

Chapter 4 Evolution, Biological Communities, and Species Interactions

Evolution is a smaller topic from a larger encompassing one; it is a subset of Ecosystem Diversity. Adaptation, or the acquisition of traits that allow a species to survive in its environment, is a key concept. The basic idea that species change over time due to various environmental factors is the basis for natural selection. DNA codes for hereditary material within the species, so traits that help certain members of a species to survive and reproduce will be the traits that will prevail.

Terminology about species interaction is important; for example, you must be able to distinguish between *niche* and *habitat*, and also have a clear understanding of *indicator species*, *limiting factors*, and *resource partitioning*. Species interactions include intraspecific competition, interspecific competition, predator/prey, parasitism, and symbiosis-mutualism/commensalism. Mimicry and camouflage play roles in relation to natural selection and species interactions. A central concept is a keystone species' relationship to shaping an ecosystem.

The characteristics of ecological communities include species abundance, diversity, density, and spatial distribution. Spatial distribution, density, or even abundance can affect the survival of an endangered species. It is important to know when a species is endemic and to be able to explain the role of this characteristic in relation to its survival. Edge effects can be dramatic or subtle.

Disturbances in a community lead to either primary or secondary succession. Introduced species, particularly invasive species, are one type of disturbance that impacts an ecological community. Lichens/mosses play a crucial role as pioneer species in primary succession; the final stages of succession result in a climax community.