

Genetic variability

Genetic variability is a measure of the tendency of genotypes within a population to differentiate. Individuals of the same species are not identical. Although they are recognizable as belonging to the same species, there are many differences in form, function and behavior. For every

characteristic of an organism, variations will exist within the species. For example, the jaguars of the Pantanal in Brazil are more than twice the size (100 kilos) of Mexican jaguars (30 to 50 kilos) yet they are the same species (*Panthera onca*).



The most obvious cases of genetic variability are to be found in the domesticated species, where humans use the variability to create breeds and varieties of maize, beans, apples, pumpkins, horses, cattle, sheep, dogs and cats, among others.

Much of the variation in individuals comes from the genes, i.e., from genetic variability. This variability is caused by mutations, recombinations, and alterations in the karyotype (the number, shape, size and internal organization of the chromosomes). The processes that produce or eliminate genetic variability are called natural selection and genetic drift.

Genetic variability permits the evolution of species, since in each generation only a fraction of the population survives and reproduces transmitting particular characteristics to their offspring.