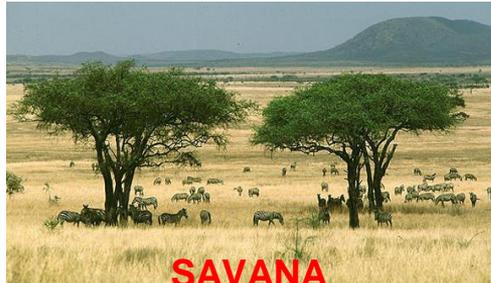


# ECOSYSTEM

An **ecosystem** consists of all the nonliving factors and living organisms interacting in the same physical area. Remember:

- living organisms are **biotic factors**. The biotic factors of an ecosystem include all the **populations** in a habitat, such as all the species of plants, animals, and fungi, as well as all the micro-organisms.
- nonliving factors are called **abiotic factors**. Abiotic factors include temperature, water, soil, and air.

You can find an ecosystem in a large body of fresh water or in a small aquarium. You can find an ecosystem in a large forest or in a small piece of dead wood. Examples of ecosystems are as diverse as the rainforest, the savanna, the tundra, or the desert. The difference in the abiotic factors, such as differences in temperature, rainfall, and soil quality, found in these areas greatly contribute to the differences seen in these ecosystems.



**An ecosystem consists of all the living things and nonliving things interacting in the same area.**

# HABITAT

The **habitat** is the PHYSICAL AREA where a species lives. In a habitat there are a lot of different species that can be plants, animals and microorganisms. For example in a field you can have falcons, rabbits, grass and butterfly.

Many factors are used to describe a habitat: the average amount of sunlight received each day, the range of annual temperatures, and average yearly rainfall can all describe a habitat. These and other **abiotic factors** will affect the kind of traits an organism must have in order to survive there.

The temperature, the amount of rainfall, the type of soil and other abiotic factors all have a significant role in determining the plants that invade an area. The plants then determine the animals that come to eat the plants, and so on.



Santa Cruz Island off the California coast has diverse habitats including a coastline with steep cliffs, coves, gigantic caves, and sandy beaches.



The image shows wetland reeds, another type of habitat.

Habitat destruction means what it sounds like—an organism's habitat is destroyed. Habitat destruction can cause a population to decrease. If bad enough, it can also cause species to go extinct. Clearing large areas of land for housing developments or businesses can cause habitat destruction. Poor fire management, pest and weed invasion, and storm damage can also destroy habitats. National parks, nature reserves, and other protected areas all preserve habitats.

# NICHE

A **niche** is the role a **species** plays in the **ecosystem**. In other words, a niche is how an organism “makes a living.” A niche will include the organism's role in the **flow of energy** through the ecosystem. This involves how the organism gets its energy, which usually has to do with what an organism eats, and how the organism passes that energy through the ecosystem, depending on which organisms eat it. An organism's niche also includes how the organism interacts with other organisms, and its role in recycling nutrients.

Once a niche is left vacant, other organisms can fill that position. For example when the Tarpan, a small wild horse found mainly in southern Russia, became extinct in the early 1900s, its niche was filled by a small horse breed, the Konik (**Figure** below). This often occurs as a new species evolves to occupy the vacant niche.



A species niche must be specific to that species; two species can't fill the same niche. They can have very similar niches, which can overlap, but there must be distinct differences between any two niches. If two species do fill the same niche, they will compete for all necessary resources. One species will outcompete the other, forcing the other species to adapt or risk extinction.

When plants and animals are introduced, either intentionally or by accident, into a new environment, they can occupy the existing niches of native organisms. Sometimes new species outcompete native species, and the native species may go extinct.