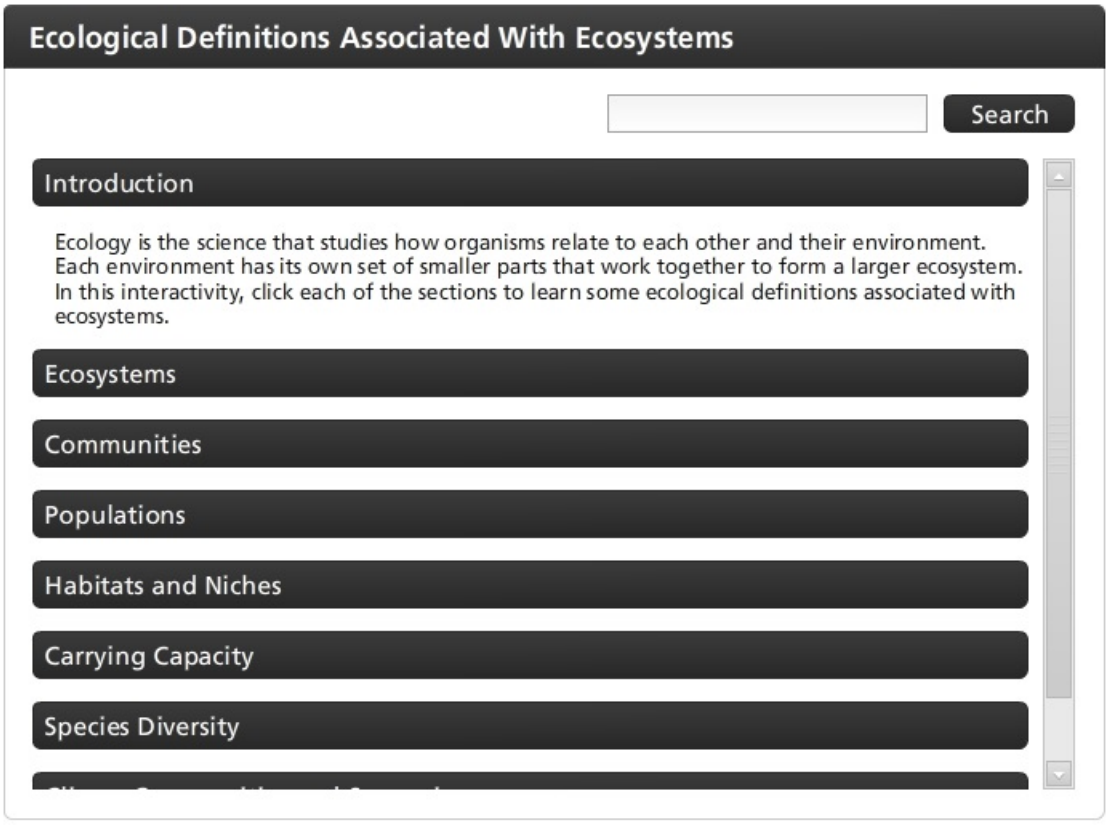
Module 9: Marine Ecology
Topic 4 Content: Ecological Definitions Associated With Ecosystems Notes



Ecology is the science that studies how organisms relate to each other and their environment. Each environment has its own set of smaller parts that work together to form a larger ecosystem. In this interactivity, click each of the sections to learn some ecological definitions associated with ecosystems.

