

Niche, allele frequency and conservation

Define niche.

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Give an example of an anatomical adaptation.

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Give an example of a physiological adaptation.

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Give an example of a behavioural adaptation.

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Hardy-Weinberg equations.

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What do p, q and 2pq represent?

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Conditions for Hardy-Weinberg to hold.

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Two causes of change in allele frequency.

Rolled leaves with sunken stomata and hairs in marram grass reduce water loss.

The role of a species in its habitat, including how it obtains resources and its interactions with other species.

Hibernation or nocturnal activity in a desert animal.

Kangaroo rats produce very concentrated urine to conserve water.

p = dominant allele frequency; q = recessive allele frequency; $2pq$ = heterozygote frequency.

$p + q = 1$ and $p^2 + 2pq + q^2 = 1$.

Mutation and natural selection.

Large population, random mating, no mutation, no selection, no migration.

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What is reproductive isolation?

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Steps from isolation to speciation.

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What is a captive breeding programme?

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Give a limitation of zoos for conservation.

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How are seeds stored in a seed bank?

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Give a limitation of seed banks.

Isolation, no gene flow, different mutations and selection, different allele frequencies, cannot interbreed to produce fertile offspring.

Populations can no longer exchange genes, so their gene pools become separate.

Few individuals of few species, expensive, small gene pool, animals may fail to adapt to the wild.

Breeding endangered animals in zoos, managing pairings to maintain genetic diversity.

Some seeds cannot be dried or frozen; seeds lose viability; stored plants cannot adapt to changing conditions.

Dried to a low water content and kept at low temperature (for example -20°C).