

## Communities and Ecosystems

The natural world is characterized by many complex interactions and relationships between animals, plants, and their environment. Individual belong, in turn, to **populations**, species, **communities**, and **ecosystems**. Energy flows from one organism to another through these relationships and the presence of one population influences the environment of another population.

We can define a community as simply a set of interacting populations. Communities can be distinguished in several ways. They may be identified by the prominent species that lives in the community or by the physical environment of the community (desert community, pond community, deciduous forest community).

Just as organisms have characteristics (or properties) such as size, weight, age and so forth, communities too have characteristics. Community-level characteristics include:

- **diversity** - The number of species in the community.
- **relative abundance** - The relative abundance of a species in a community with respect to the abundance of all species in the community.
- **stability** - A measure of how much a community changes over time.

The relationships between populations in a community are varied and may include both positive, negative, and mutually beneficial interactions. Examples of community-level relationships include competition (for food, nesting habitat, or environmental resources), parasitism, and herbivory. These relationships often lead to changes in the genetic make-up of the population (for example, one or another genotype may be more successful due to certain community processes).

An ecosystem can be defined as all the interacting components of the physical and biological world. Thus, an ecosystem can encompass multiple communities. Keep in mind that drawing a line around a community or an ecosystem is not a clear matter. Communities blend together, there are gradients throughout nature, from one habitat to another. We can at best use the concepts of communities and ecosystems to organize our study an understanding of the natural world but are far from being able to assign exact boundaries to these concepts.