

What if something is good for the gene but bad for the individual?

e.g. Meiotic drive - gene on Y chromosome that destroys X so males more common - good for gene bad for mosquito population

- X (resistant) developed. If meiotic drive isn't advantageous for individual so evolve mechanisms to replace them

Speciation - why does it happen?

Exceptions to definitions

- interbreeding, common gene pool,

- Asexual / ring species (2 species can't interbreed connected by a geographic ring that can interbreed)

- both don't fit definition

- set of actual / potential interbreeding organisms

Main models of speciation

- Allopatric - geographical separation, gene flow stops entirely, genetic differences arise due to different selection pressures or genetic drift, once differences large = species, when natural hybrids low fitness

- Genetic Drift = random changes in gene frequencies over time in small populations, "founder effect", genes may get lost, not natural selection

e.g. the founder effect = when pop derived from few founders with low genetic diversity

- selection favors pre-mating barrier < beh

- Sympatric = no separation, selection favors different traits in different parts of habitat, selective mating favored, genetic differences <sup>small</sup> accumulate, gene flow still possible

Can pre-mating barriers evolve to reduce gene flow?

- Chrysopa conea + C. auresi - behave like diff species, diff habitats, same area. Differ by 3 genes

- Could breed but don't (out @ diff times)