

# Ecology

Bio 11

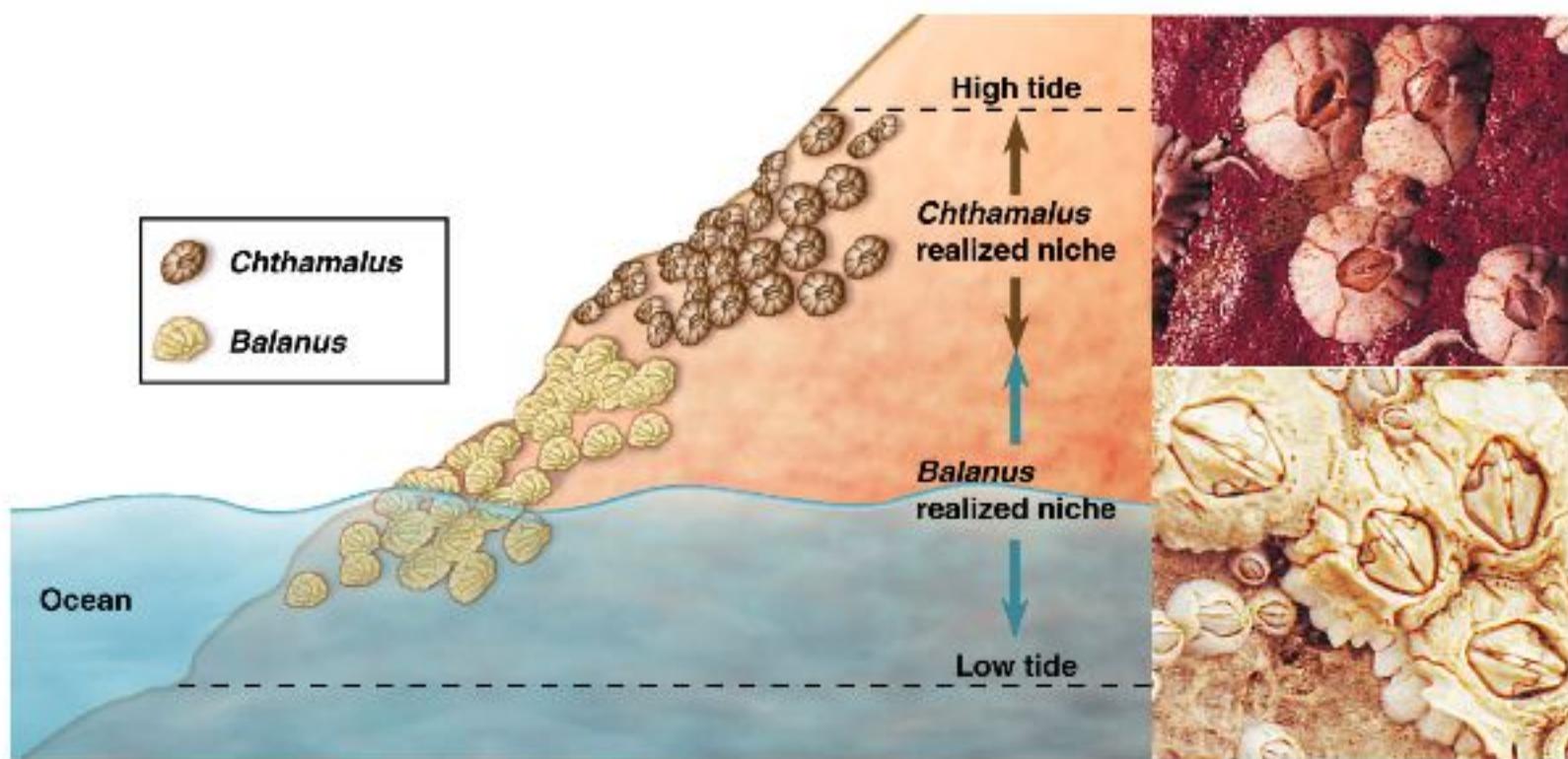
# Terms

- Community- all the organisms acting together in an ecosystem.
- Species diversity
- Dominant species - not always the most abundant
- Response to disturbance
- Trophic structure - feeding relationships

# Terms

- Interspecific competition - the growth of one may inhibit the other
- Carrying capacity
- Competitive exclusion principle - one species out competes the other.

