

Biological Species Concept

A. Organisms may appear to be alike and be different species.

Sturnella neglecta*Sturnella magna*

The Western meadowlark (left) and the Eastern meadowlark (right) appear to be identical, and their ranges overlap, but their distinct songs prevent interbreeding.

[CH.21]

Biological Species Concept states that species that are groups of populations can interbreed, but if they can't, then they are considered separate species. However, Hybridization is not uncommon.

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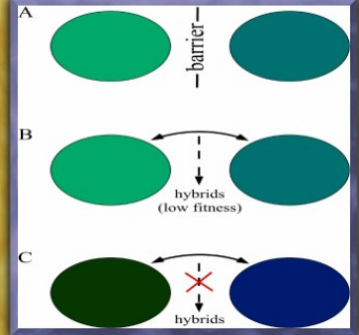
Pre-zygotic Isolating Mechanisms		Examples
Temporal	Occurs when two species mate at different times of year	Frogs live in same pond but breed during different seasons (summer vs. spring)
Ecological	Occurs when two species occupy different habitats	Lions and tigers can potentially interbreed, but usually occupy different habitats
Behavioral	Occurs when two species have different courtship behaviors	Certain groups of birds will only respond to species-specific mating calls
Mechanical	Occurs when physical differences prevent copulation/pollination	Certain breeds of dog are morphologically incapable of mating due to size
Post-zygotic Isolating Mechanisms		Examples
Hybrid inviability	Hybrids are produced but fail to develop to reproductive maturity	Certain types of frog form hybrid tadpoles that die before they can become a frog
Hybrid infertility	Hybrids fail to produce functional gametes (sterility)	Mules are sterile hybrids resulting from mating between a horse and a donkey
Hybrid breakdown	F ₁ hybrids are fertile, but F ₂ generation fails to develop properly	The offspring of hybrid cornplants have less potential for survival or reproduction

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[CH.21]

Natural selection may favor the prezygotic mechanisms (Reinforcements), however genetic exchange may lower the differences between such species.

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[CH.21]

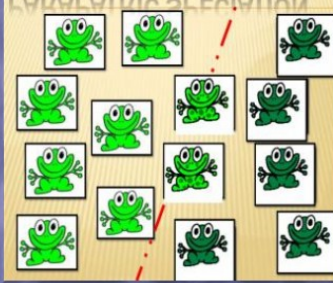
Allopatric Speciation is where species diverge because they are geographically isolated.

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PARAPATRIC SPECIATION

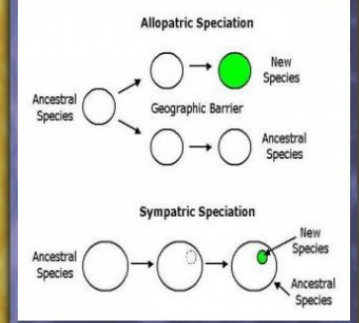


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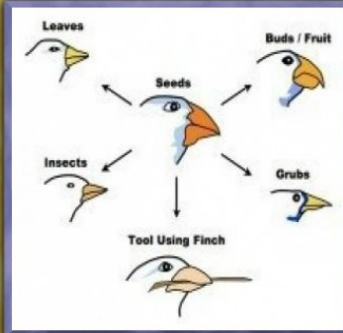
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Like Plant that have a mutation for reproductivity, or insects that diverge in the food that they favor

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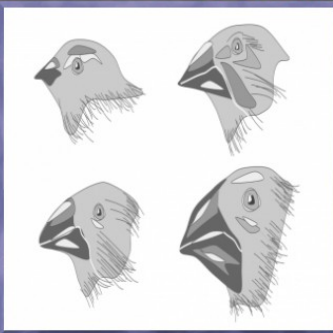
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Adaptive Radiation

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[CH.21]

Character displacement is where one species uses resources that others do not, like a finch that uses a tool

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