

Saguaro

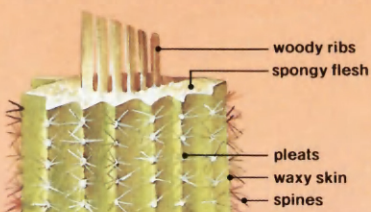
Official Map and Guide

The saguaro has been described as the monarch of the Sonoran Desert, as a prickly horror, as the supreme symbol of the American Southwest, and as a plant with personality. It is renowned for the variety of odd, all-too-human shapes it assumes, shapes that inspire wild and fanciful imaginings. Since 1933 this extraordinary giant cactus has been protected within Saguaro National Monument. Preserved along with it are many of the other members of the Sonoran Desert community—the other cacti, the desert trees and shrubs, and the animals. In lushness and variety of life, the Sonoran Desert far surpasses all other North American deserts. And yet, paradoxically, it is one of the hottest and driest regions on the continent. Summer midday temperatures quite

For centuries peoples of the Sonoran Desert have used natural products of the saguaro. In the summer the saguaro provided a nourishing bounty of juicy, fig-like fruits. Native Tohono O'odam Indians harvested them by knocking them off the tall cacti

with long poles. From the fresh fruit the Tohono O'odams made jam, syrup, and, for their religious ceremonies, wine. So important was the fruit to the Tohono O'odams that the season of its harvest marked the beginning of their new year. The

saguaro also provided seeds for the Tohono O'odams and their chickens, to eat, and strong woody ribs—which the plant uses to support its huge weight—to build shelters and fences.



Many features assist the saguaro in storing and conserving that most precious of desert commodities—water. Accordion-like pleats allow the saguaro to expand and hold water collected through the roots. Spongy flesh in the trunk and

branches serves as a reservoir where water is stored as a slow-to-evaporate gelatin-like substance. Unlike most plants, the saguaro has no conventional leaves, which would transpire large amounts of water. The food-making process of

photosynthesis normally carried out by green leaves is performed in the trunk and branches. Spines discourage animals from taking the cactus' moisture, shade the plant, and shield it from drying winds. Waxy skin aids in reducing moisture loss.



The saguaro collects water with an efficient network of roots that lies within 3 inches of the surface and stretches as far out from the main stem as the saguaro is tall. In a single rainfall, these shallow roots—along with

special small root hairs that grow in response to moisture—may soak up as much as 200 gallons of water, enough to last the saguaro a year.



A variety of plants lives in the Sonoran Desert with the saguaro. There are more than 50 types of cacti, including (1) hedgehog cactus, (2) barrel cactus, (3) fishhook cactus, (4) teddybear cholla, and (5) pricklypear, which all, like the saguaro, are adapted to extreme heat and drought. There is (6) creosotebush, the most widespread of all North American desert plants, and (7) mesquite, a common desert tree. The (8) ocotillo, which sprouts leaves within days

after a rainstorm only to drop them as moisture disappears, grows here, too, as does the palo verde (shown above with a young saguaro), with its small moisture-saving leaves. Annual flowers, such as the (9) desert marigold, bloom in spring or summer when conditions are right. Although the desert community predominates in Saguaro National Monument, woodlands and forests grow on higher mountain slopes.

The Life of the Saguaro

The Struggle for Survival Begins The saguaro begins its life as a shiny black seed no bigger than a period. But what it lacks in size it more than makes up for in numbers. One saguaro produces tens of thousands of seeds in a year, and as many as 40 million in a lifetime of 175 to 200 years. From the start, the odds against survival are great. Out of all the seeds that a saguaro produces in its life, probably only one will survive to adulthood.

Seeds and young saguaros have the best chance for survival if they are "cared for" by

nurse trees such as palo verde and mesquite. Saguaro seedlings that grow under these sheltering plants are shaded from the desert's intense sunlight, blanketed from winter cold, and hidden from rodents, birds, and other animals that eat them. Rocks provide similar protection for young saguaros. Saguaro do best on bajadas—gently sloping outwash plains at the foot of desert mountains.

Growth of a Green Giant A saguaro's growth is extremely slow. Growth occurs in spurts, with most of it taking place in the summer rainy

season each year. By the end of a year the saguaro seedling may measure only ¼ inch. After 15 years, the saguaro may be barely a foot tall. At about 30 years saguaros begin to flower and produce fruit. By 50 years the saguaro can be as tall as 7 feet. After about 75 years it may sprout its first branches, or "arms." The branches begin as prickly balls, then extend out and upward.