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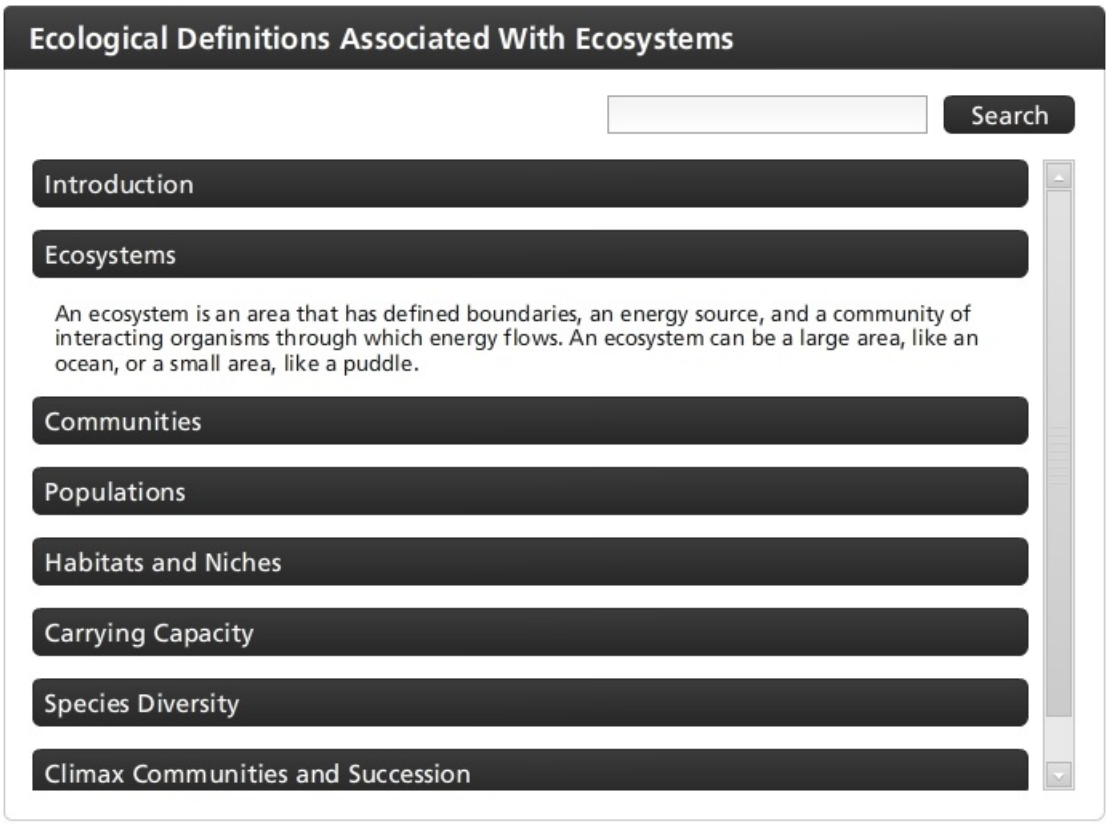

An ecosystem is an area that has defined boundaries, an energy source, and a community of interacting organisms through which energy flows. An ecosystem can be a large area, like an ocean, or a small area, like a puddle.

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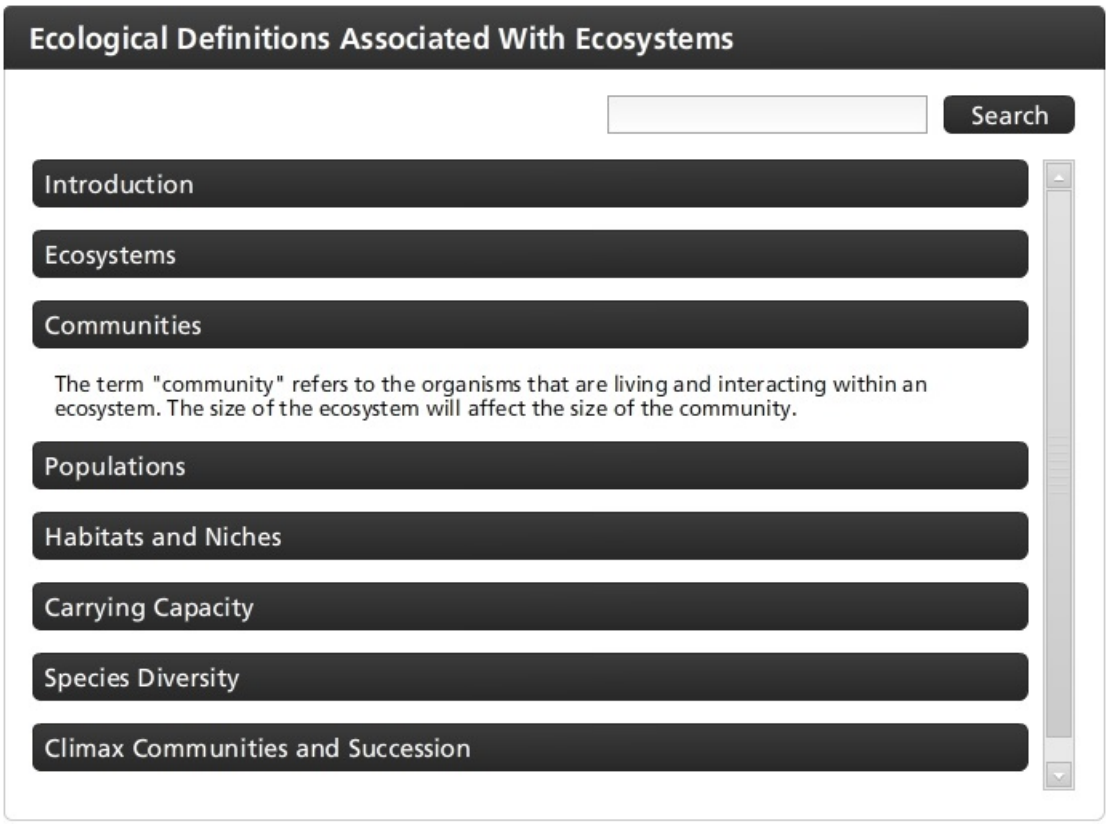

