

Types of Natural Selection

-Disruptive Selection: This selection favors two extreme forms of a trait. Species will evolve into two extreme forms. Examples:

Peppered moths: One of the most studied examples of disruptive selection is the case of London's peppered moths. In rural areas, the peppered moths were almost all a very light color. However, these same moths were very dark in color in industrial areas. Very few medium-colored moths were seen in either location. The darker-colored moths survived predators in the industrial areas by blending in with the polluted surroundings. The lighter moths were seen easily by predators in industrial areas and were eaten. The opposite happened in rural areas. The medium-colored moths were easily seen in both locations and were therefore very few of them left after disruptive selection.

Oysters: Light- and dark-colored oysters could also have a camouflage advantage as opposed to their medium-colored relatives. Light-colored oysters would blend into the rocks in the shallows, and the darkest would blend better into the shadows. The ones in the intermediate range would show up against either backdrop, offering those oysters no advantage and make them easier prey. Thus, with fewer of the medium individuals surviving to reproduce, the population eventually has more oysters colored to either extreme of the spectrum.

-Stabilizing Selection: This selection favors the average individual in a population.

Stabilizing selection is the most common selection type of Natural Selection.

The result of stabilizing is the over-representation in a specific trait. For example, the coats of a species of mice in a forest will all be the best color to act as camouflage in their environment.

Other examples include human birth weight, the number of eggs a bird lays, and the density of cactus spines.

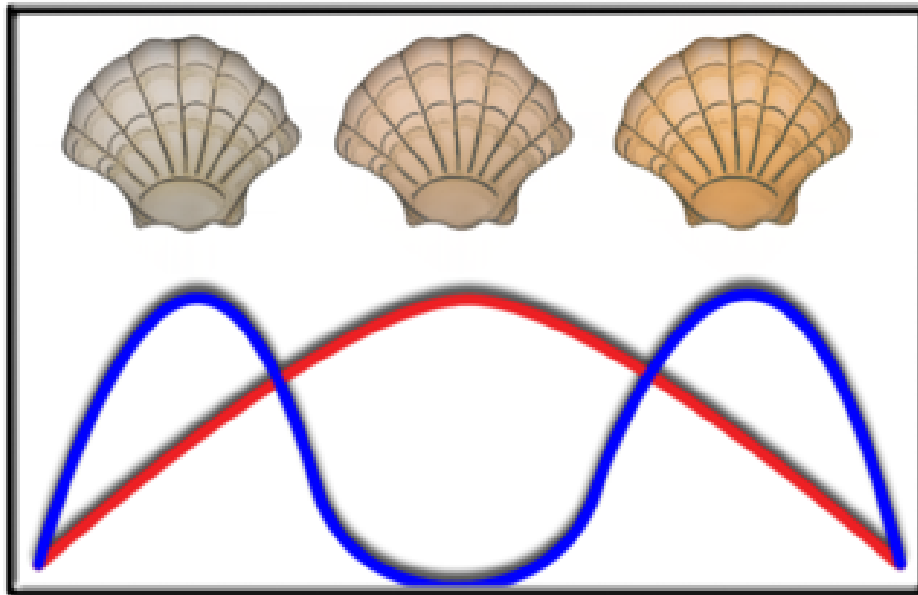
-Directional Selection: This selection favors one extreme form of a trait. Examples include:

Charles Darwin studied what later became known as directional selection while he was in the Galapagos Islands. He observed that the beak length of the Galapagos finches changed over time due to available food sources. When there was a lack of insects to eat, finches with larger and deeper beaks survived because the beak structure was useful for cracking seeds. Over time, as insects became more plentiful, directional selection began to favor finches with smaller and longer beaks that were more useful for catching insects.

Fossil records show that black bears in Europe decreased in size during periods between continental glacial coverage during the ice ages, but increased in size during the glacial period. This was likely because larger individual enjoyed an advantage in conditions of limited food supplies and extreme cold.

In 18th and 19th century England peppered moths who had been predominantly white in order to blend in with light colored trees began to evolve into a predominantly dark species in order to blend in with an environment that was becoming increasingly covered with soot from Industrial Revolution factories.

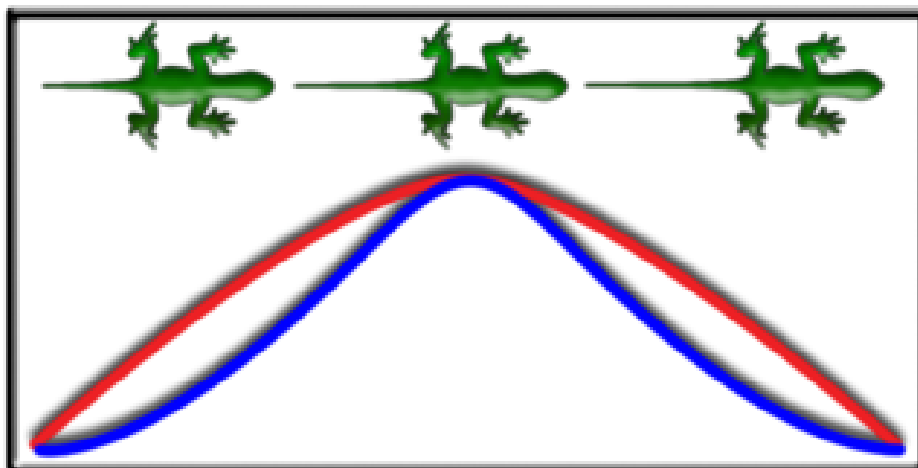
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1. Disruptive Selection
2. Stabilizing Selection
3. Directional Selection

— Before
— After

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