

Sexual selection in insects (read Freeman and Heron, Chapter 9, reserve readings at library, except for parts that refer to sexual selection in plants)

General definition

An exaggerated trait that is costly for survival

Having the trait confers greater reproductive success

Most sexually selected traits are found in males

In most species, male reproductive success is based on mating success, while female reproductive success is based on number of offspring produced

In species where males do most of the parental care, females exhibit sexually selected traits

Conditions favoring sexual selection: when one male monopolizes many females

Kinds of sexual selection

Male-male competition

Antlers of staghorn beetles or flies

Eyestalks in flies

Female choice- nuptial offerings

Variation in insect genitalia (described in your text)

Levels of variation

External variation pronounced in males

Internal variation pronounced in females

Explanations

Mechanical

Sexual selection reinforces reproductive isolation among species

Lock and key hypothesis

hypothesis

Genitalia fit in species specific ways

Interspecific mating prevented

Problems

Morphological correlation is often weak

Amputated male genitalia can still function in sperm transfer

Pleiotropy- not likely because genitalia differ more among species than other traits

Sexual selection based on genitalic recognition-

Also a reproductive isolation argument

Sexual selection based on genitalic recognition

Appropriate genitalia stimulate sperm transfer

Females reject males with wrong genitalia

Female choice among males within a species

Male traits could evolve due to female preference

Evidenced in favor of this is that genitalia vary less among species when the species are primarily monogamous than when they are polygamous

Intersexual conflict

Females are selected to choose among males

Males are selected to maximize fertilization rate

This sets up a conflict between interests of females versus males