The term "community" refers to the organisms that are living and interacting within an ecosystem. The size of the ecosystem will affect the size of the community.

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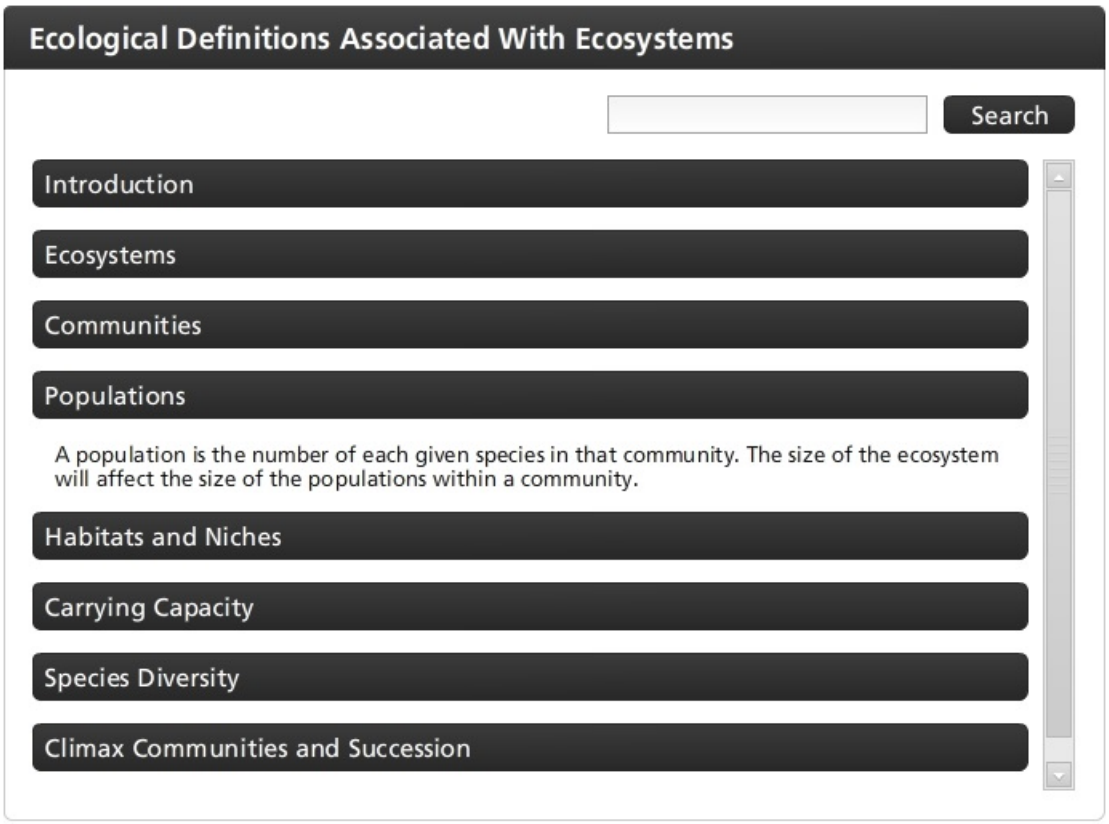
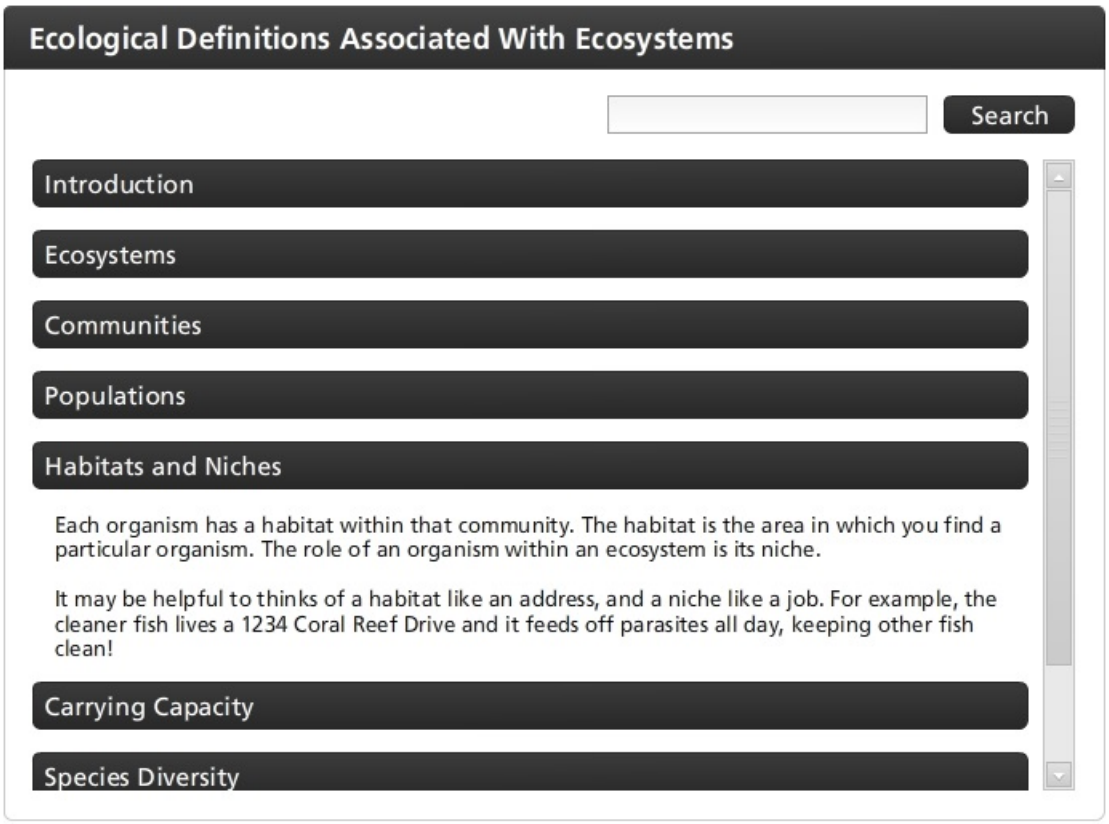