# Competitive exclusion Principle

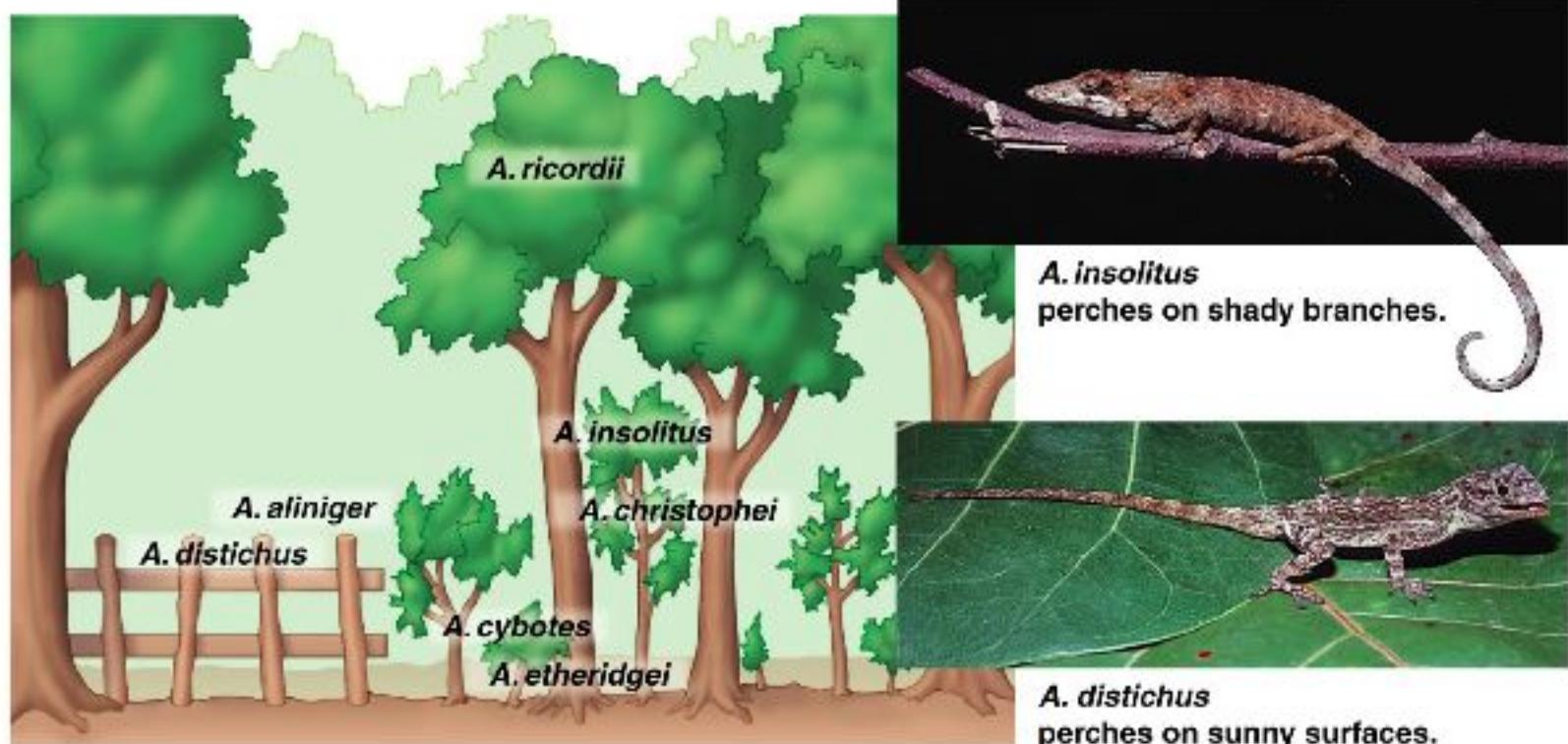


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# Terms

- Niche
- Resource partitioning - similar species co-exist.
- Adaptive radiation

# Resource Partitioning



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# Terms

- Predator
- Prey
- Both have adaptations to ensure survival
- Camouflage
- Mechanical defenses
- Chemical defences
- Mimicry

# Camouflage



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# Chemical defense - brightly colored



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# Batesian mimicry



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# Mullerian mimicry



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# Predators can also use mimicry

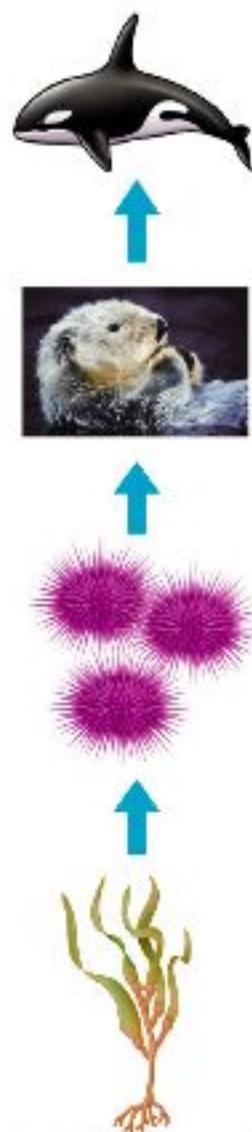
- turtles

# Keystone species



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# Keystone preditor



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# Plants also have defenses

- Chemical toxins
- Thorns and spines
- Chemicals that cause abnormal development.

# Coevolution

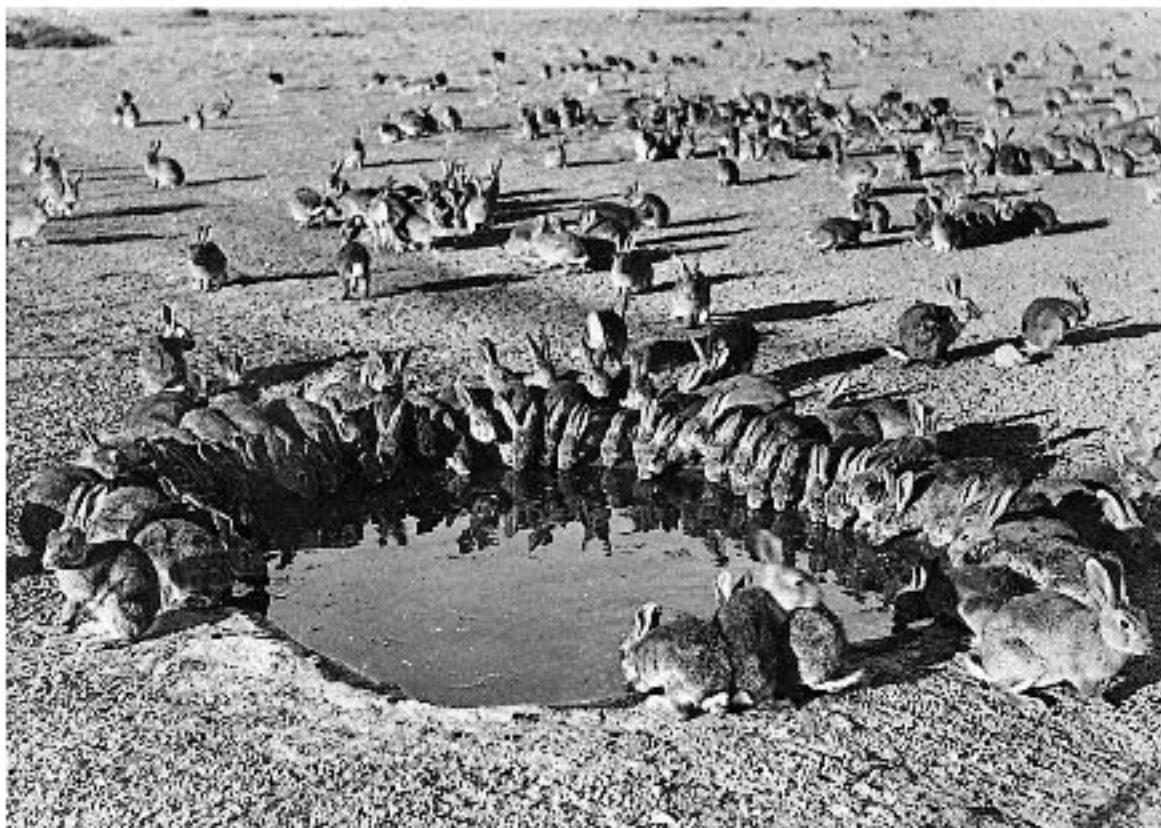


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# terms

- Symbiotic relationship
- Parasitism
- Commensalism
- Mutualism

# Paritism



A massive, dense colony of rabbits filling a flat, open landscape. The rabbits are packed closely together, stretching across the frame. In the foreground, many rabbits are visible, some standing and others sitting or lying down. The background shows more of the same vast, rabbit-filled terrain under a clear sky.

