



The Saguaro Census in Saguaro National Park

Background

The Saguaro Census in Saguaro National Park, scheduled every 10 years to coincide with the U.S. Census, is a major citizen science event that helps the park monitor the health of its signature species. Saguaro National Park was established (as Saguaro National Monument) in Tucson, Arizona, in 1933, to protect this icon of the American Southwest.

Saguaros live to 150 years or more, and support a diverse community of wildlife. Gila woodpeckers and gilded flickers create holes that are later inhabited by birds such as purple martins and elf owls. Saguaro fruit are an important food for collared peccaries, white-winged doves, desert tortoises, and many other animals. The saguaro's large white flowers, which bloom at night, produce nectar that is enjoyed by bats and native bees.

Humans, including the local Tohono O'odham Nation, utilize the plant's ribs and fruit.

The Saguaro Census began in 1990 and is a park-wide, large-scale monitoring program. Park staff work with large groups of volunteers, who count and measure the saguaros on 45 plots, each 4 hectares in size. They also map individual saguaros on 11 smaller, historic plots established in the 1940s and 1970s. Because some plots contain more than 1,000 saguaros, and plants associated with saguaros are also surveyed,



Flagging a young saguaro

the Census usually takes more than a year to complete. During 2009-2010, more than 300 volunteers measured more than 20,000 saguaros!

Quick Facts

- Saguaros grow slowly when young; in some areas a 10-year old saguaro may be less than an inch tall. Thus, young ones are very hard to find during the Census!
- Saguaros are extremely susceptible to freeze damage, and their distribution is limited by temperature. At higher elevations in the park's Rincon Mountain District, saguaros are replaced by oak and pine trees.
- The tallest saguaro ever found in Saguaro National Park was nearly 50 feet tall.



Measuring a tall saguaro using a clinometer

Trends and Status

The Saguaro Census builds on several long-term studies to track changes in this long-lived plant. When the park was first established, many magnificent, large specimens grew in an area known as the "Cactus Forest," east of Tucson. By the 1940s, many of these giants were dying, and the park's rangers and visitors were very concerned. Researchers documented a steady decline in saguaros from the 1930s through the 1970s. Then, young saguaros started to appear. Scientists are unsure of what caused the decline, but evidence suggests a combination of cattle grazing and wood-cutting, which are no longer permitted in the park, and a series of unusually cold winters. The Desert Southwest and Saguaro National Park have experienced warmer winter temperatures during the past 30 years, which may benefit saguaros – but warmer temperatures may also favor growth of grasses, especially exotic grasses such as buffelgrass, that may promote wildfires that can kill saguaros and other Sonoran Desert plants.

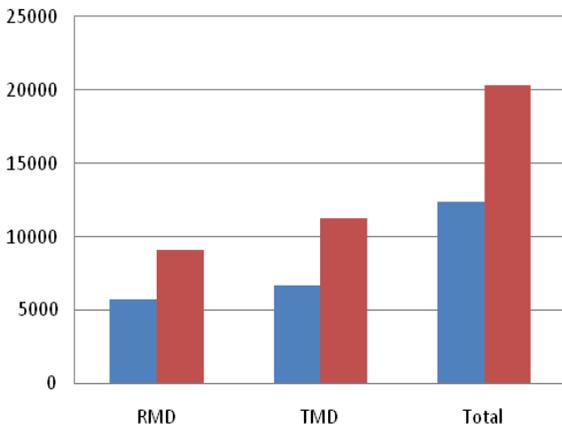
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Measuring the height of a saguaro on a slope

Discussion

The graph below highlights the results of the Saguaro Census in the Rincon Mountain District (RMD) and Tucson Mountain District (TMD). Comparison of 1990 and 2010 results show a large increase over the 20-year period, reflecting a surge in the number of small saguaros surviving from the early 1970s through the early 1990s. Census results suggest that the survival of very small saguaros has slowed since 1990. However, there are many saguaros in the 15 to 40 year old category that are now reaching past heights of 2 meters (about 6 feet). If present conditions continue and these young saguaros survive, they will soon be reaching past through their nurse trees, growing arms, and replacing the lost giants of the past.



Number of saguaros counted on 45 plots sampled or sub-sampled in 1990 and 2010. RMD is the Rincon Mountain District (east of Tucson) and TMD is the Tucson Mountain District



Group photo of volunteers

More Information

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