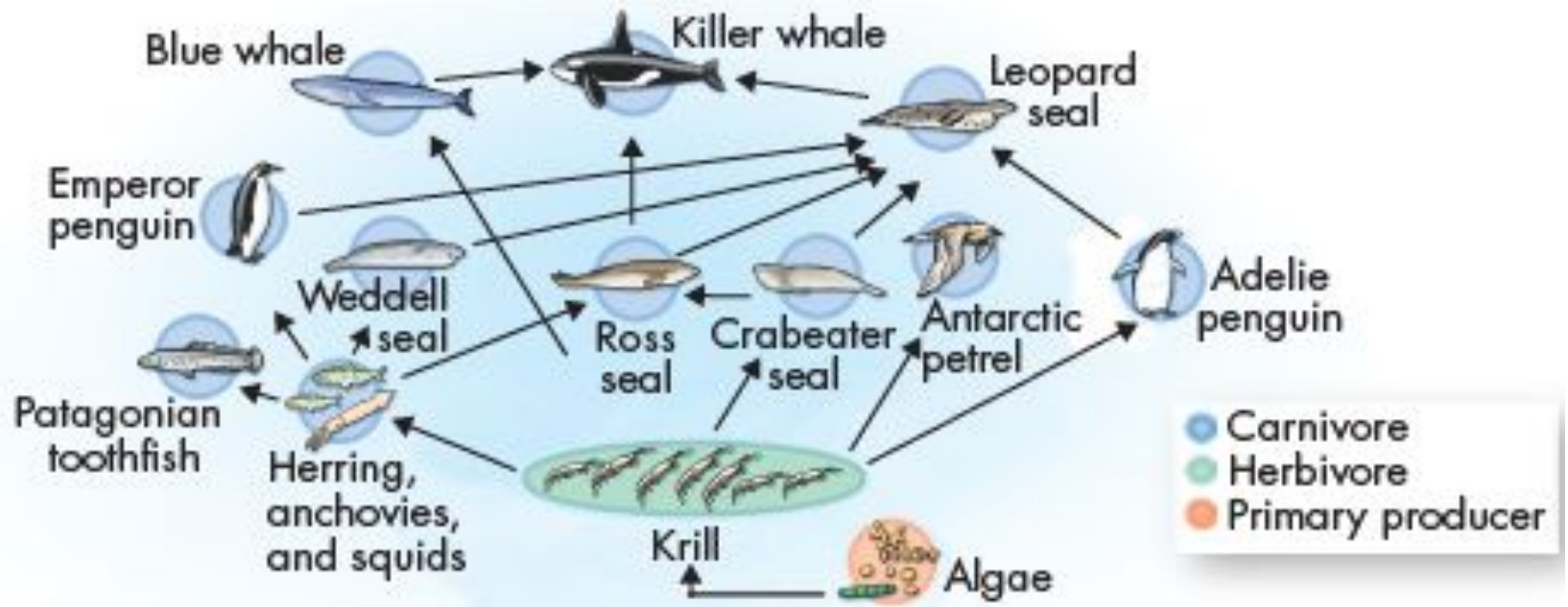


What Is Ecology?

