EVOLUTIONARY FORCES

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Natural Selection

What is natural selection?

Natural Selection is the process of how a changing environment impacts the reproductive capabilities of certain individuals of a population. When an environment changes it impacts how well those individuals are adapted to handle the change and the individuals best able to handle that change are selected for. Usually specific traits of these individuals aid their ability to reproduce and thus their genes are passed down to future generations while others' traits are not.

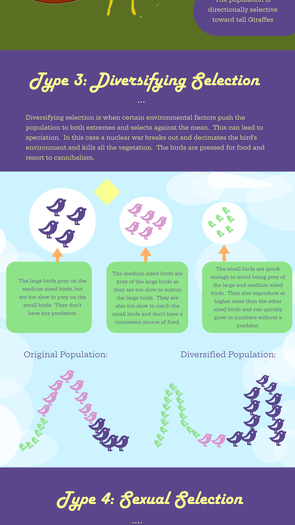
Type 1: Stabilizing Selection

Stabilizing selection is a type of natural selection that selects for the average or mean of a specific trait and selects against the extremes. In this case we have birds and their color is being selected for/against. In this case we have a bird population with green, yellow, and purple birds.

Their environment is a dry grassland where the grass is yellow as it is very dry. The environment selects for the mean, which in this case is the yellow colored birds because they can best camouflage with their environment unlike the green and purple birds.

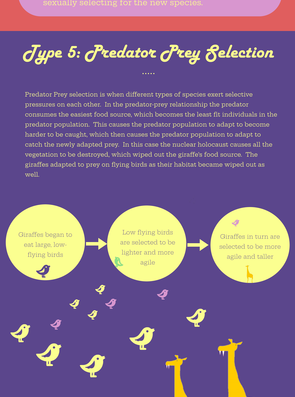
Type 2: Directional Selection

Directional selection is when one extreme is favored over the rest of the population so that the whole population shifts towards that extreme until it eventually becomes the mean.



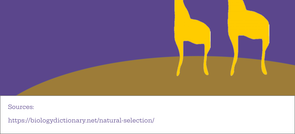
Type 3: Diversifying Selection

Diversifying selection is when certain environmental factors push the population to both extremes and selects against the mean. This can lead to speciation. In this case a nuclear war breaks out and decimates the bird's environment and kills all the vegetation. The birds are pressed for food and resort to cannibalism.



Type 4: Sexual Selection

Sexual selection is when a certain trait in a population is attractive to the opposite sex and this trait gets selected for because it helps the individual reproduce. This trait can sometimes be disadvantageous to survival, but gets selected for because it helps with reproduction. In this case after the nuclear fallout, radiation causes certain male birds to develop a third wing. For some reason a third wing is very sexually attractive to female birds.



The sole Three-Winged Male Bird is out-competing the Normal Male Bird because the female birds are sexually selecting for the new species.

Type 5: Predator Prey Selection

Predator Prey selection is when different types of species exert selective pressures on each other. In the predator-prey relationship the predator consumes the easiest food source, which becomes the least fit individuals in the predator population. This causes the predator population to adapt to become harder to be caught, which then causes the predator population to adapt to catch the newly adapted prey. In this case the nuclear holocaust causes all the vegetation to be destroyed, which wiped out the giraffe's food source. The giraffes adapted to prey on flying birds as their habitat became wiped out as well.

Sources:
https://biologydictionary.net/natural-selection/