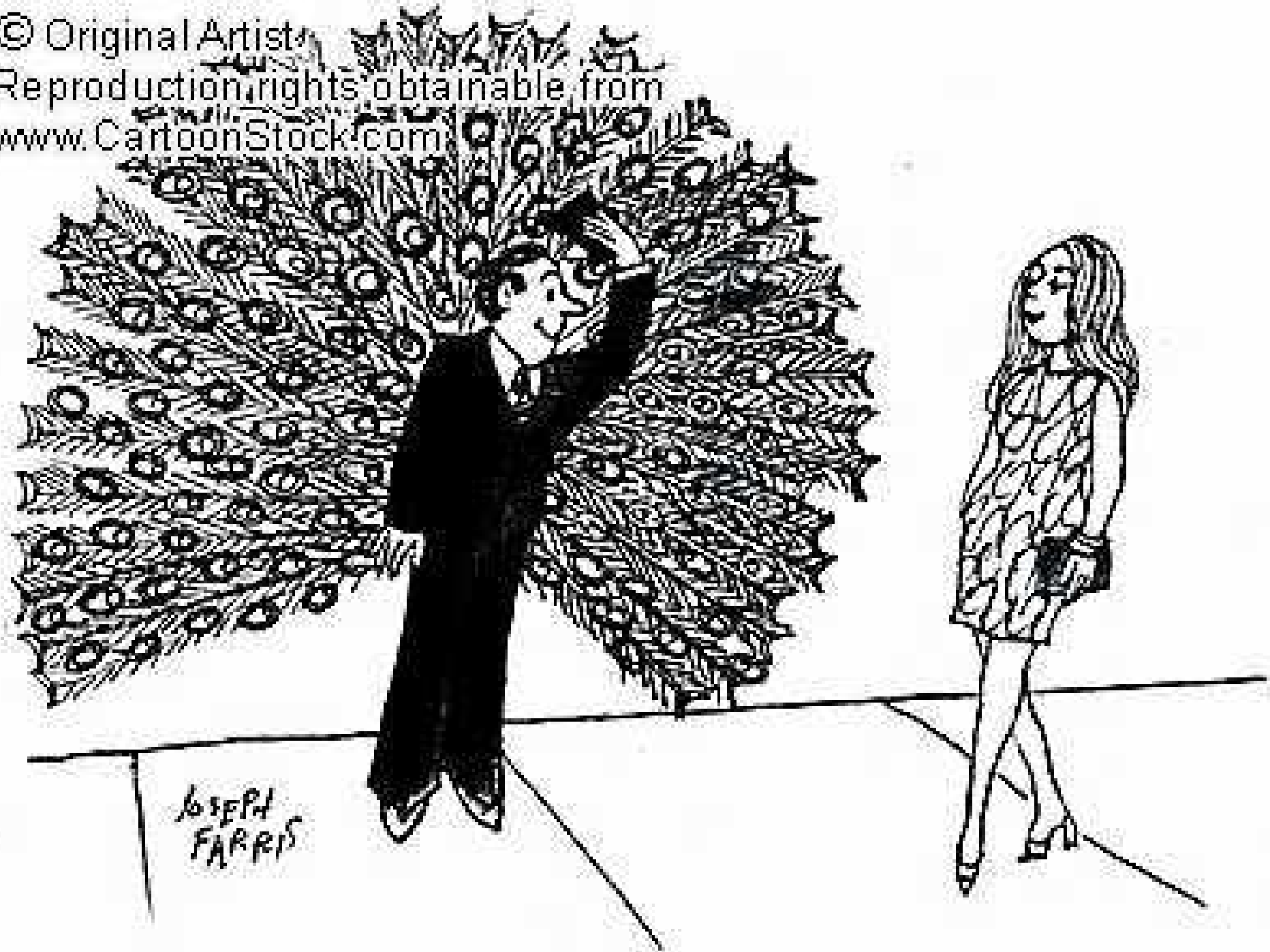
Cryptic Female Choice



Cryptic Female Choice



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JOSEPH
FARRIS

Why Male Competition & Female Choice?

- Female gametes
 - Few
 - Large
 - Costly
 - Limiting factor is resource availability
- Male gametes
 - Many
 - Small
 - Cheap
 - Limiting factor is female availability