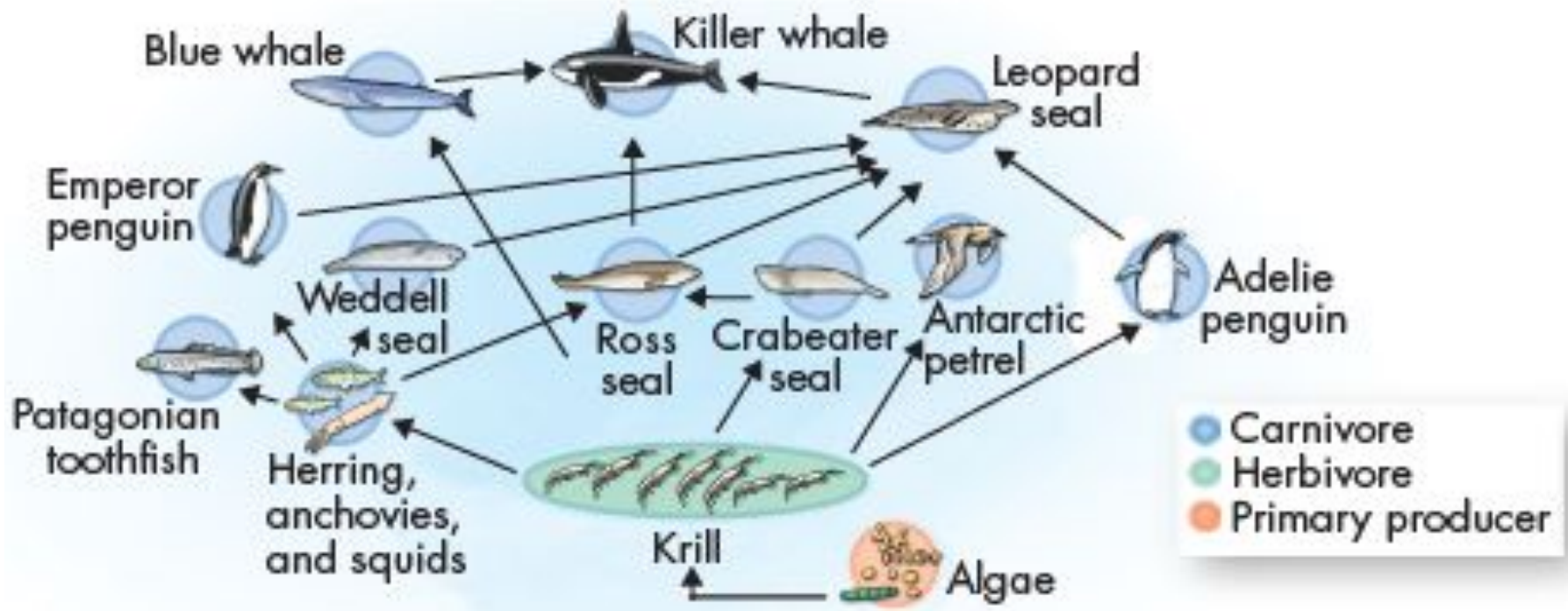
The Science of Ecology

• **Ecology** is the scientific study of interactions among and between organisms and their physical environment.



The Science of Ecology

- Organisms **respond to their environments** and **can change their environments**, producing an ever-changing biosphere.



Levels of Organization

Ecologists study many different levels of ecological organization:



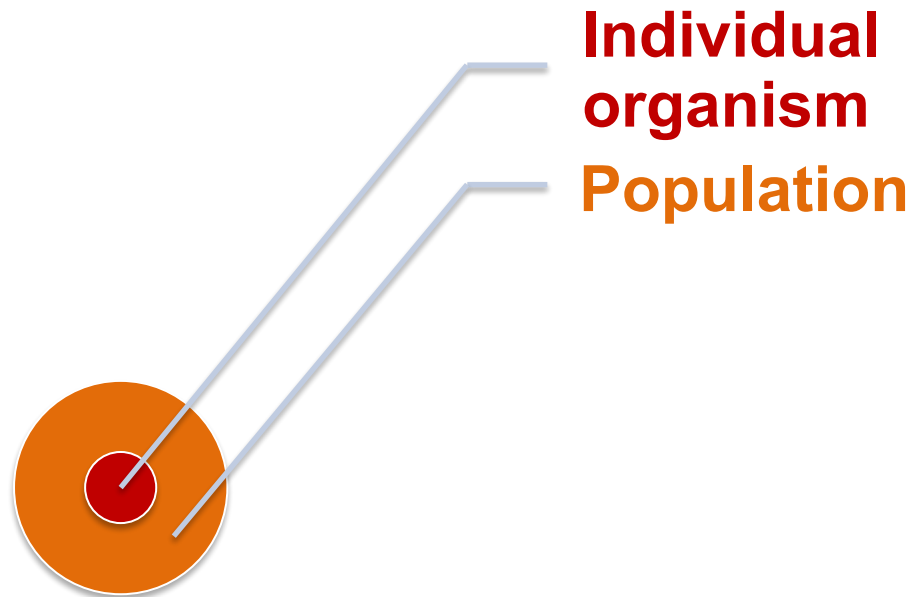
Levels of Organization

- Individual Organism - **lowest level of organization**



Levels of Organization

Ecologists study many different levels of ecological organization:



