Ch 23.3 Notes

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Vocab

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Adaptive Evolution: A process in which traits that enhance survival or reproduction tend to increase in frequency over time.

Genetic Drift: Variation in the relative frequency of different genotypes in a small population

Founder Effect: A sudden change in the environment, such as a fire or flood, may drastically reduce the size of a population.

Bottleneck Effect: A sudden change in the environment, such as a fire or flood, may drastically reduce the size of a population.

Gene Flow: The transfer of alleles into or out of a population due to the movement of fertile individuals or their gametes.

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Notes

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Natural selection acts on distributions of traits

Gene flow is the movement of alleles between populations.

Genetic drift is a change in allele frequency due to chance.

Sexual selection occurs when certain traits increase mating success.

Natural selection

Based on differential success in survival and reproduction

* Better suited= more offspring

Results in alleles passed on to offspring in proportions different from present generation

Consistently favoring certain alleles can result in adaptive evolution

* Traits that enhance survival increase in frequency over time

Genetic drift

Change in allele frequencies due to CHANCE

* Reduces genetic variation= less variation= less likely to survive if environment changes

Affects small populations more than large ones

* Larger populations tend to be more representative of likely proportions
  + Remember probability lab with flipping coins
* Can lose some variations

End up with a population with a different allele frequency than the original population

The causes of genetic drift

Bottleneck effect

* Some event reduces population significantly.
* Those left over may not represent the alleles the same way the original population did
* The remaining ones are the only ones who can reproduce and pass down alleles
  + Lose some alleles entirely from gene pool

Founder effect

* Small number of organisms colonize a new area= start a new population
* Only those organism’s alleles are available
* Not representative of original population

Effect of genetic drift summary

Graphical user interface

Description automatically generated with medium confidence

Gene flow

When organisms join or leave a population, they take their alleles with them

* This changes the gene pool of that particular population

Increases genetic variation of receiving population

Decreases genetic variation of old population

Less gene flow between populations= more differences between them

* Can lead to speciation

Lots of gene flow between populations= more similar