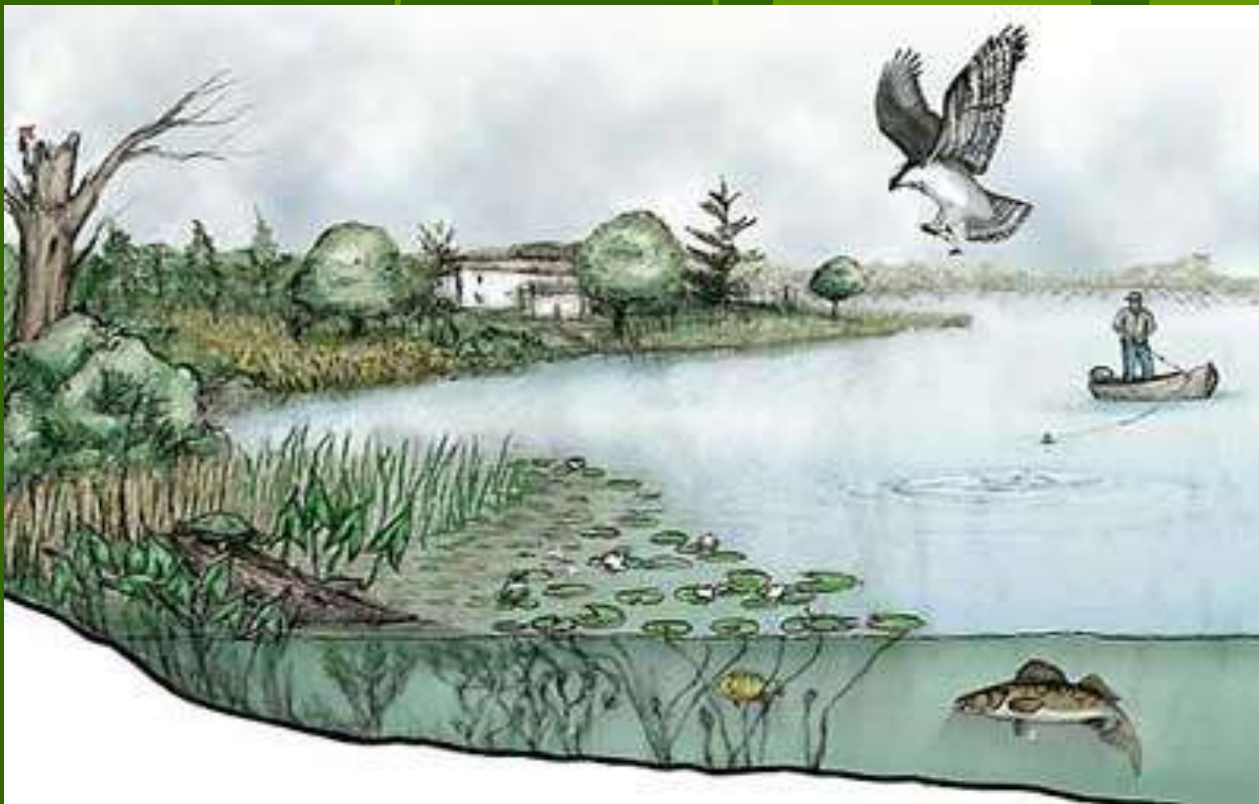


Interactions Within Ecosystems



<http://www.kidsgeo.com/images/ecosystem.jpg>

Groups of living things interact within ecosystems

- The environment can be organized into five levels
 1. **Biome** : region with similar climate, types of plants, and animals
 2. **Ecosystem**: The living and non-living things that interact in one environment.
 3. **Community**: The living organisms of an ecosystem
 4. **Population**: A group of organisms of the same species that live in the same area.
 5. **Organism**: A single living thing, made up of one or many cells, that is capable of growing and reproducing.