Levels of Organization

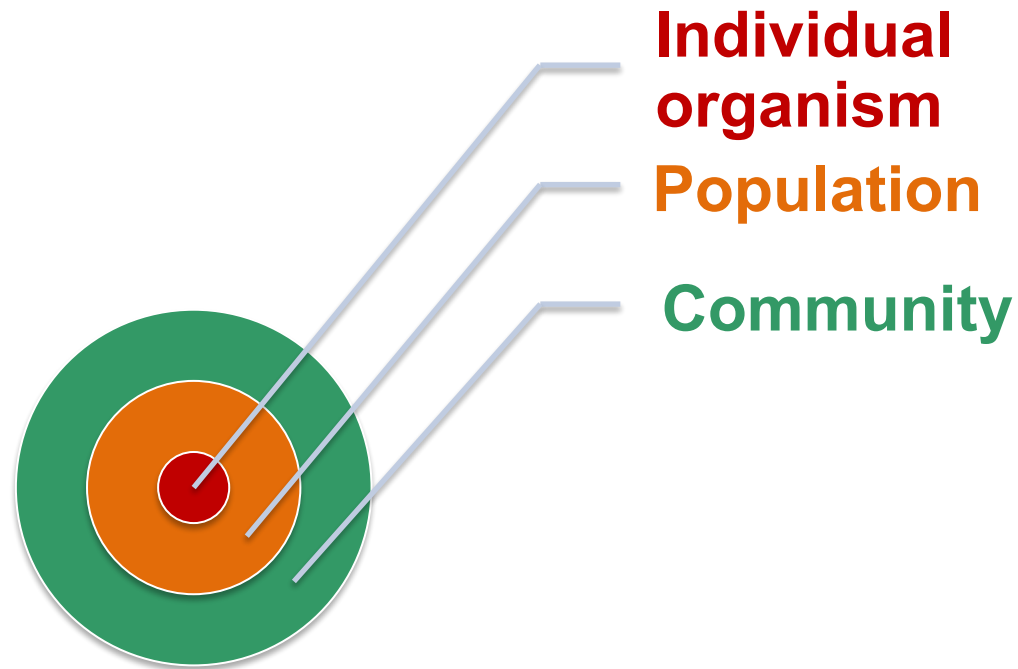
- Population - a group of individuals that belong to the same species and live in the same area



- Species - is a group of similar organisms that can breed and produce fertile offspring

Levels of Organization

Ecologists study many different levels of ecological organization:



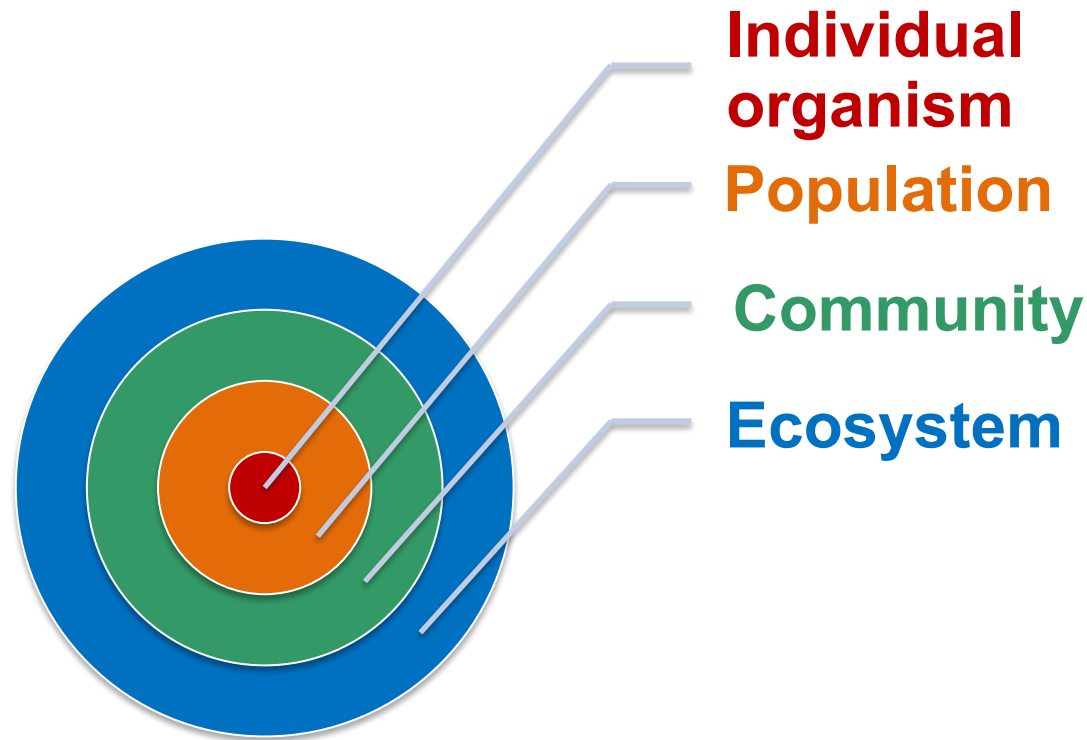
Levels of Organization

- **Community - an assemblage of different populations that live together in a defined area**



