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Trees adapt well to desert heat

Plant Adaptation to the Desert
Part two of a three-part series

by Christina Quick

"Do they paint the tree trunks green?"

"Why don't all of the palo verde trees bloom, not just a few of them?"

If you've lived here a number of years, you might think these are funny questions. Often, questions about our desert from new visitors are really very good questions. The answers are often plant adaptation to the desert. Plants must photosynthesize in order to live, and this requires carbon dioxide. They absorb carbon dioxide through their pores, or stomata, but they are two-way valves. When they open, water vapor escapes.

In this land of strange and exotic trees and plants, the palo verde is outstanding. Its trunk, branches and twigs are covered with a green smooth bark, varying in hue from bright yellow-green to blue-green. The chlorophyll in the bark takes the place of that in normal leaves on less-specialized trees. During times of drought, the leaves of all three species dry up and fall. The Mexican palo verde (*Parkinsonia*) has very small leaves formed on long drooping streamers. The foothill palo verde (*Cercidium microphyllum*), also called green palo verde and the blue palo verde (*Cercidium floridum*), both have small leaflets barely an eighth-of-an-inch long. The blue palo verde usually blooms first. Just as it begins to fade, the green and foothill palo verdes bloom in a great profusion of yellow. The green palo verde is more drought-resistant than the blue palo verde. Palo verde is Arizona's state tree.

Mesquites are thorny legumes, or members of the pea family, with fern-like leaves and a thirst unbecoming a desert native. An old saying goes: "Where mesquite thrive there is certain to be groundwater." Actually, they are adjustable. Their size depends upon the proximity and extent of water. On dry, gravelly slopes they are no more than squat, shapeless bushes. But on a floodplain, in a watered yard or where they get their tap root to a leach field they are transformed into thick-trunked trees that may thrust upward to 50 feet. The theory is their roots make their way to great

depths because they develop more rapidly than the bush above them. Excavators at open-pit copper mines have unearthed tap roots that are 175 feet below ground level.

Ironwood (*Olneya tesota*) is one of the hardiest of desert trees. It thrives on extreme heat, but is sensitive to even a short period of cold winds and frost — after which the leaves will drop. It is evergreen if it is not frosted. It is considered an indicator plant for locating citrus orchards. The leaves are thickly set and provide deep shade; however, often the tree branches from the ground up. Unless the tree is large, the twin-paired thorns are a deterrent to trying to get under it for shade. The wood will not float in water. It is used for jewelry, carvings and novelty items — this after the tree has been dead for many, many years.

The desert fern tree (*Lysiloma thornberi*) is also from the pea family. It is native to the foothills of the Rincon Mountains, but are sold at nurseries and used in many local landscapes. They can withstand heat and drought when established. They have fine-textured fern-like foliage.

The desert willow (*Chilopsis linearis*) is a tree common to washes and roadsides. It is fairly easy to start from seed, is hardy and drought-tolerant. One sees many of these throughout the summer along Interstate-17, and there is a wonderful stand at the Sunset Point rest area.

There are several species of acacia that have adapted, and grow well in the desert. Most are drought- and heat-tolerant.

Next week: Cactus.