

Intro to Biodiversity

EQ: How does the diversity of life affect our environment?

What is biodiversity?

- × Biodiversity is the variety of life in an area that is determined by the number of different species in that area.
- × Biodiversity increases the stability of an ecosystem and contributes to the health of the biosphere.
- × There are three main components.



1. Genetic Diversity

- × Variations of genes within a species.
- × Lots of distinct populations within a species (lots of varieties of dogs-all from same species)



2. Species diversity

- × number of species in a given area.
 - × It's numbers of species as well as categories of organisms.
 - × An island with 2 bird species and 1 lizard species is more diverse than an island with 3 bird species.



3. Ecosystem diversity

- × Variety of ecosystems within an area.
 - × Wisconsin has about 9 different ecosystems, other states only have about 3, some >14, etc.
 - × Very hard to measure due to overlapping boundary areas also called ecotones.



Ocean meeting a beach



Coniferous Forest meeting a meadow

Within an ecosystem there can be many habitats

- × This is the **physical and chemical** description of where a creature lives...



Habitats might describe:

- × **The name of the place where the creature lives.**
 - × Ex. *arctic canada* is the habitat of the polar bear *ursa maritima*.
- × **The dominant vegetation of the place where the creature lives.**
 - × Ex. *heather* moorland is the habitat of the grouse.
- × **The type of place where the creature lives.**
 - × Ex. species of fish like pike (*esox lucius*) are found in *freshwater lakes and ponds*.

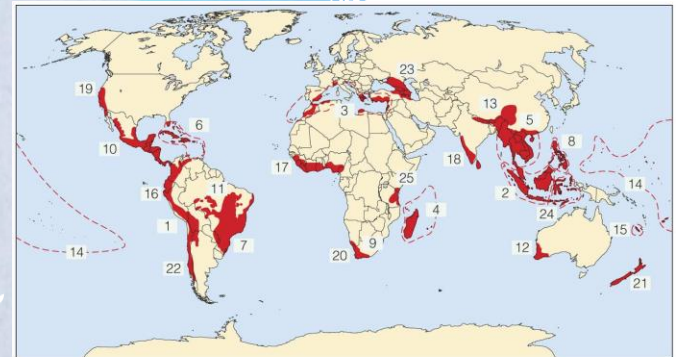


Importance of Biodiversity:

- 1. Maintains soil quality:** healthy bacteria, algae, fungi, mites, millipedes and worms help cycle nutrients
- 2. Maintains air quality:** plants purify the air and filter harmful particles out of the air
- 3. Maintains water quality:** variety of vegetation reduces erosion and purifies water by removing (using or absorbing) nutrients and pollution

Importance Continued ...

4. **Pest control:** most crop pests can be controlled by other organisms for a longer period of time – helpful because many pests become resistant to synthetic pesticides
5. **Pollination and crop production:** More than 1/3 of world's crops rely on healthy pollinators
6. **(Potential) Medicines:** many current and possible future medications found in areas with high biodiversity



Should we be concerned about biodiversity?

What we know:

The Earth is losing species at an alarming rate

- × Some scientists estimate that as many as 3 species per hour are going extinct and 20,000 extinctions occur each year.
- × when species of plants and animals go extinct, many other species are affected.



A human-disturbance map.