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# Mutalism



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# Terms

- Disturbances
- Ecological succession
- Primary succession
- Secondary succession

# Primary and secondary succession end at the same place



Retreating glacier  
with moraine in the  
foreground



Dryas stage



Spruce starting to appear in the  
alder and cottonwood forest

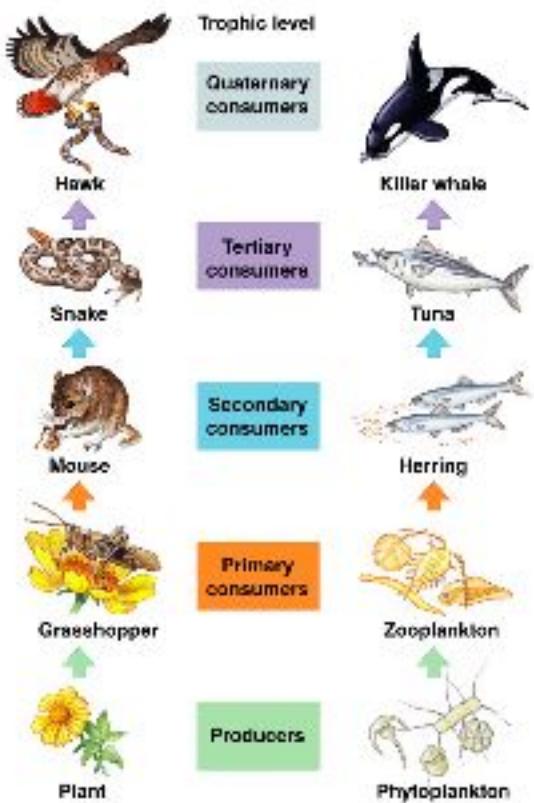


Spruce and hemlock forest

# Terms

- Food chain and food webs
- Producers
- Primary consumers
- Secondary consumers
- Tertiary consumers
- Quaternary consumers
- Detritivores or decomposers