Organisms Interact in Different Ways

- Organisms may **cooperate**, **compete**, or **depend on each other** for survival
- Predator and Prey relationships
 - **Predators** can **affect** how the prey populations are distributed (fish in large groups)
 - **Prey** can **affect** the location and number in predator populations (birds feeding on insects migrate to the areas where the insects are plentiful)

Organisms Interact in Different Ways

● Competition

- Competition is the struggle between individuals or different populations for a limited resource



○ Competition can happen with the same species (plants compete for light, space, and nutrients)

○ Competition between different species (hyenas and vultures compete for remains of dead animals)



<http://www.duiops.net/seresvivos/galeria/hienas/hyena-and-whitebacked-vultures-01301147b.jpg>

Organisms Interact in Different Ways

- Cooperation
- Some organisms work together to benefit each other
 - Killer whales hunt in pods (groups)
 - Ants, bees, and termites (members of a colony have different roles and responsibilities...queen bee, worker bees, etc.)



http://www.apitherapy.com.au/contents/media/l_bee%20pollen%20dw.jpg

Survival of One Species Might Depend on Another Species

- Symbiosis: two different species who live together in a close relationship
 - Both species benefit
 - One species benefits while the other is not affected
 - One species benefits while the other is harmed

Types of Symbiosis

- Mutualism: Two species interacting with each other that benefits both species. (bees and flowers)



http://www.physicalgeography.net/fundamentals/images/bee_flower.jpg

Types of Symbiosis

- Commensalism: two species interacting with each other with one species benefiting and the other unaffected. (jellyfish and fish)



