

Speciation and extinction have occurred throughout the Earth's history.

SPECIATION

What is a species?

“**Biological Species**”: A group of organisms that are capable of successfully reproducing.

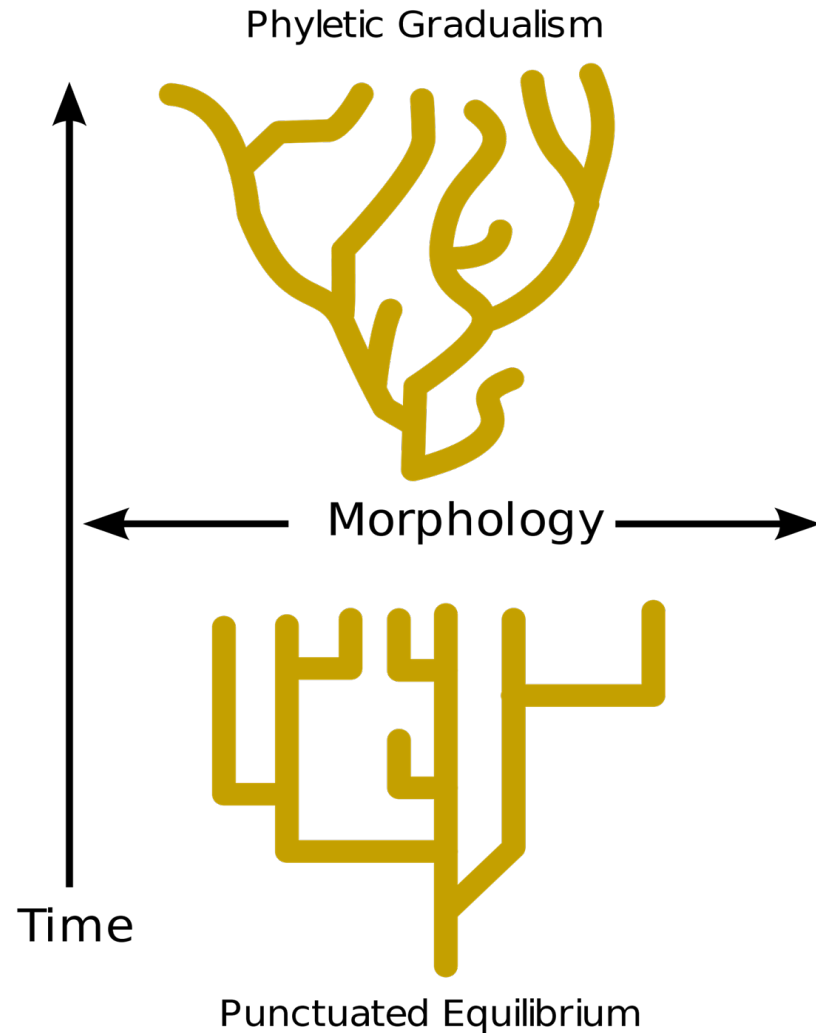
It's testable, but simplistic.

And it is limited in application.