# Food chain

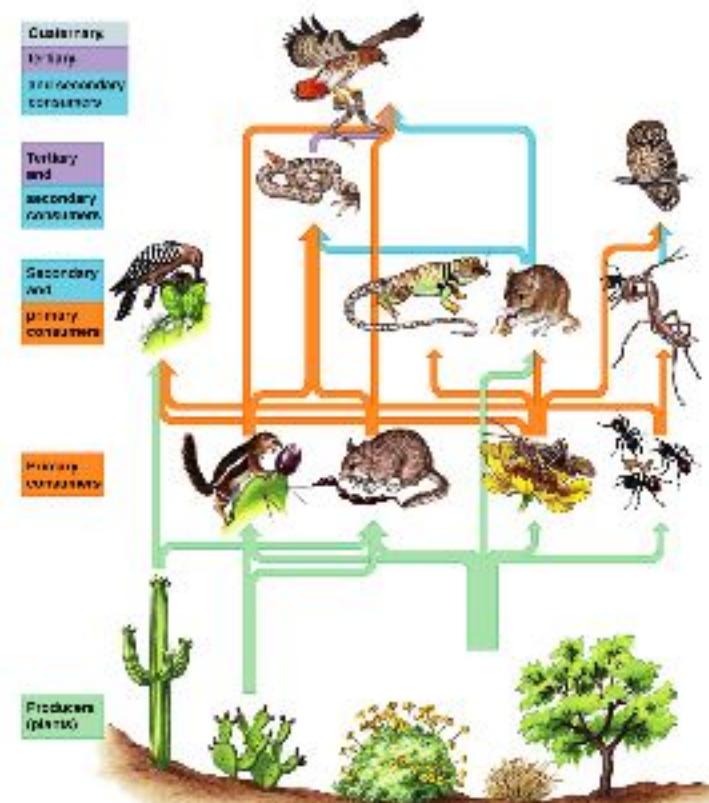


A terrestrial food chain

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An aquatic food chain

# Food web

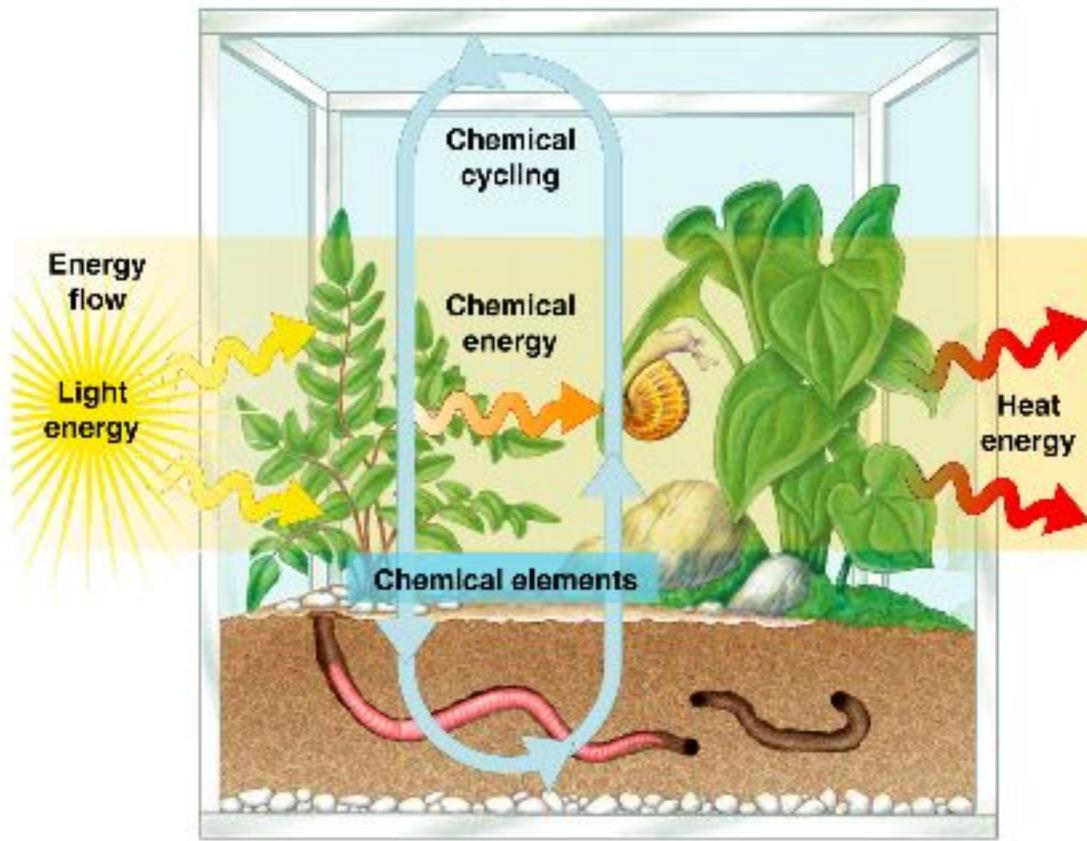


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# Ecosystem

- Biotic
- Abiotic
- Energy flow
- Chemical cycling

# ecosystem

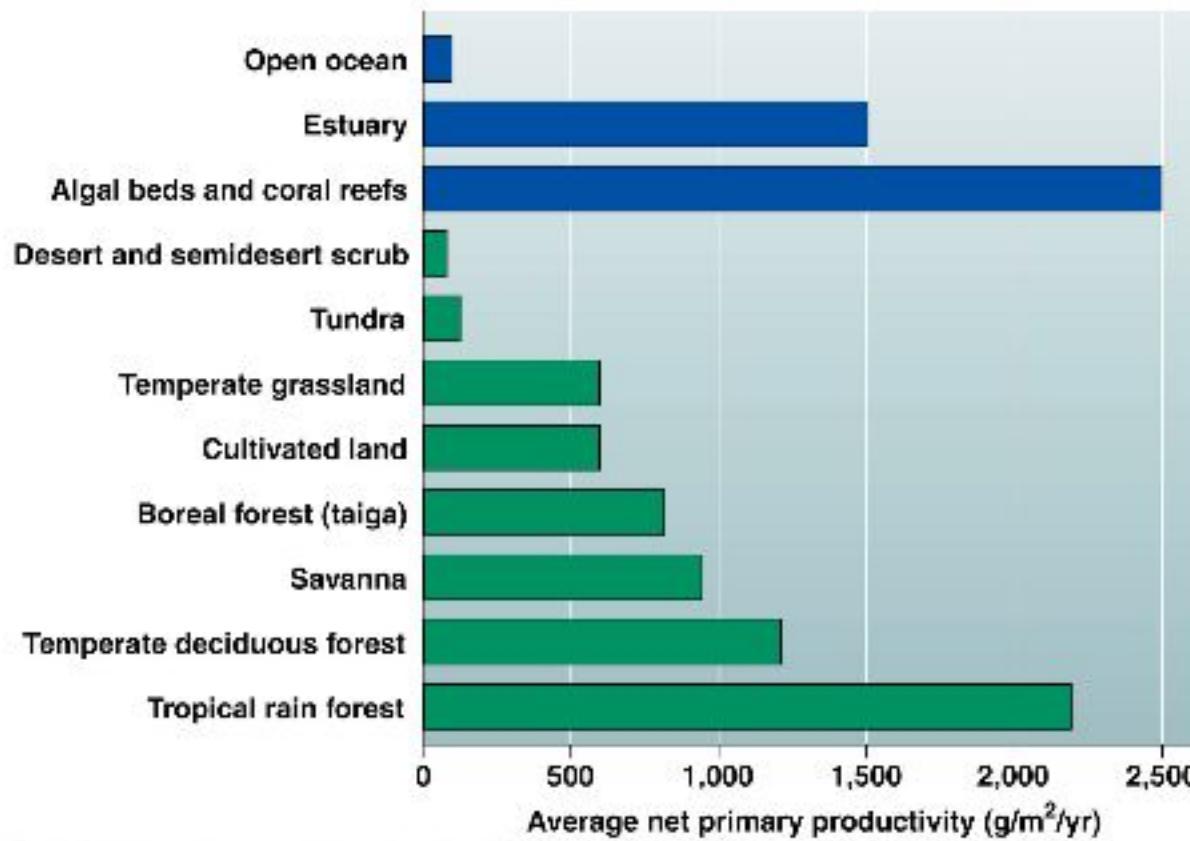


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# Energy budget

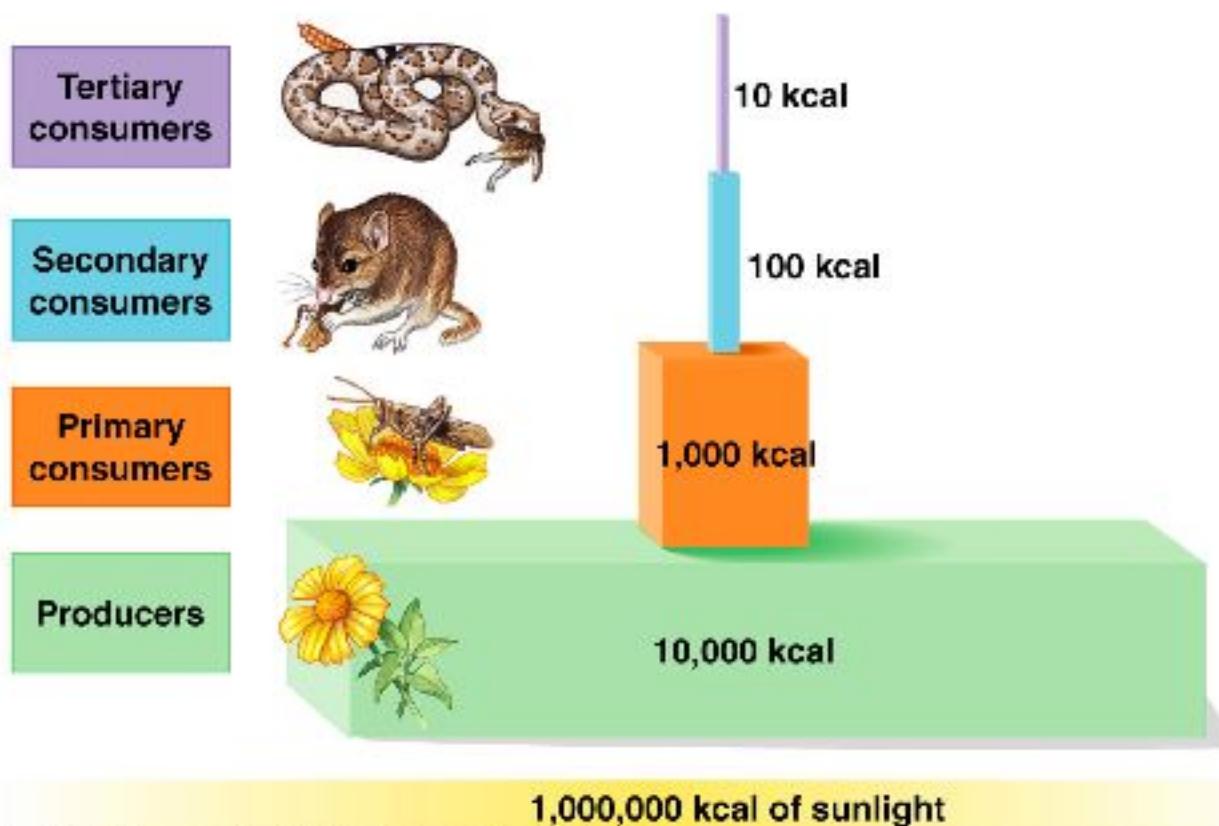
- $10^{19}$  kcals of solar energy hit the planet
- 1% is converted to chemical energy by photosynthesis
- This supports the biomass
- Organisms involved in this process are primary producers.
- Productivity differs greatly with ecosystems.

