

Introduction to Community Ecology

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1. **Definition:** Community ecology is the study of how different species interact with each other in a particular habitat.

2. **Key Concepts:**

- **Biological Communities:** Groups of interacting species living in the same area.
- **Species Interactions:** Includes competition, predation, mutualism, and more.
- **Biodiversity:** The variety of species in a community.

3. **Types of Interactions:**

- **Competition:** When two or more species compete for limited resources like food or space.
- **Predation:** One species (predator) consuming another species (prey).
- **Mutualism:** Both species benefit from the interaction.
- **Commensalism:** One species benefits while the other is neither helped nor harmed.

4. **Biodiversity:**

- **Species Richness:** The number of different species in a community.
- **Species Evenness:** How evenly individuals are distributed among species.
- **Importance:** Higher biodiversity leads to more stable ecosystems and better resilience to environmental changes.

5. **Ecological Succession:**

- **Primary Succession:** Establishment of a community in an area where no soil exists.
- **Secondary Succession:** Regrowth of a community following a disturbance that did not destroy all life.

6. **Community Dynamics:**

- **Keystone Species:** Species that have a disproportionately large effect on their community.
- **Trophic Levels:** Different positions in the food chain that show the flow of energy.

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7. Human Impact:

- **Habitat Destruction:** Deforestation, urbanization, and pollution can disrupt communities.
- **Invasive Species:** Non-native species can outcompete and disrupt native communities.
- **Conservation Efforts:** Protecting habitats and restoring ecosystems are essential to preserve biodiversity.

8. **Conclusion:** Community ecology is crucial for understanding the complex interactions among species and the impact of human activities on ecosystems. Studying these relationships can help in conservation efforts and sustainable management of our natural world.