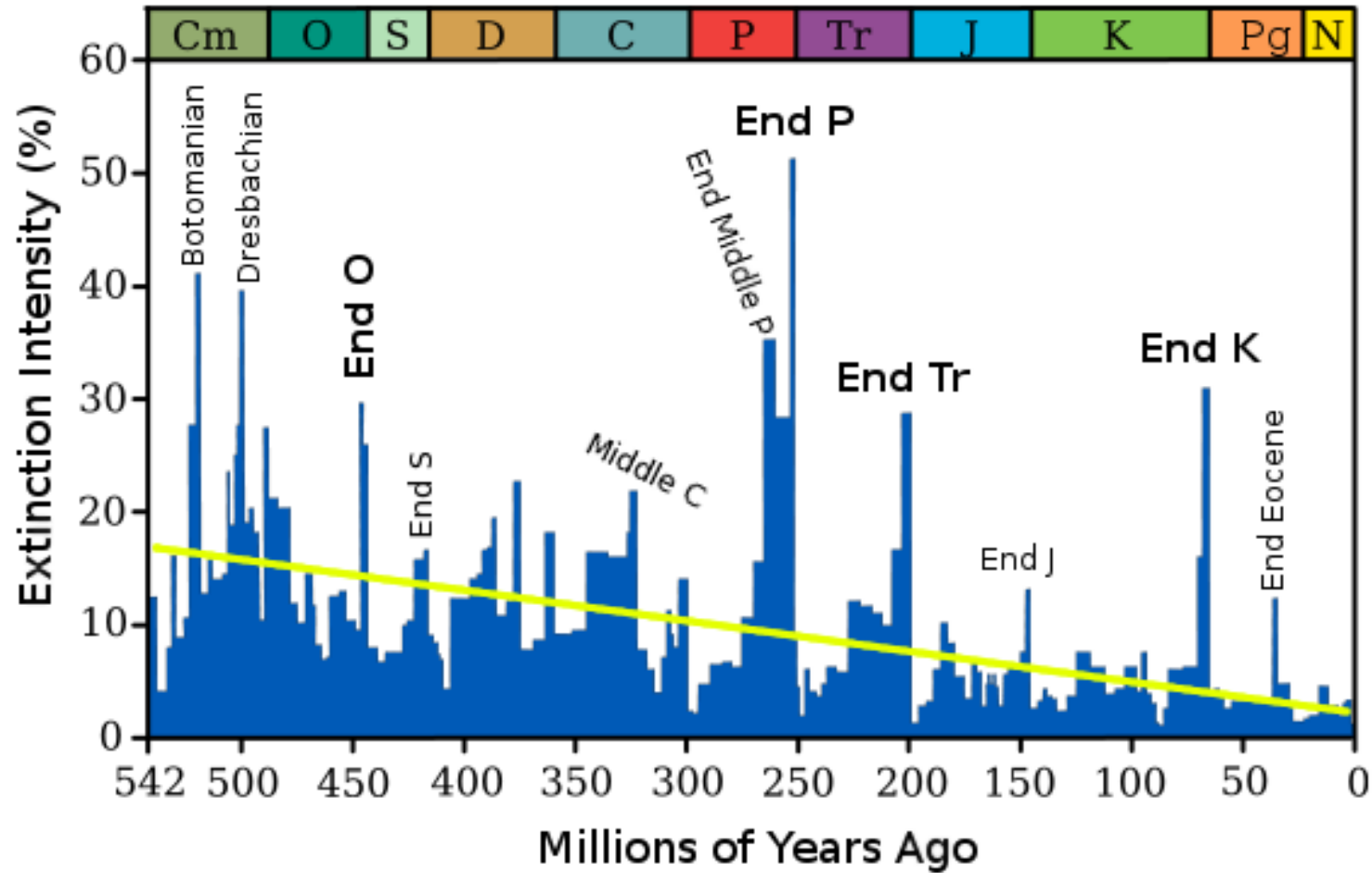
Speciation Rate

Gradualism: species are the product of slowly accumulating, small evolutionary changes.

Punctuated equilibrium: species undergo long periods of very little change, followed by rapid, large evolutionary changes.



