Biodiversity

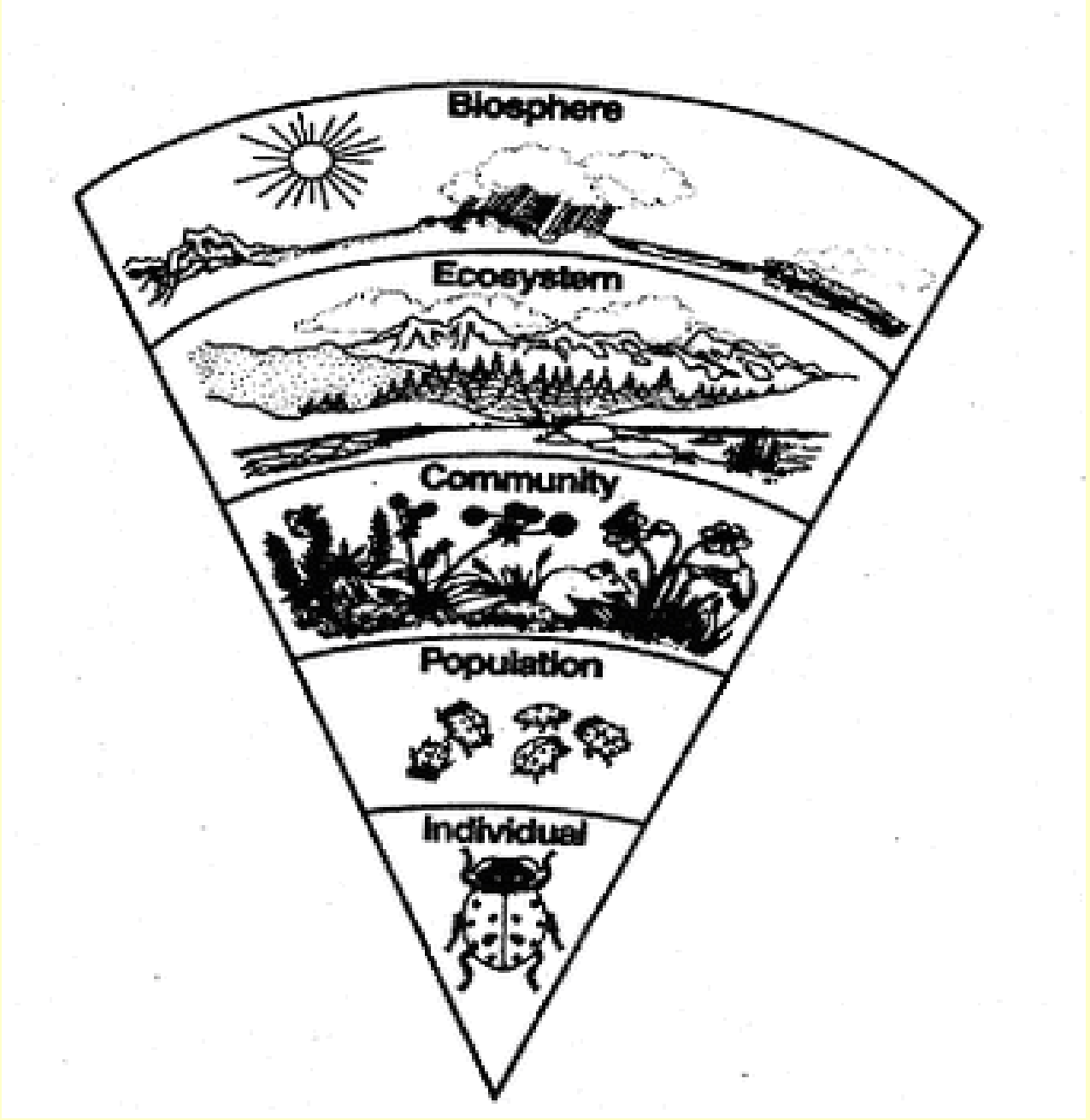
Organization of Earth's environment

- Earth's environment is divided into **Biomes** which are large communities grouped by similar climate and vegetation

- Biomes are divided into smaller communities called ECOSYSTEMS which include a variety of living and non-living components.

Organization of the environment

Level	Organization of Life Zones
Biome (largest)	A group of ecosystems that have the same climate and dominant communities
Ecosystem	collection of all the organisms that live in a particular place, together with their nonliving, or physical, environment
Community	All the different populations that live together in a defined area
Population	A group of individuals that belong to the same species and live in the same area
Species (Smallest)	group of organisms so similar to one another that they can breed and produce fertile offspring


Biosphere
Ecosystem
Community
Population
Individual

the variety of life within ecosystems, natural communities, and habitats.