Levels of Organization

Ecologists study many different levels of ecological organization:



Levels of Organization

- **Ecosystem - all the organisms that live in a place, together with their physical environment**



Influence of Biotic and Abiotic Factors on Ecosystems

- Ecosystems include both **biotic** and **abiotic** factors.
- The **biological influences** on organisms in an ecosystem are called biotic factors.
- The **physical components** of an ecosystem are called abiotic factors.
- A dynamic mix of biotic and abiotic factors **shapes every ecosystem.**

Biotic Factors

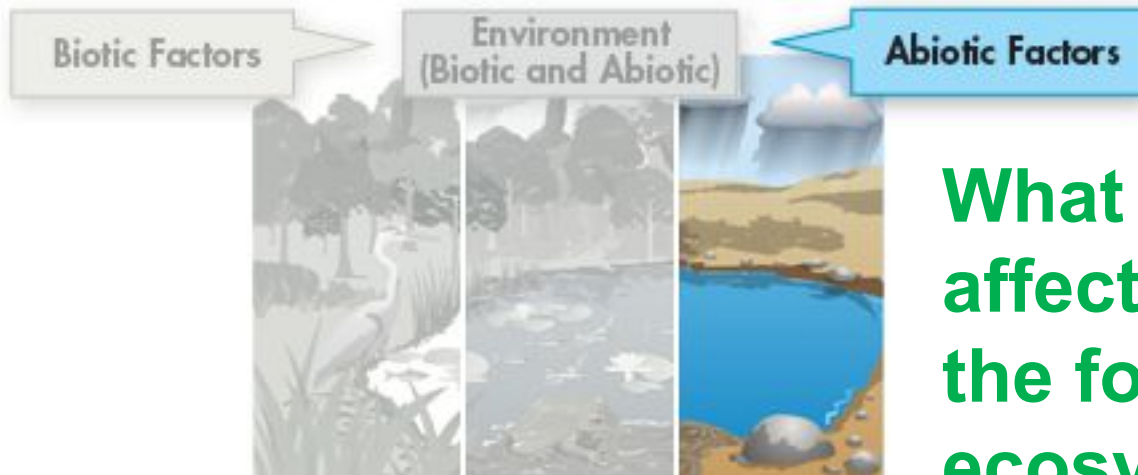
- A biotic factor is any living part of the environment with which an organism might interact
- Examples: animals, plants, mushrooms, bacteria

What biotic factors affect a bullfrog in the following ecosystem?



