

Natural selection

What is the mechanism driving evolutionary change?

Natural selection

Paradigm shift

Natural selection

Why must traits be heritable for evolution to occur?

Natural selection

Role of mutation in variation

Natural selection

Role of sexual reproduction in variation

Natural selection

Carrying capacity

Natural selection

Give an example of an abiotic, density-independent selection pressure.

Natural selection

Fitness

A fundamental change in the accepted theory of a field, e.g. Darwin's natural selection replacing Lamarckism.

Natural selection, operating continuously over billions of years and producing the biodiversity of life on Earth.

Mutation generates new alleles by changing the base sequence of a gene.

Only traits encoded in the base sequence of genes pass to offspring. Acquired characteristics are not encoded in genes, so are not heritable.

The maximum population size an environment can support sustainably. Limited by resources such as food, water, nest sites, light and minerals.

Generates new combinations of alleles: crossing over and random orientation in meiosis, plus random fertilisation.

The survival value and reproductive potential of a genotype compared with others.

Very high or very low temperatures, e.g. a hard frost; also drought or flooding.

Natural selection

Sexual selection

Natural selection

Endler's guppies: effect of a strong predator (Crenicichla)

Natural selection

Endler's guppies: effect of no predator or Rivulus

Males evolved fewer spots: conspicuous males were eaten, so natural selection outweighed female preference.

Selection for traits that increase success in attracting a mate, e.g. plumage of male birds of paradise, which signals overall fitness.

Males evolved more spots, because sexual selection by female choice for colourful males dominated.