Extinction Intensity on Marine Genus Biodiversity

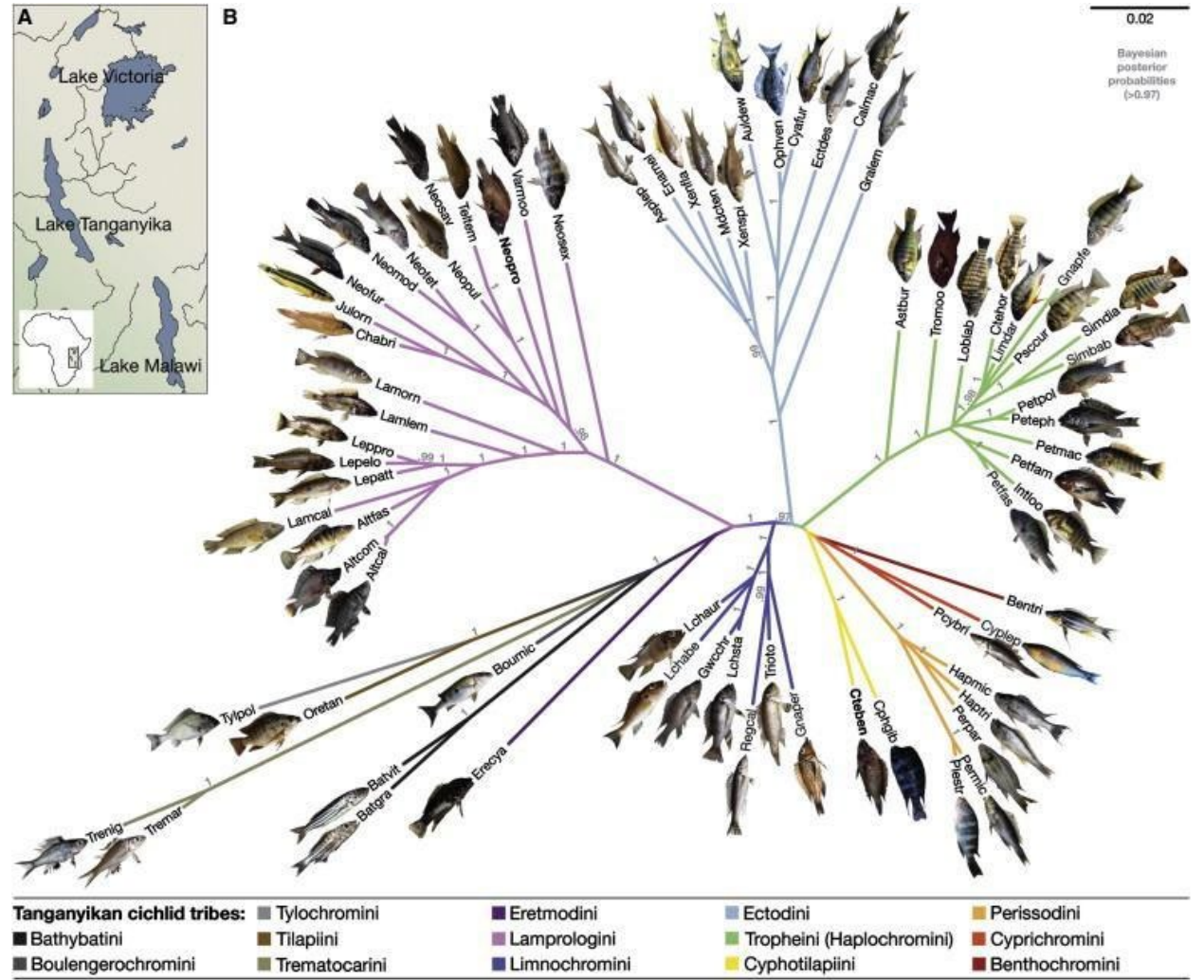


Ex. Major Extinctions.

Adaptive Radiation

One species evolves into many species that occupy open niches.

Ex. Lake Cichlids, Mammals, Galapagos Finches.



Speciation may occur when two populations become reproductively isolated from each other.

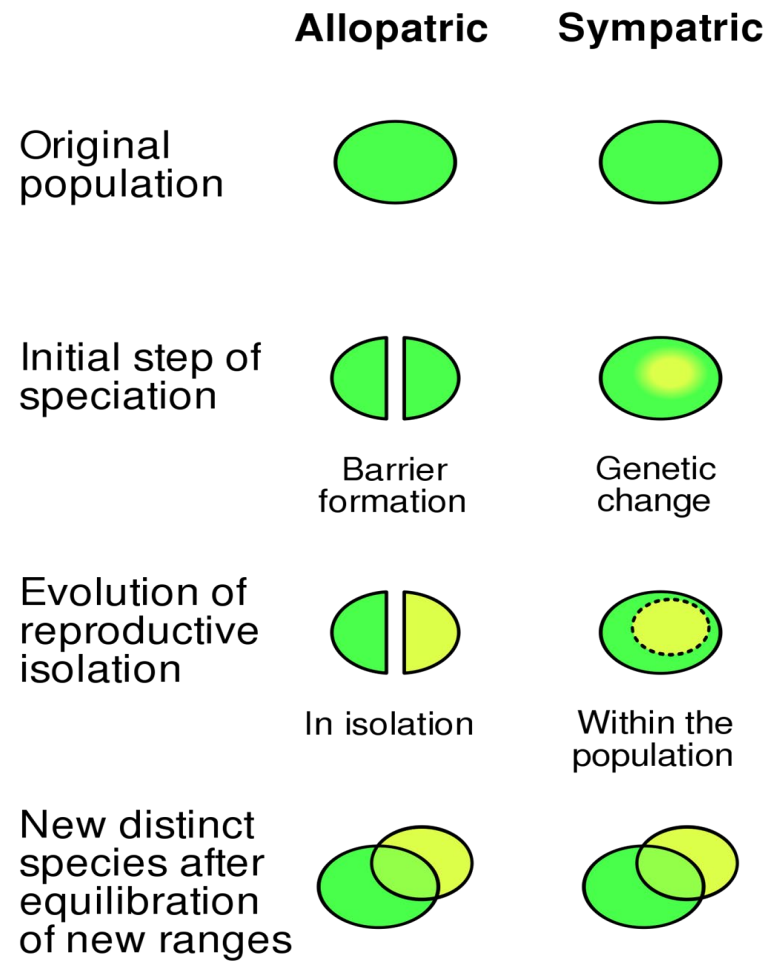
SPECIATION PROCESS

Reproductive Isolation

Speciation occurs when a population can no longer interbreed with any other population.

Allopatric: Happens due to physical separation.

Sympatric: Happens while occupying the same area.



Species Barriers

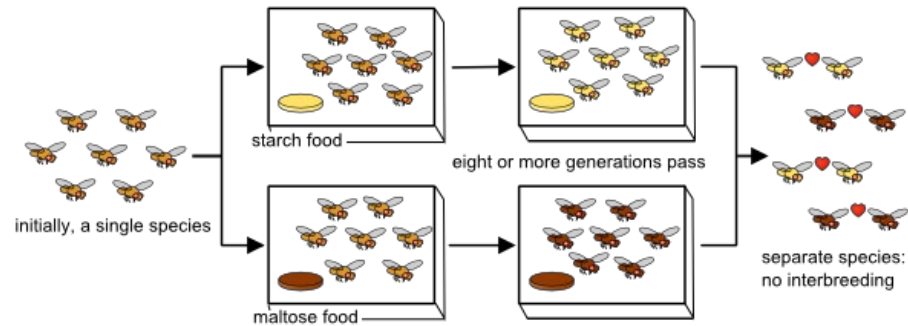
Pre-Zygotic:

Physical
Temporal
Behavioral
Mechanical
Chemical

Post-Zygotic:

Reduced Viability
Reduced Fertility
Hybrid

Ex. Mule



Ex. Fruit Fly Food Speciation.