# Primary productivity



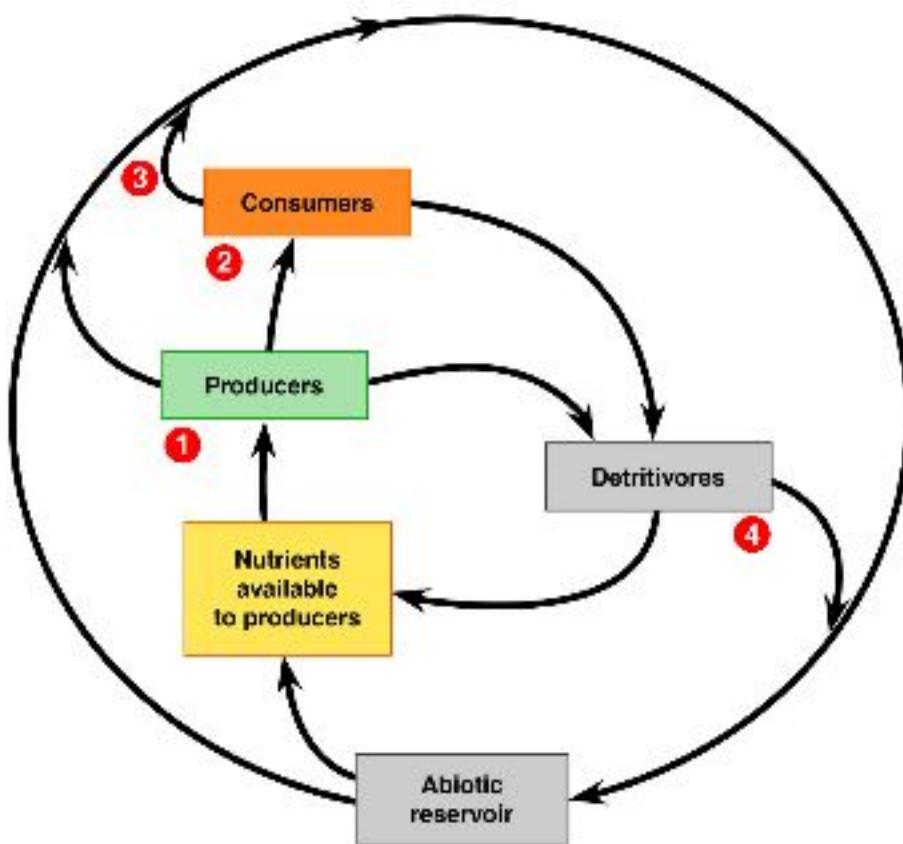
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# Pyramid of production

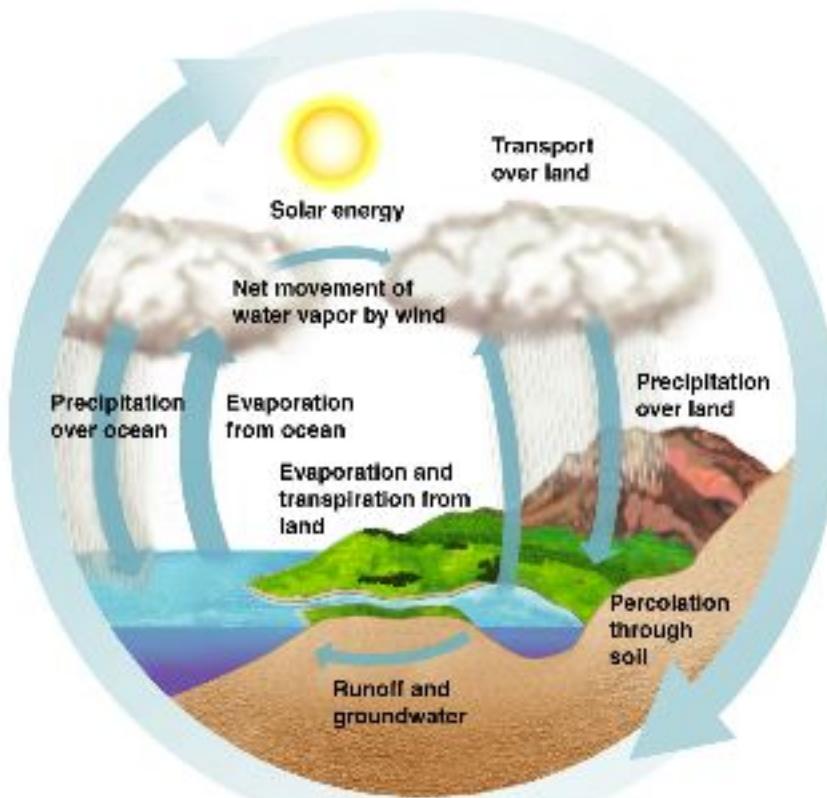


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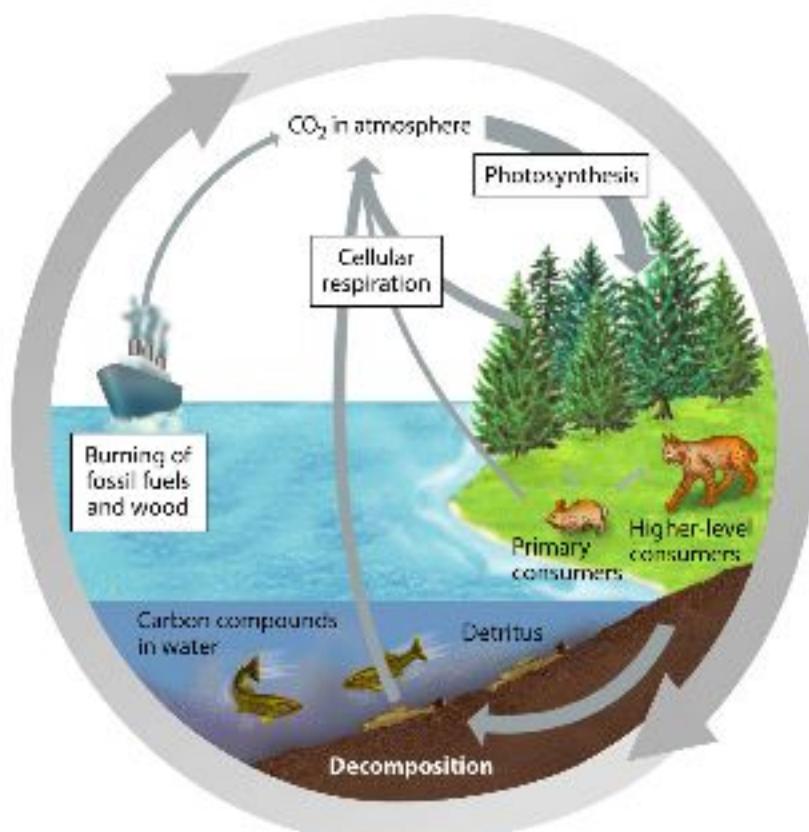
# Cycling of matter