Abiotic Factors

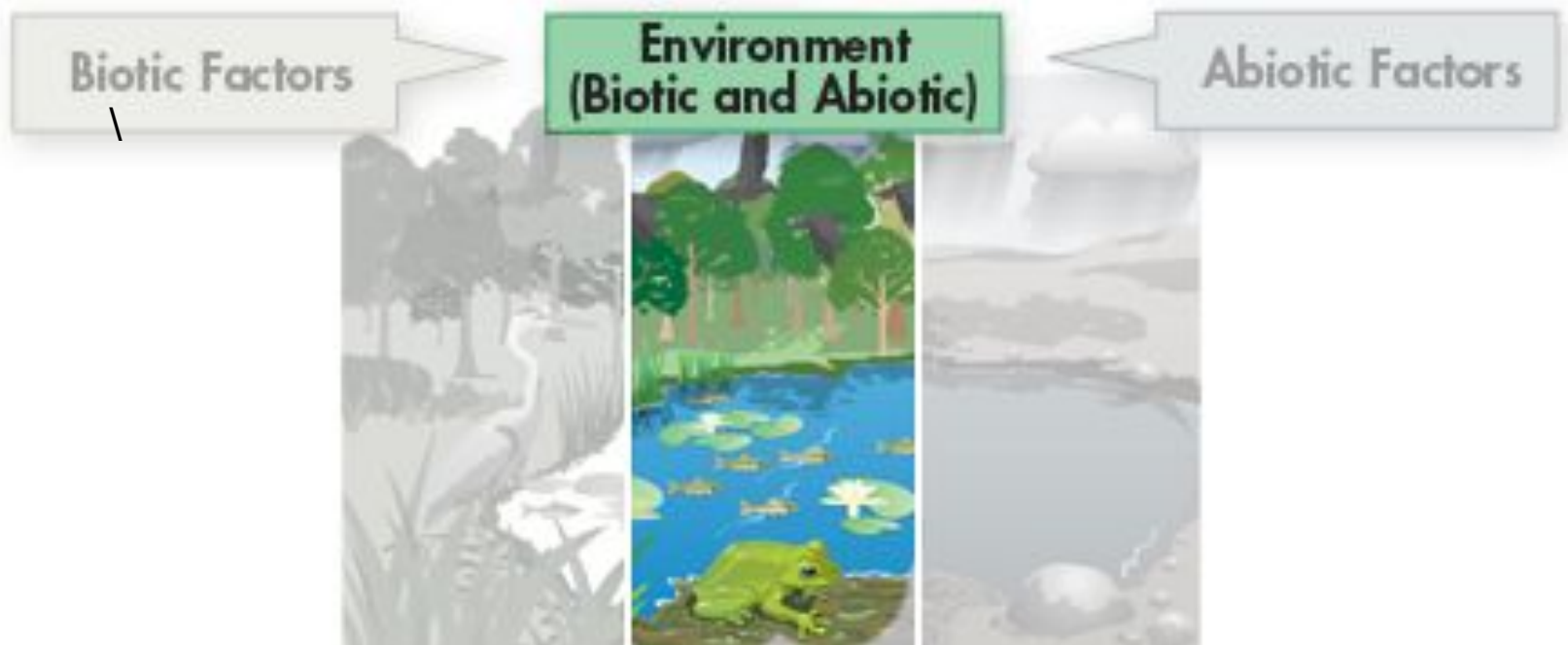
- An abiotic factor is any nonliving part of the environment
- Examples: sunlight, heat, precipitation, humidity, wind or water currents, soil type



What abiotic factors affect a bullfrog in the following ecosystem?

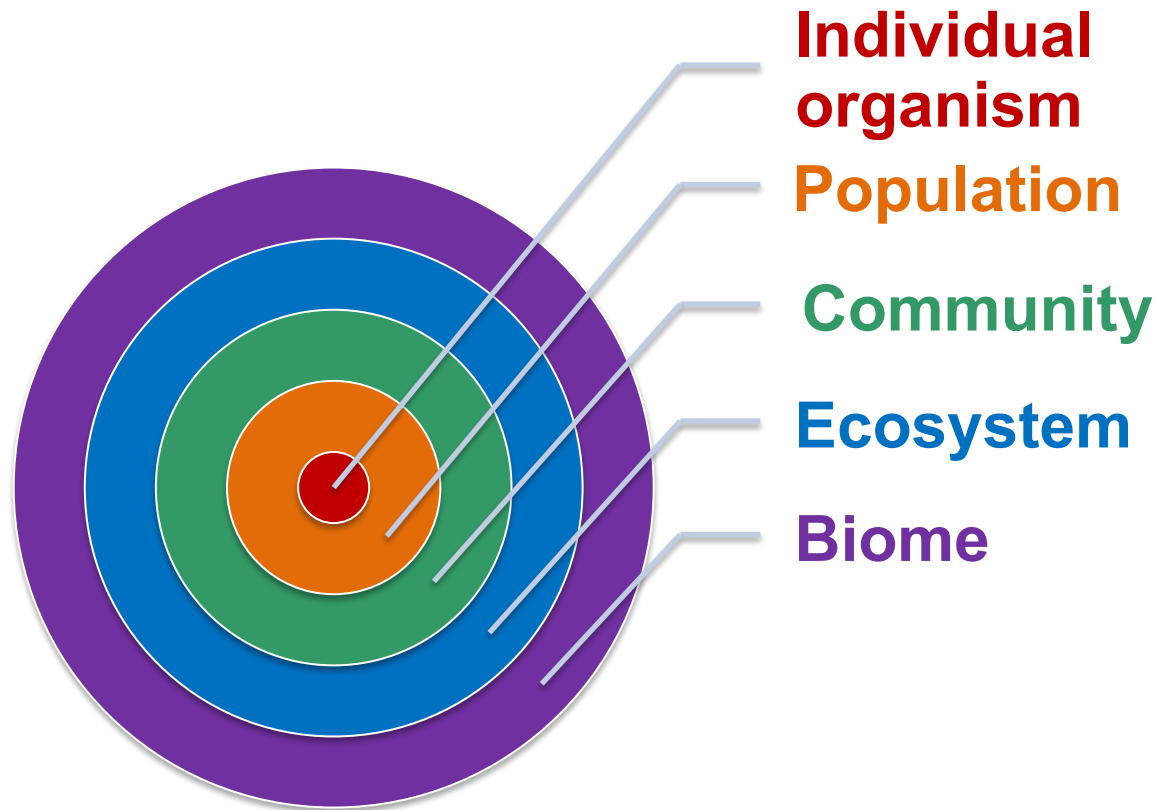
Biotic and Abiotic Factors Together

- The difference between abiotic and biotic factors is not always clear. Abiotic factors can be influenced by the activities of organisms and vice versa.



