

California Desert Community

What is a desert?

A desert is an area that typically receives less than 10 inches of precipitation annually. When it does rain, however, it pours, often coming down in torrents that run off the surface rather than soaking into the ground.

There are two types of deserts: Hot and Cold.

Hot deserts are found between 15-28° north and south of the equator in low elevations with extremely hot temperatures averaging over 64° F for all months of the year. Precipitation is primarily in the form of rain.

Cold deserts are found in more northern latitudes and higher elevations than hot deserts with temperatures that vary from below zero in the winter to over 100° F in the summer! Precipitation is often in the form of snow.

There are three major deserts in California: the **Mojave Desert**, the **Colorado Desert** (an extension of the Sonoran Desert of Arizona), and the **Great Basin and Range**. Each of these deserts has microclimates that support certain plants and animals that are uniquely adapted to that region.

Kangaroo Rat



Cactus Wren



Dr. Lloyd Glenn Ingles © California Academy of Sciences



Peninsular Bighorn Sheep

© 2003 Christopher L. Christie

How do plants survive in the desert?

Most desert plants are known as xerophytes. Xerophytes are plants that are adapted to dry environments by conserving water or reducing heat. Some of the adaptive strategies that have evolved include reduced leaves; waxy, sticky, scaly or hairy leaves; no leaves; or spines instead of leaves such as those found on cacti.

Many desert plants have thick waxy cuticles and a reduction of stomata, while others photosynthesize at night to reduce water loss. Some plants have photosynthetic stems as seen in the green bark of the palo verde tree and the green stems of the saguaro and other cacti.

Desert plants often have dual or triple root systems. This adaptation includes shallow roots for rapid water absorption near the surface, and deeper, tuberous roots or bulbs for long term water storage.

The nitrogen poor, salty and alkaline soils of desert environments are also overcome by plant adaptations. Many plants such as members of the pea family have nitrogen-fixing bacteria on the root systems that convert atmospheric nitrogen to a form useful to plants. To deal with excess salts, saltbush and other plants have salt-excretion bladders on the leaves.

Other desert plant adaptations include: heat and drought resistant seeds, rapid reproductive cycles (ephemerals) and plant toxins and spines for defense.

Saguaro



Annie Presler © De Anza College 2006

What animals live in the desert and how do they survive?

There are many different kinds of animals that live in the desert, including desert pupfish, lizards, snakes, owls, insects, pack rats, bighorn sheep, the desert kit fox and many more.

San Joaquin Kit Fox



Dr. Lloyd Glenn Ingles © California Academy of Sciences

Desert animals have developed adaptations enabling them to survive. Many animals are nocturnal and conduct most of their activities at night to avoid the extreme heat and water loss. Peninsular Bighorn Sheep and other large mammals move into higher elevations or shady canyons.

Many cold-blooded animals such as insects and reptiles can be found warming themselves in the desert sun and then retreat into the shade during the

intense heat of the afternoon. Other animals such as the cactus wren, take advantage of the shade, shelter and protection that cacti provide.

What is an oasis?

An oasis is an area of the desert where water is at or near the surface. Oases support a wide variety of wildlife by providing a permanent source of water. The California Fan Palm, our only native palm tree, lives in desert oases. The leaves of the palm tree often remain on the tree long after they have turned brown, providing insulation for the tree and a home for a variety of birds, insects, small mammals and reptiles.

California Fan Palm



Annie Presler © De Anza College 2006