# Cycling of water

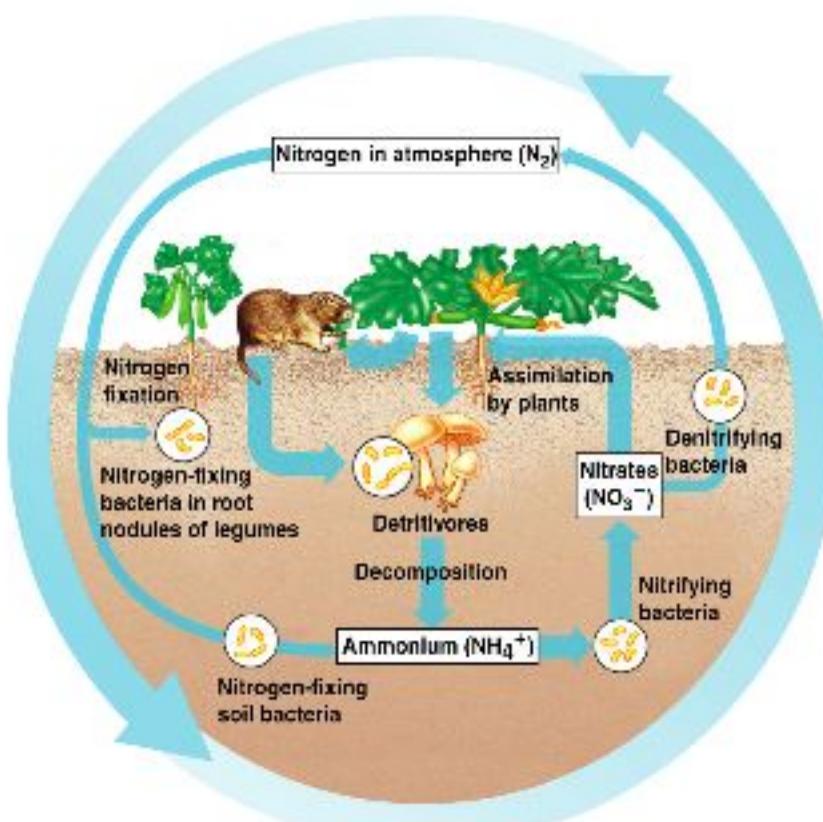


# Carbon cycle

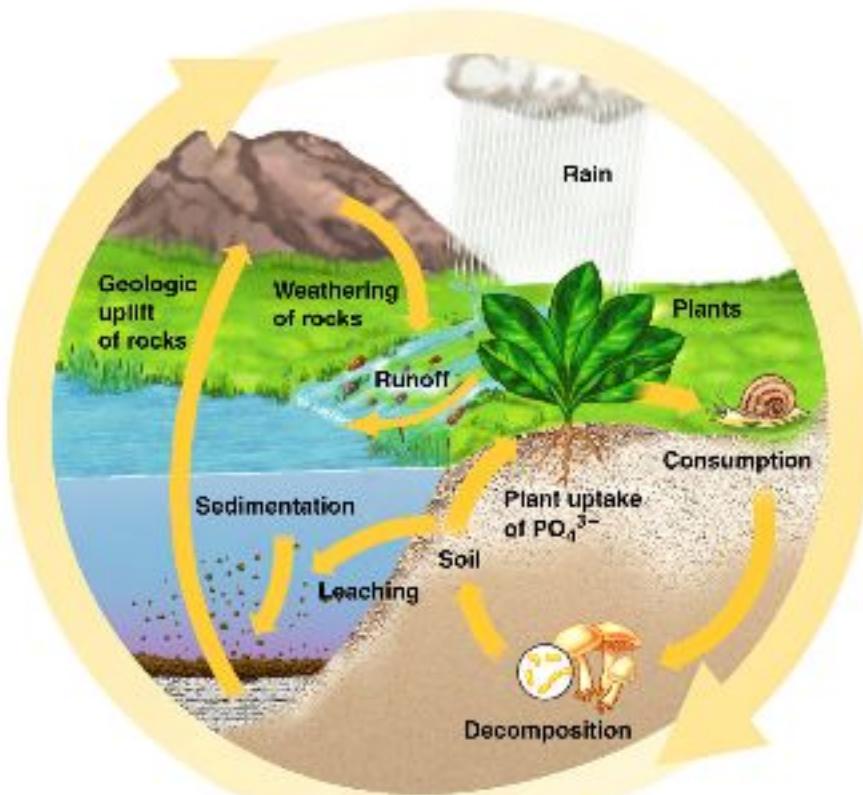


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# Nitrogen cycle



# Phosphorus cycle



# Biodiversity

- Endangered species
- Threatened species
- Loss of biodiversity -- and potential cures
- Loss of wetlands