Levels of Organization

Ecologists study many different levels of ecological organization:



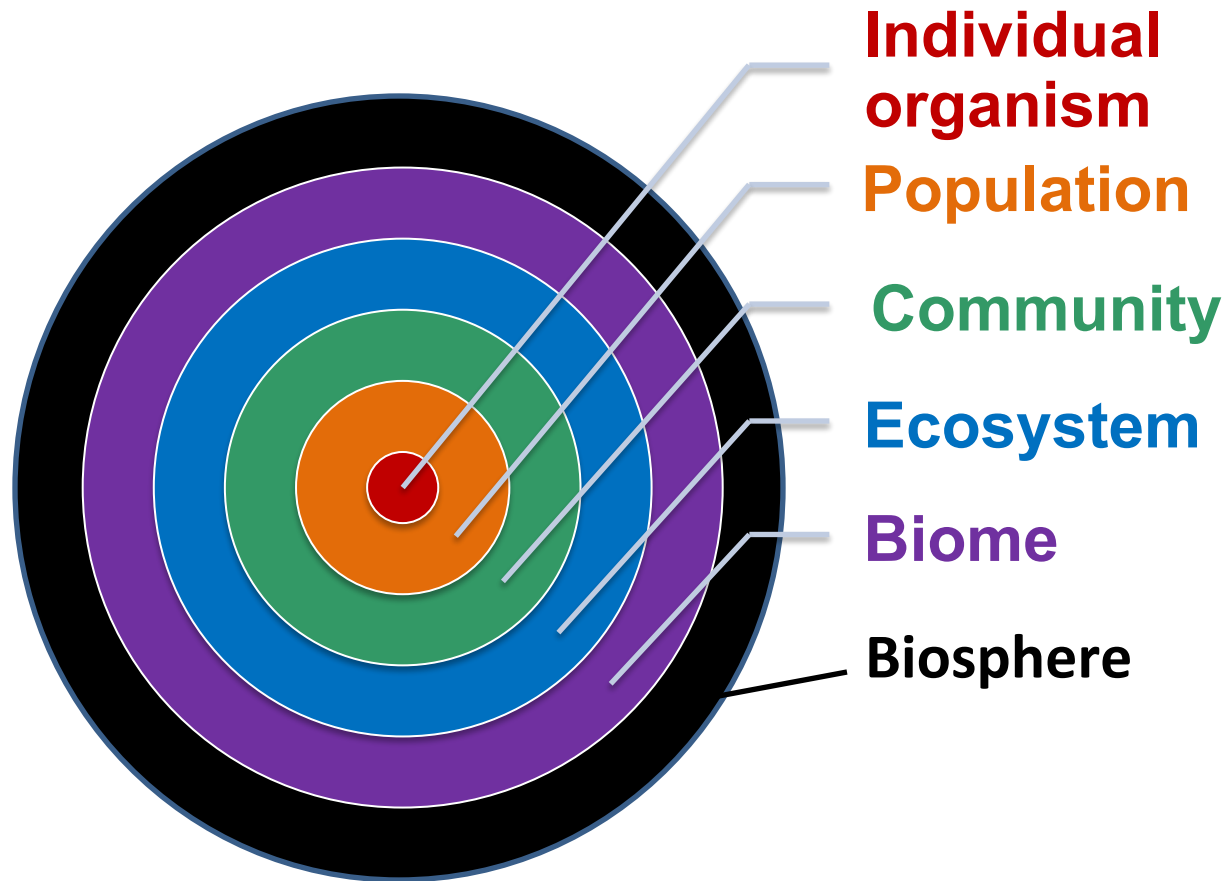
Levels of Organization

- **Biome - a group of ecosystems that share similar climates and typical organisms**



Levels of Organization

Ecologists study many different levels of ecological organization:



Levels of Organization

- **Biosphere - our entire planet, with all its organisms and physical environments**



EXIT SLIP