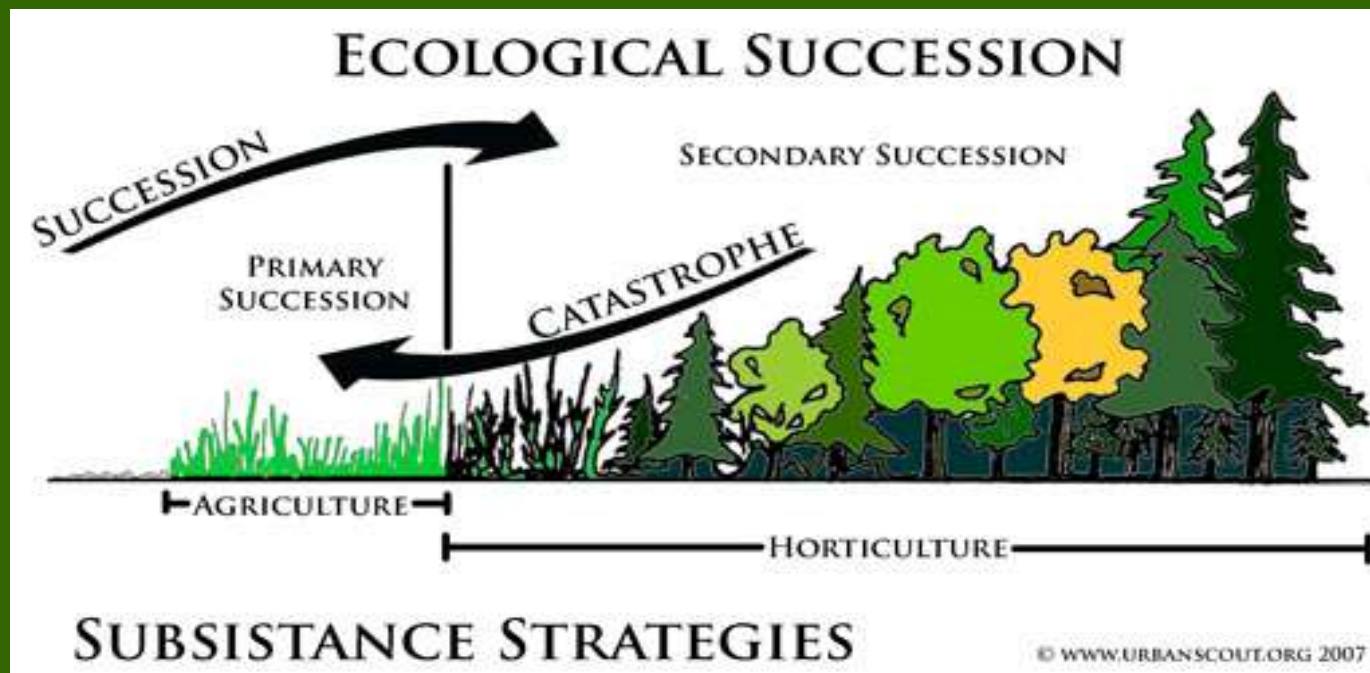
Types of Symbiosis

- Parasitism: two species interacting while one species benefits and the host species is harmed
- Examples of human parasites.



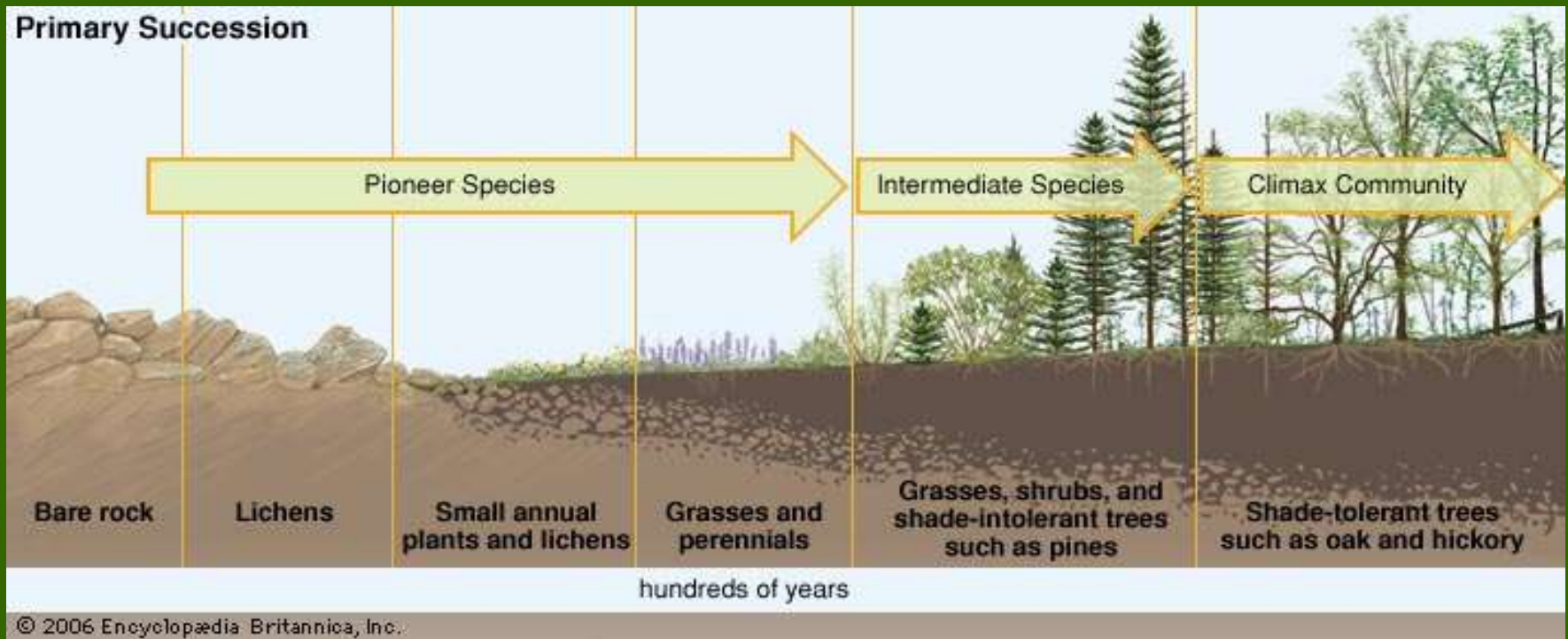
Ecosystems change over time

- Succession: the gradual change in an ecosystem in which one biological community is replaced by another.