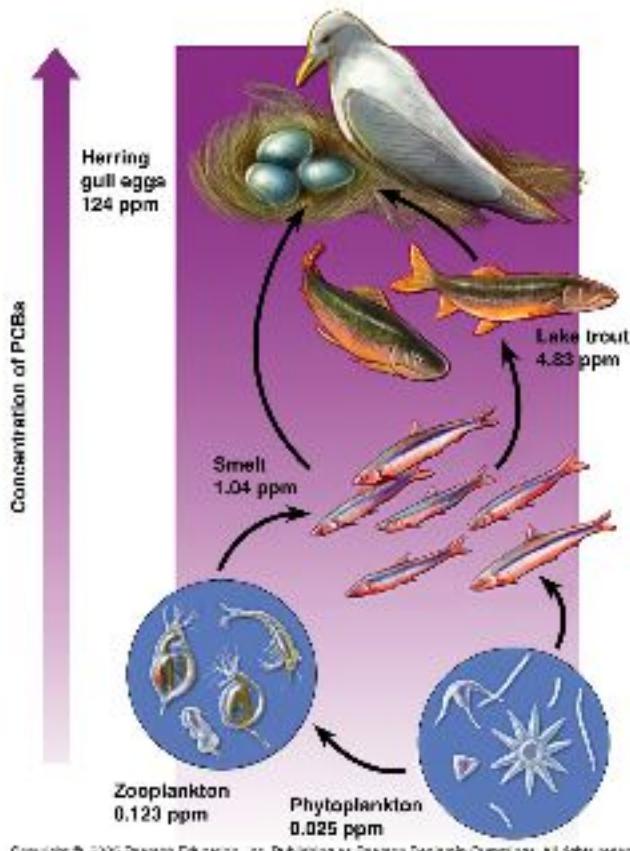
# Threats to biodiversity

- Introduction of new species
- Overexploitation

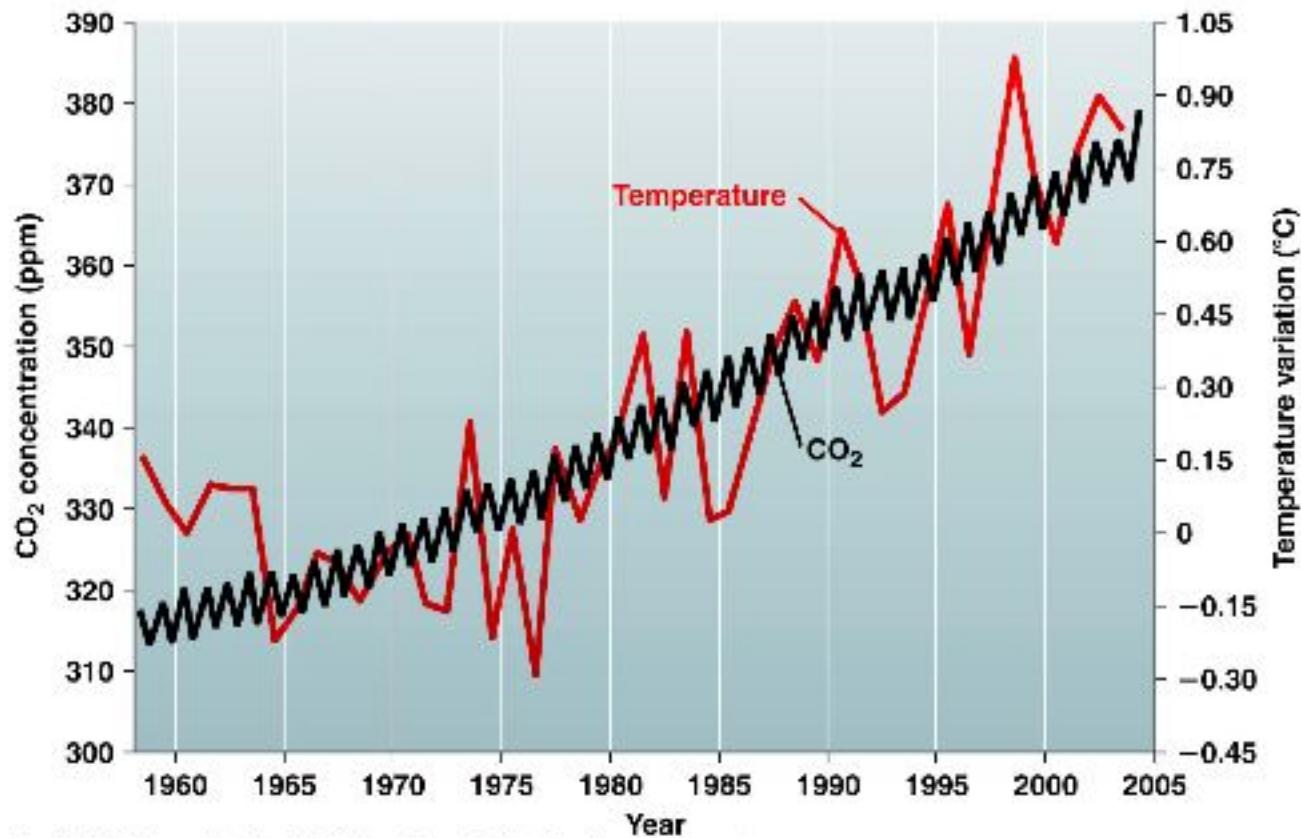
# Pollution in the environment

- Biological magnification

# Biological magnification

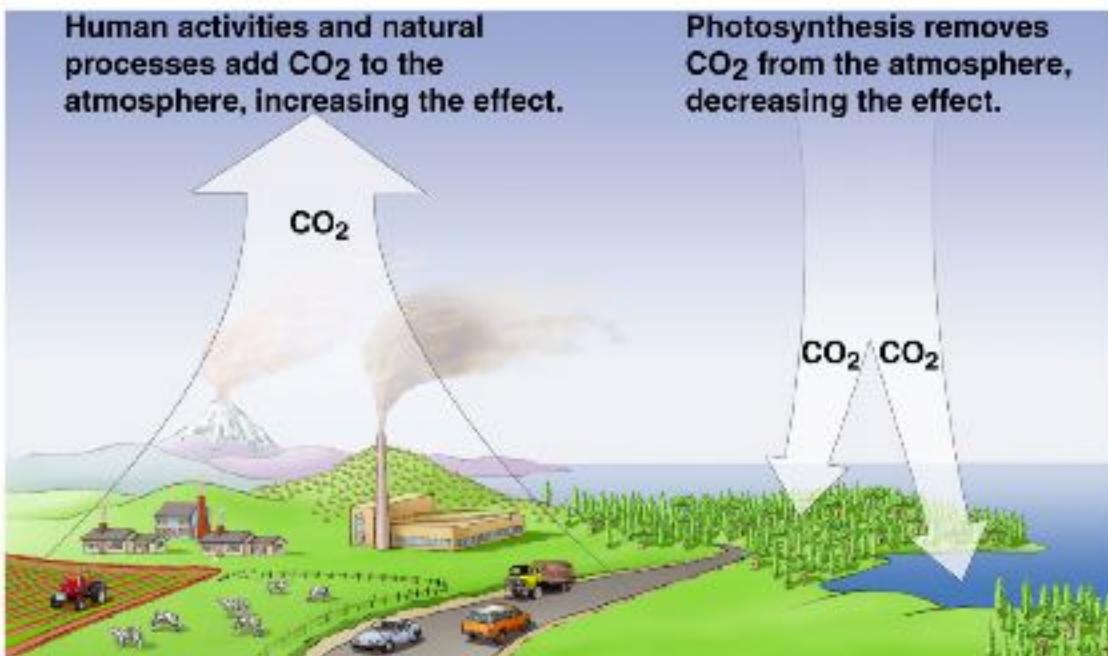
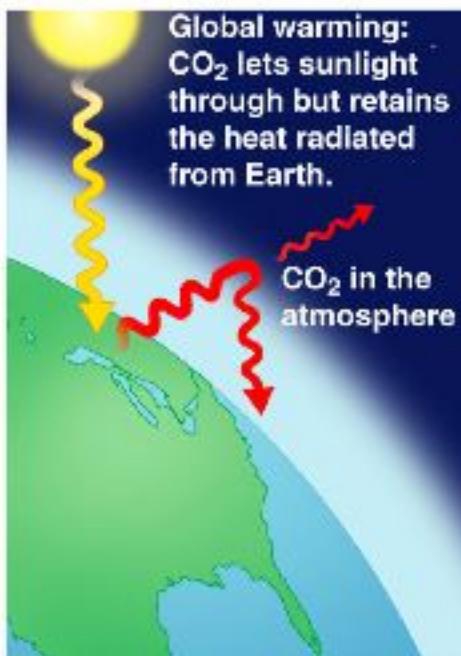


# Global warming



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# Global warming



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# Victim of global warming



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# Small population

- Problems with genetic drift
- Extinction vortex
- Fragmented ecosystems

# Spotted owls fragmented ecosystem



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# Identifying critical habitat factors



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# Ideal habitat



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# Controlled burn to restore habitat



