

PBG 200A Notes

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- Suppose ab and AB are more advantageous than aB and Ab , we can select against recombination between the loci through inversion.
- A species having sex is *not* the same as a species having different sexes.
- Males are defined through small mobile gametes and females are defined through larger less mobile gametes.
- Separate sexes has arisen multiple times as a result of sex.
- Mammals have XY, birds have ZW.
 - in XY, male heterogamy
 - in ZW, female heterogamy
- X and Y evolved from an ancestral autosome - used to be the same size but at some point a sex-determining gene arose.
- Heteromorphic sex chromosomes have evolved multiple times, independently.
- If there is a male beneficial allele near a male determining allele, we can lock them together in an inversion.
- Then that section of the Y chromosome no longer recombines. It's always homozygous.
- Deleterious alleles can be swept by the inversion and there is no way for the Y chromosome to get rid of them through recombination.
- More beneficial alleles and inversion links more loci together.
- Allopatric speciation
 - two pops split due to geography
 - low rate of migration causes independent genetic drift
 - barriers to reproduction come as a passive side effect of anagenesis
 - may happen rapidly if ecology of populations differ
- Sympatric speciation
 - Need strong selection on phenotypic extremes
 - Need individuals to mate assortatively
 - This is helped if assortative mating gene is close to the gene determining selected phenotype
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