Ecosystem Influence: Factors that impact biodiversity

- Biodiversity is influenced by a combination of living and non-living factors

- **Abiotic Factors = nonliving** parts of an organism's ecosystem

  Examples: air currents, temperature, moisture, light, and soil

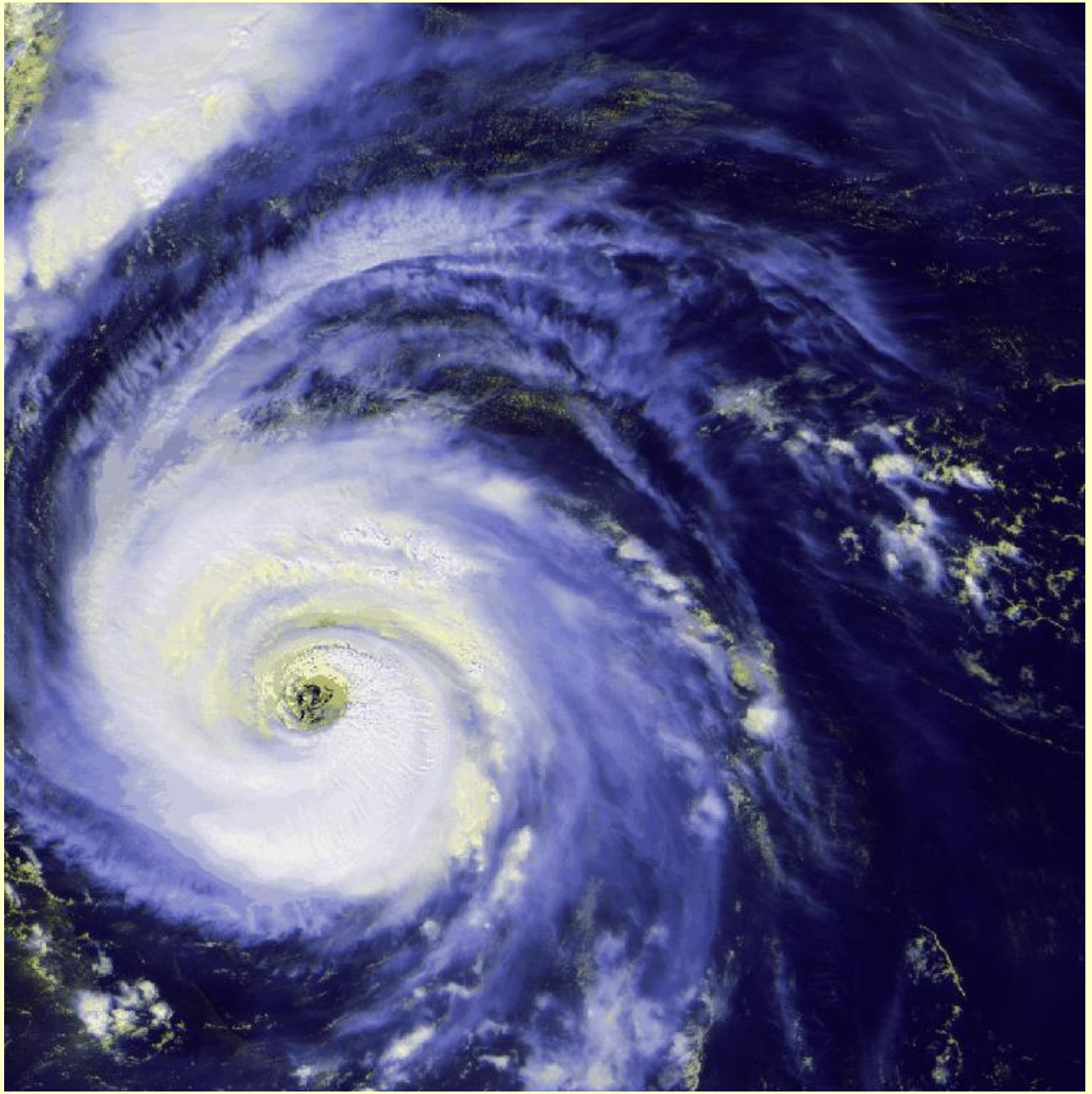
- **Biotic factors= all living** organisms that inhabit an ecosystem

  Examples: birds, trees, mushrooms, and bacteria

- All organisms depend on others directly or indirectly for food, shelter, reproduction, or protection.

Abiotic or Biotic?

Abiotic or Biotic?