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# Landscape ecology

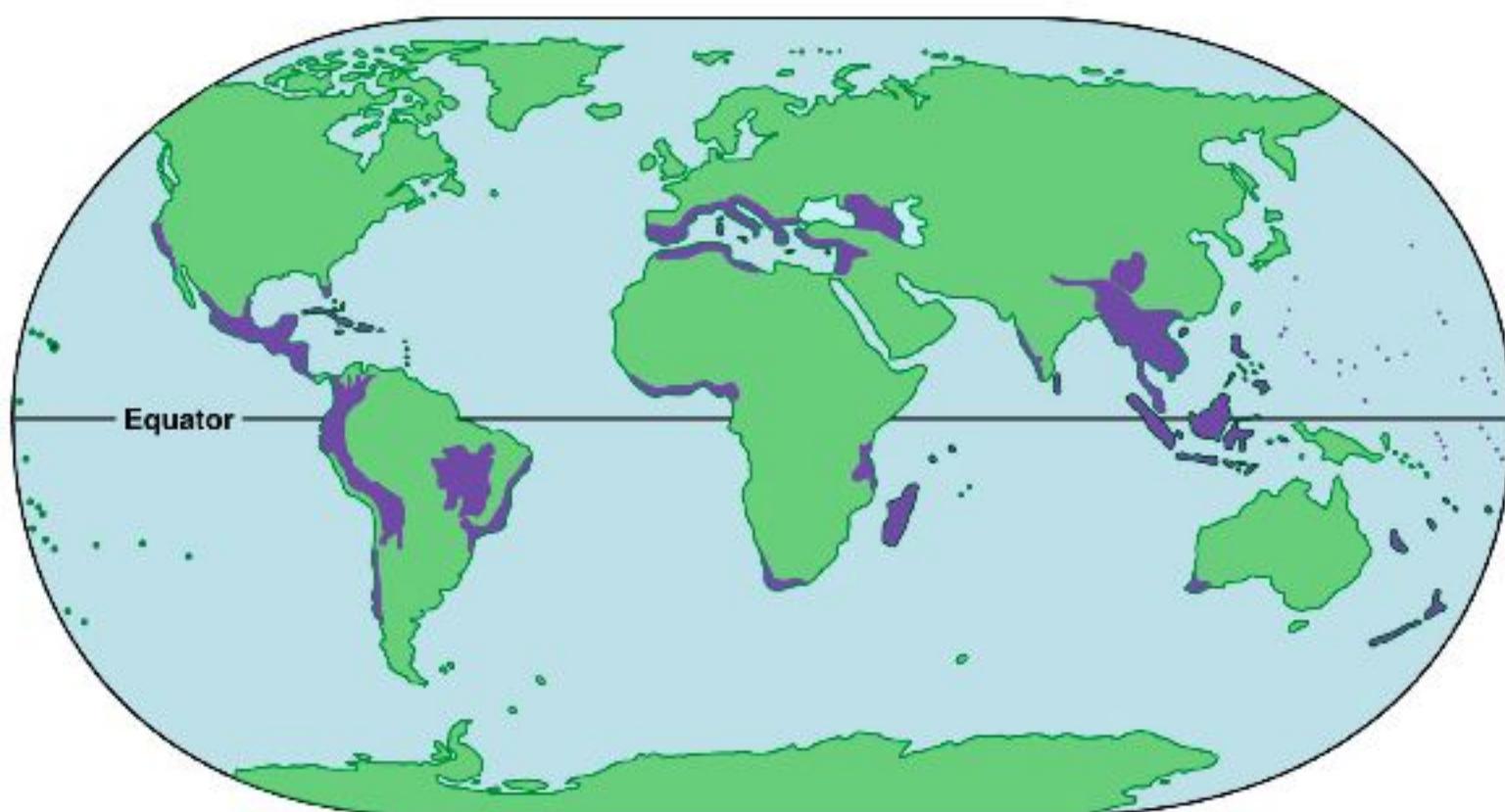


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# Terms

- Biodiversity hotspots
- Endemic species

# Earth's biodiversity hotspots



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# Gray wolf



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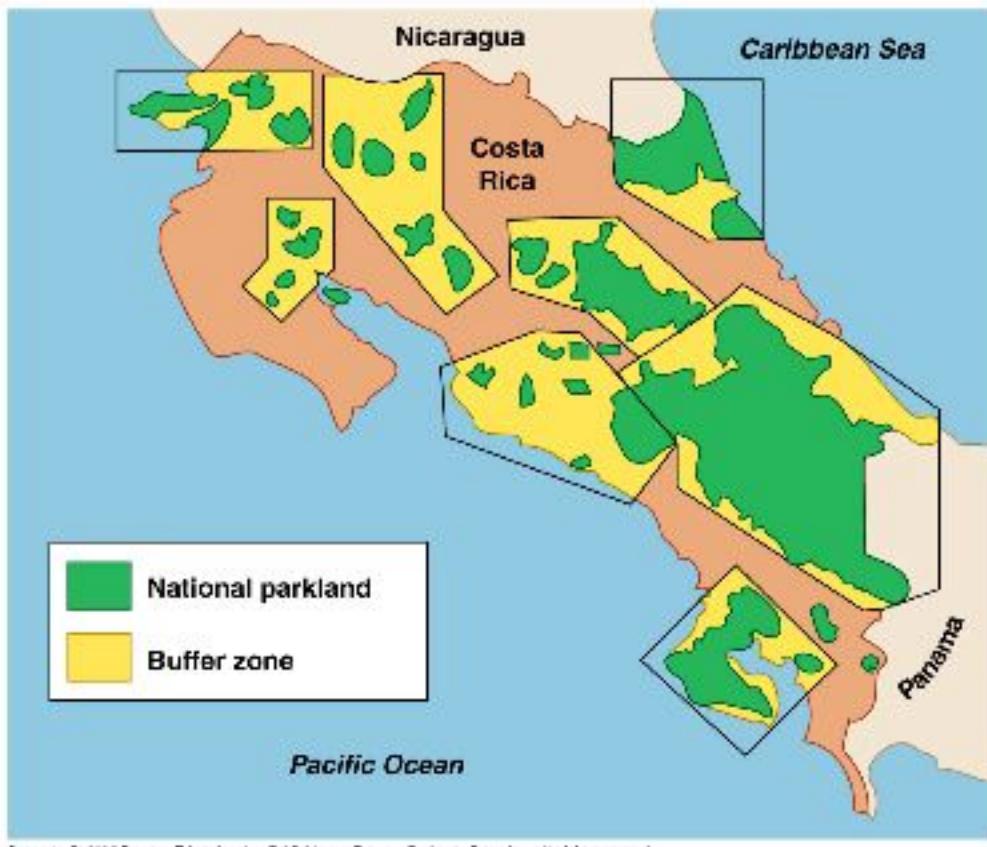
# Y2Y plan



# Terms

- Restoration ecology
- Bioremediation
- Biological augmentation

# Zoned reserves



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