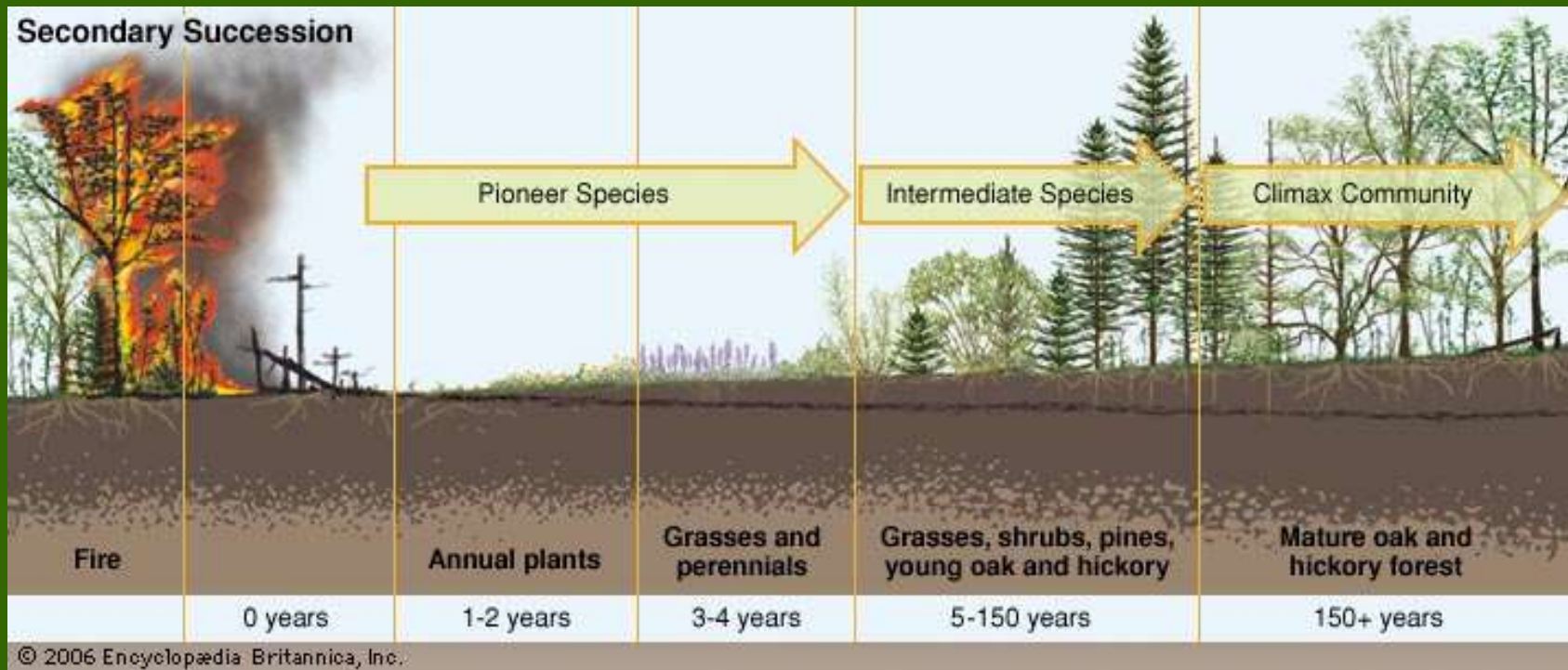
Primary Succession

- Primary succession: The establishment of a new biological community in an **area of bare rocks**. (plants moving in after a lava flow or glacier retreats)



Secondary Succession

- Secondary Succession: Occurs after a major disturbance happens and the **soil still remains**. (forest fire)



Main Points on Organism Interactions in Ecosystems

- Groups of living things interact within ecosystems (biome, ecosystem, community, population, organism)
- Organisms can interact in different ways (symbiosis: mutualism, commensalism, parasitism)
- Ecosystems are always changing (primary and secondary succession)