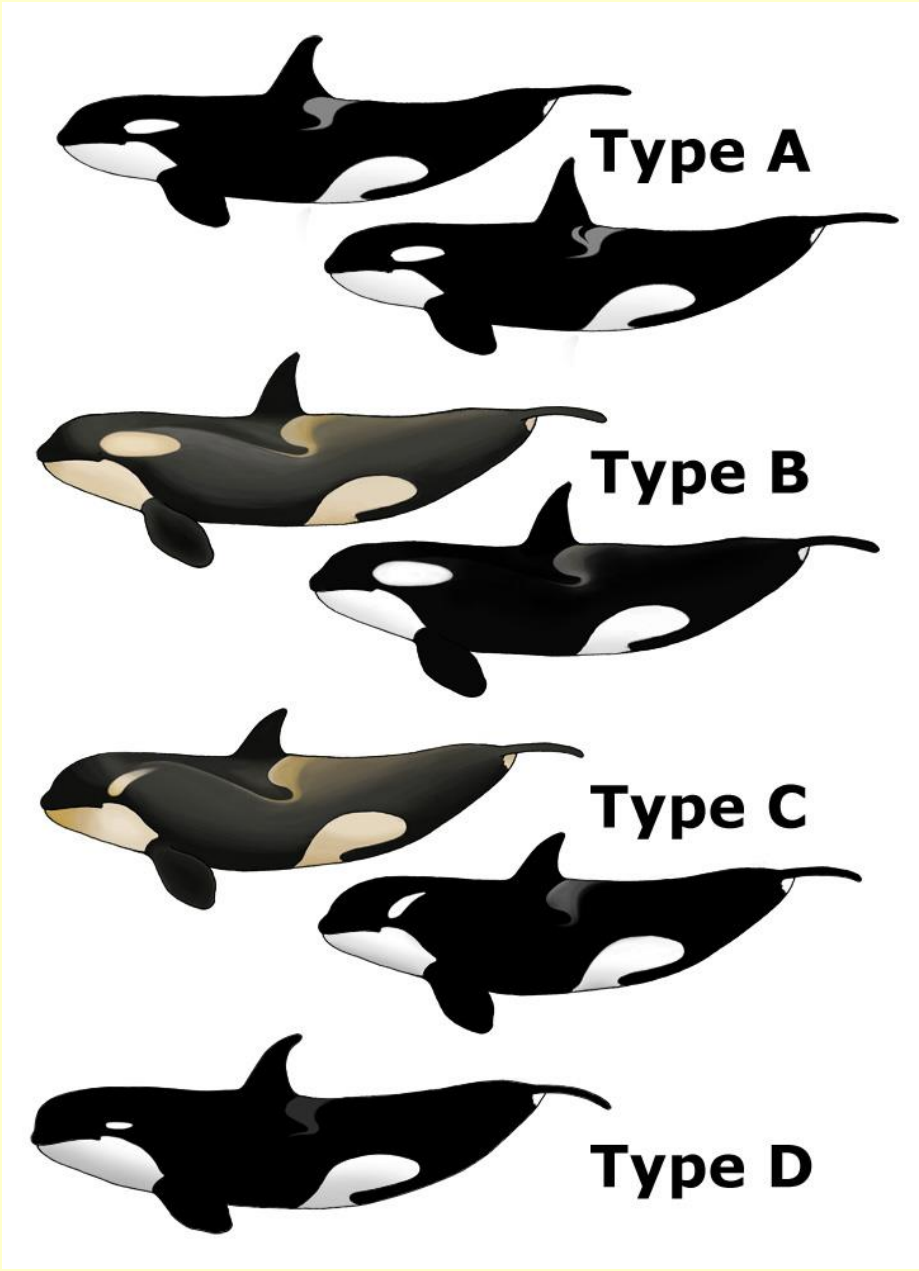


Abiotic or Biotic?

Abiotic or Biotic?

Genetic Variation

- Biodiversity also includes:
  - *Genetic variation* within populations
  - *Population variation* within ecosystems
    - Example: Different populations of Orcas (Killer Whales)



Causes of genetic variation

- Reproduction increases genetic variation within populations.

- **How?** Reproduction allows an organism to combine half of its genes with half of another individual's genes.
- This means that genetic material is recombined in ways that produce new sets of genes with every new generation.

Causes of population variation

- Genetic variation within a species increases the ability for a species to change with each generation and **eventually create various populations.**

Global impact of loss of biodiversity.

- Biologically diverse ecosystems are healthy 
- Less biologically diverse ecosystems are “sick” 
- **High extinction rates reduce nature's ability to provide goods and services like food, medicine, clean water, and a stable climate.**
- Humans destroy biodiversity through to habitat destruction, overharvesting of fish, trees, and other natural resources