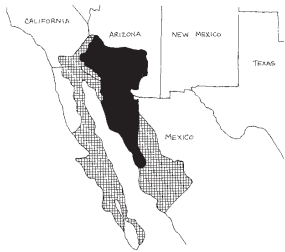




The Saguaro Cactus



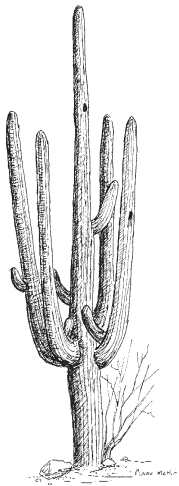
Where do saguaros grow?



Saguaro cacti, *Carnegiea gigantea*, only grow in the Sonoran Desert. However, they do not grow in all parts of the Sonoran Desert. The map at left represents the range of the Sonoran Desert (crosshatch) with an overlay of the range of the saguaro cactus (solid). The range of the saguaro is limited by freezing temperatures in winter.

Saguaros are also limited by elevation. They are generally found growing from sea level to approximately 4,000 feet in elevation. Saguaros growing higher up to 5,000 feet are usually found on south facing slopes where freezing temperatures are less likely to occur or are shorter in duration.

How do saguaros grow?



Saguaros are a very slow growing cactus. In Saguaro National Park, studies indicate that a saguaro grows between a few inches in the first ten years of its life.

These tiny, young saguaros are very hard to find as they grow under the protection of a “nurse tree”, most often a palo verde, ironwood or mesquite tree. As the saguaro continues to grow, its much older nurse tree may die. Some scientists believe that competition from the saguaro may lead to the death of the nurse tree by taking water and nutrients from the soil in the immediate area.

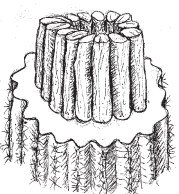
As a saguaro begins to age, growth rates vary depending on climate, precipitation and location. We do know that the period of greatest growth in a saguaro cactus is from unbranched to branched adult.

Here at Saguaro National Park, branches normally begin to appear when a saguaro reaches 60 to 75 years of age. In areas of lower precipitation, it may take up to 100 years before arms appear.

When a saguaro reaches 35 years of age it begins to produce flowers. Though normally found at the terminal end of the main trunk and arms, flowers may also occur down the sides of the plant. Flowers will continue to be produced throughout a saguaro’s lifetime.

An adult saguaro is generally considered to be about 125 years of age. It may weigh 8 tons or more and be as tall as 50 feet. The average life span of a saguaro is probably 150 - 175 years of age. However, biologists believe that some plants may live over 200 years. The estimated number of saguaros in the park is 1.8 million.

Why are saguaros pleated?

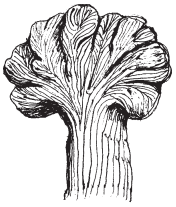


The roots of a saguaro grow out from the plant in a radial fashion, several inches under the ground. During a heavy rain, a saguaro will absorb as much water as its root system allows.

To accommodate this potentially large influx of water, the pleats expand like an accordion. Conversely, when the desert is dry, the saguaro uses its stored water and the pleats contract.

Because the majority of a saguaro is made up of water, a large plant may weigh 80 pounds for each foot of its main trunk. This tremendous weight is supported by a circular skeleton of inter-connected, woody ribs. The number of ribs inside the plant correspond to the number of pleats on the outside of the plant. As the saguaro grows, the ribs will occasionally fork and the corresponding pleat will also fork at the same place.

Why are some saguaros crested?



Even when saguaro cacti grow in their normal form, they rarely grow symmetrically. Saguaros sometimes grow in odd or mis-shapen forms. The growing tip occasionally produces a fan-like form which is referred to as crested or cristate. Though these crested saguaros are somewhat rare,

over 50 live within the boundaries of the park. Biologists disagree as to why some saguaros grow in this unusual form. Some speculate that it is a genetic mutation. Others say it is the result of a lightning strike or freeze damage. At this point we simply do not know what causes this rare, crested form.

Do animals use the saguaro?



Gila Woodpecker

Saguaro cacti are host to a great variety of animals. The gilded flicker and Gila woodpecker excavate nest cavities inside the saguaro's pulpy flesh. When a woodpecker abandons a cavity, elf owls, screech owls, purple martins, finches and sparrows may move in.

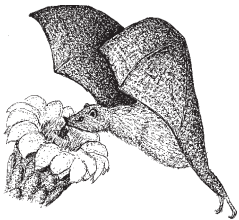
Large birds, like the Harris's and red-tailed hawks, also use the saguaro for nesting and hunting platforms. Their stick nests are constructed among the arms of a large saguaro. In turn, ravens

and great horned owls may take over an abandoned hawk nest.

Saguaro cacti also provide a valuable source of food for animals. In late summer, ripening fruit provides moisture and an energy-rich food during a time of scarcity.

In drier areas of the Sonoran Desert, pack rats, jackrabbits, mule deer and bighorn sheep will also eat the saguaro's flesh when other water sources are not available.

How does the saguaro reproduce?



Lesser Long-nosed Bat

In late April through early June, the tops of the saguaro's trunk and arms sprout a profusion of large, creamy white flowers. Individual flowers open at night and close the following afternoon. To develop into fruits, they must be pollinated within this time frame. Pollination is carried out by nectar feeding bats, birds and insects.

Each fruit contains about 2,000 tiny black seeds. When the fruit and seeds are eaten by a coyote or cactus wren, the seeds pass through their digestive

system unharmed and are distributed throughout the desert. However, if the seeds are eaten by a dove or quail, they will be completely consumed in the digestive system.

It is estimated that a saguaro can produce some 20-40 million seeds during its lifetime. However, few will survive to become a seedling. Perhaps 1 or 2 will become an adult. The low survival rate of seedlings is due to drought, killing freezes, and animals eating them.

Do humans use the saguaro?



Archeological evidence indicates that the Hohokam used the saguaro in their daily life. The strong, woody ribs were gathered to construct the framework for the walls of their homes.

Additionally, saguaro ribs were used to collect saguaro fruits, which grow high up on the plant. Several ribs were tied together with a cross piece at the end.

These long poles were used to knock ripe fruit down from the top of the plants. It would then be gathered to eat.

The Tohono O'odham continue to gather saguaro fruit in this manner. They use the sweet fruits to make ceremonial wine, jelly and candies. They also use the seeds as chicken feed.

Are there threats to the saguaro?



Reports of a saguaro "disease", popularized almost fifty years ago, persist, but saguaros are not subject to blights. The saguaro is a long-lived cactus, most affected by long-term climate cycles of frost and drought. In actuality, the saguaro is a common plant in the Sonoran Desert, not an endangered species.

The biggest threat to the saguaro in the Tucson Basin is rapidly expanding

human population resulting in a loss of saguaro habitat. Exotic plants follow development, and these non-native species almost always out-compete saguaros for water and nutrients. They also lead to an increase in wildfires, which harm or kill native vegetation, including the saguaro. As the earth's climate warms, heat and drought will contribute to these problems, possibly affecting the growth of saguaro forests in the park.