A population is the number of each given species in that community. The size of the ecosystem will affect the size of the populations within a community.



Each organism has a habitat within that community. The habitat is the area in which you find a particular organism. The role of an organism within an ecosystem is its niche.

It may be helpful to thinks of a habitat like an address, and a niche like a job. For example, the cleaner fish lives a 1234 Coral Reef Drive and it feeds off parasites all day, keeping other fish clean!

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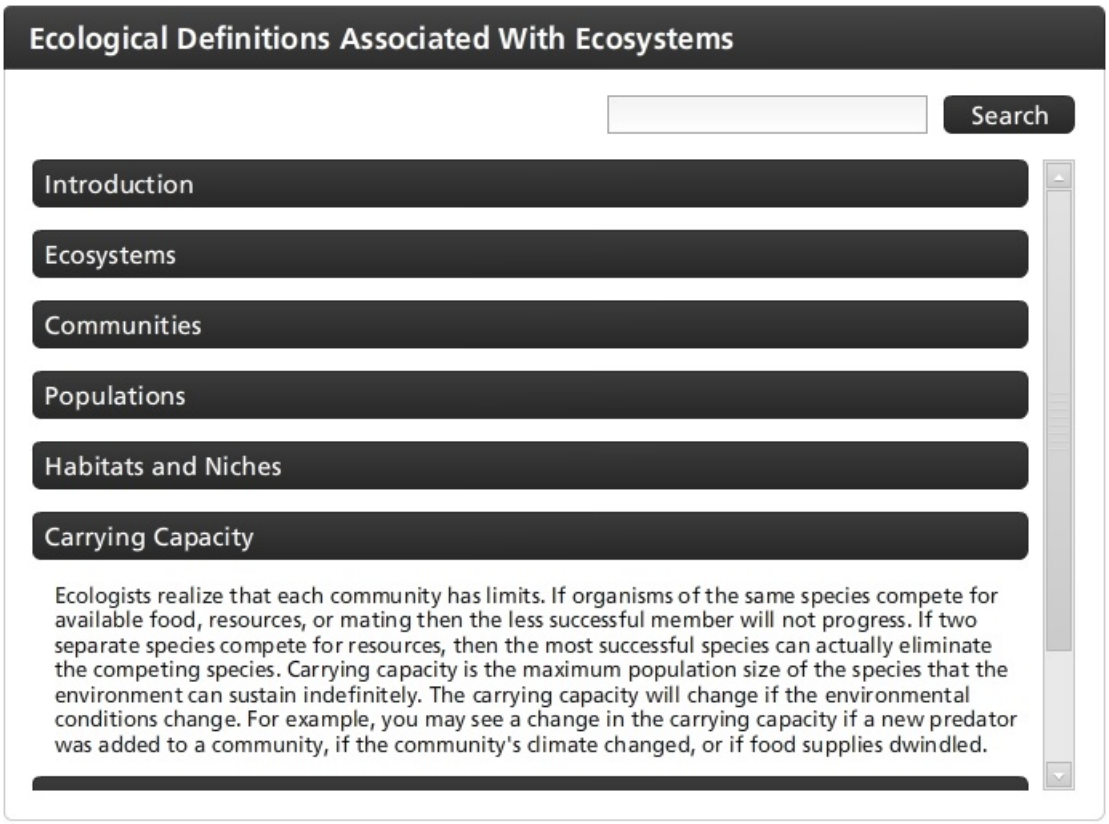
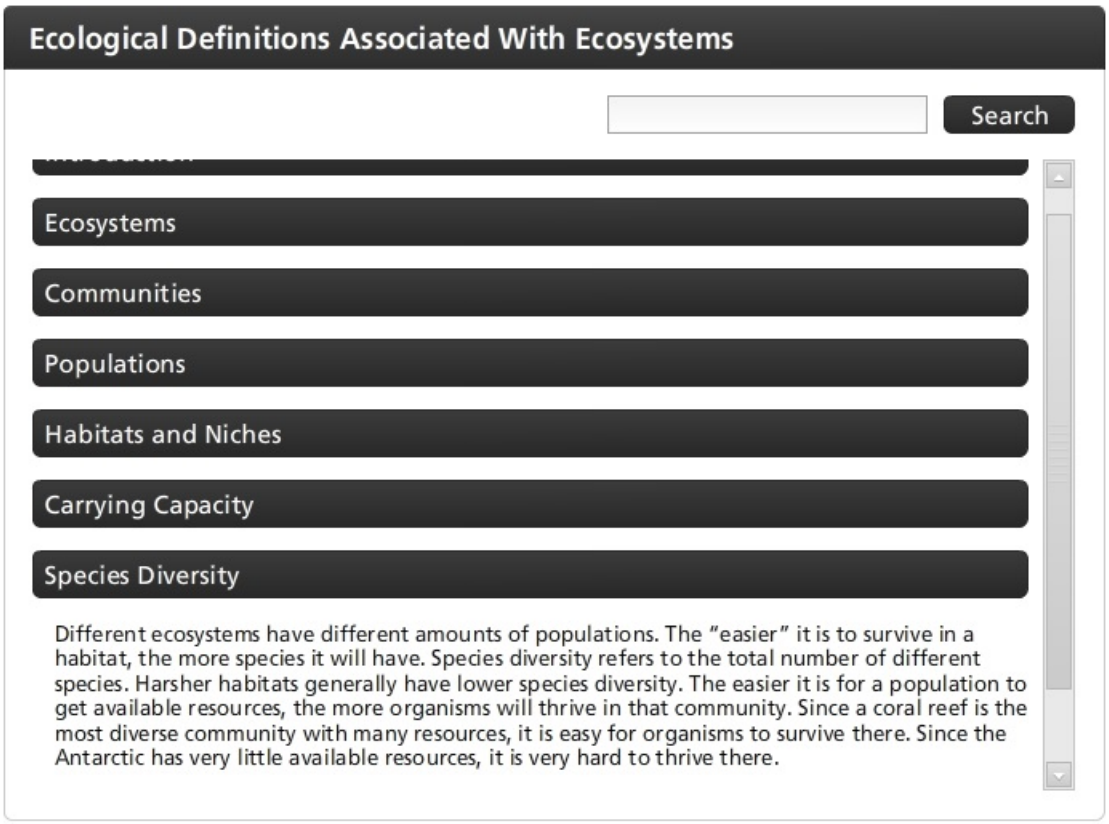
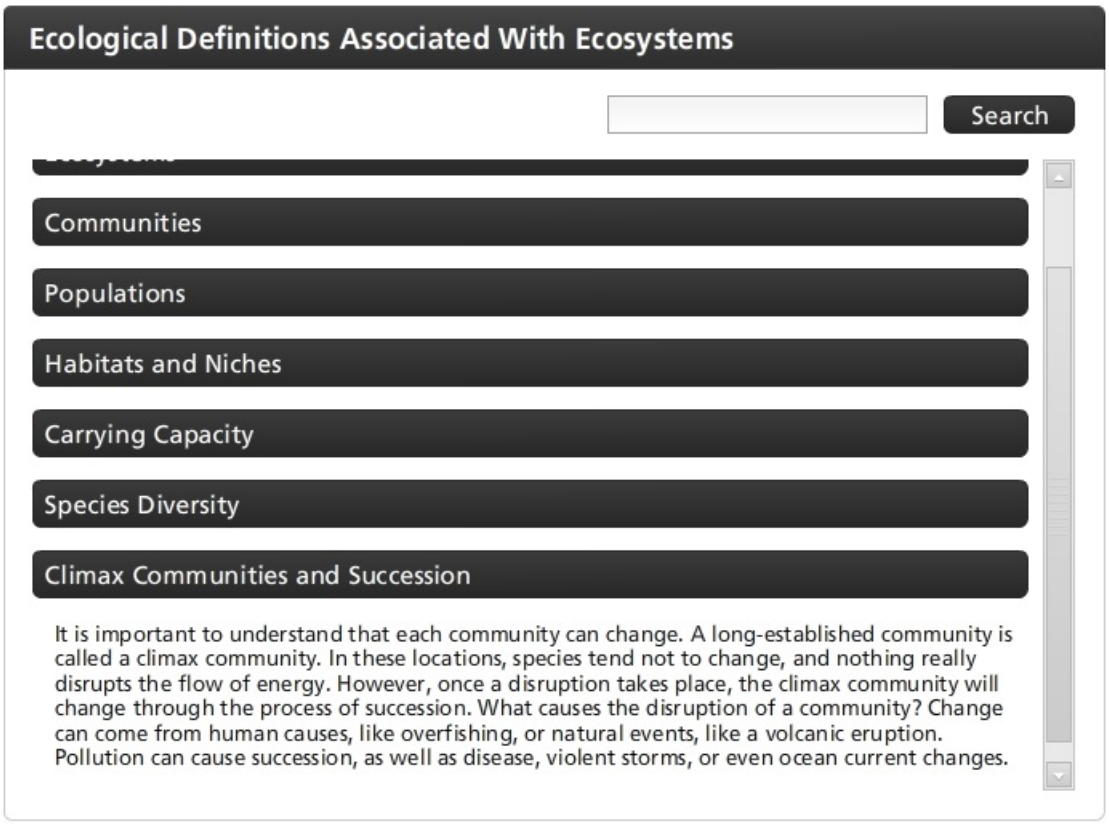


Ecologists realize that each community has limits. If organisms of the same species compete for available food, resources, or mating then the less successful member will not progress. If two separate species compete for resources, then the most successful species can actually eliminate the competing species. Carrying capacity is the maximum population size of the species that the environment can sustain indefinitely. The carrying capacity will change if the environmental conditions change. For example, you may see a change in the carrying capacity if a new predator was added to a community, if the community's climate changed, or if food supplies dwindled.



Different ecosystems have different amounts of populations. The "easier" it is to survive in a habitat, the more species it will have. Species diversity refers to the total number of different species. Harsher habitats generally have lower species diversity. The easier it is for a population to get available resources, the more organisms will thrive in that community. Since a coral reef is the most diverse community with many resources, it is easy for organisms to survive there. Since the Antarctic has very little available resources, it is very hard to thrive there.



It is important to understand that each community can change. A long-established community is called a climax community. In these locations, species tend not to change, and nothing really disrupts the flow of energy. However, once a disruption takes place, the climax community will change through the process of succession. What causes the disruption of a community? Change can come from human causes, like overfishing, or natural events, like a volcanic eruption. Pollution can cause succession, as well as disease, violent storms, or even ocean current changes.