By 100 years the saguaro may have reached 25 feet. Saguaro that live 150 years or more attain the grandest sizes, towering as high as

50 feet and weighing 8 tons—and sometimes more—dwarfing every other living thing in the desert. These are the largest cacti in the United States. Their huge bulk is supported by a strong but flexible cylinder-shaped framework of long woody ribs.

Death . . . and Rebirth Saguaro may die of old age, but they also die of other causes. Animals eat the seeds and seedlings, lightning and winds kill large saguaros, and severe droughts weaken and kill all ages. The saguaro is vulnerable during every stage of its life.

Where there is a balance of life and death, saguaro forests thrive. But in some forests in Saguaro National Monument deaths have greatly outnumbered the growth of new young saguaros. What has caused the decline in these areas?

Biologists believe killing freezes are the major cause of saguaro deaths in the park. The saguaros here are at the extreme northern and eastern edge of their range, where the coldest winter temperatures most often occur. Humans, too, have played a part in the decline. Livestock grazing, which continued from the 1880s until

1979, devastated some cactus forests. Many seedlings were killed outright by trampling or were unable to find suitable places to grow because the ground had been compacted and nurse plants killed.

Today, with grazing eliminated, recovery appears to be underway in several areas, where thousands of young saguaros have taken hold and are thriving. Still, natural forces, vandalism, and cactus rustling—the theft of saguaros for use in landscaping—continue to take a toll on the park's saguaro forests.

Saguaro National Monument
Arizona

National Park Service
U.S. Department of the Interior

commonly climb above 100° F. Less than 12 inches of rain fall in a typical year. Between the summer and winter rainy seasons it is not unusual for months to pass without a drop of rain. The plants and animals able to survive in this environment, with adaptations specially designed for desert survival, make up one of the most interesting and unusual collections of life in the United States. This world awaits you in the desert plains, mountains, and foothills of Saguaro National Monument.



The flowers of the saguaro—big, bold, and numerous—bloom and color the desert in late April, May, and June. Each blossom opens in the cool of night a few hours after sunset. By the next afternoon, the flower has wilted, the brief period of bloom ended. The spectacle repeats

itself night after night for about four weeks until as many as one hundred flowers have appeared on each saguaro. In the few hours the flowers are open a variety of flying animals will have succeeded in pollinating many of them. White-winged doves (shown above) and longnose bats

—both summer migrants from Mexico—honeybees, and moths accidentally become powdered with sticky pollen as they feed on the sweet nectar inside the flower. As they travel from flower to flower, they transport the pollen, fertilizing as they go.



In June and July the saguaro's fruit ripens. The sugary pulp of each fruit contains as many as 2,000 seeds. Javelinas,

coyotes, foxes, squirrels and other rodents, harvester ants, and many birds feast on the fruit and seeds.



The saguaro is like a multi-storied apartment complex: many animals live in close quarters and the occupants change constantly. Two common residents are the (10) Gila woodpecker and (11) gilded flicker. These birds dwell in nest holes they excavate in the trunk and larger branches of saguaros. The birds make new nest holes each spring, and they often make and reject several cavities in one nesting season before settling in one and raising a family.

Their industriousness leaves many holes for other animals, who are quick to move in. The birds who compete for the homes include (12) sparrow hawks, or American kestrel, (13) Lucy's warblers, (14) cactus wrens, (15) western kingbirds, (16) phainopepla, elf owls (shown above), (17) screech owls, and (18) purple martins. (19) Honeybees also inhabit some holes. For residents, the holes are a retreat from desert temperature extremes. Well

insulated by thick walls, the holes are as much as 20°F cooler in summer and 20°F warmer in winter than outside. Other saguaro dwellers live not in holes but in bulky nests. These include (20) red-tailed hawks and (21) Harris hawks.



Desert animals are well adapted to life in their demanding environment. Many avoid the heat of day by venturing out only at night. These nocturnal animals include the (22) cactus mouse and (23) Western diamondback rattlesnake. Other creatures restrict their activities to cooler morning and evening hours. (24) Gambel's quail, (25) roadrunners, and other birds

feed at these times, as do many reptiles, including the (26) desert tortoise and (27) Gila monster. Animals who are out at midday have special adaptations for dissipating heat. One such animal, the jackrabbit (shown above), radiates heat from its oversized ears. Desert creatures also have ways of dealing with the acute shortage of water. During droughts (28) javelinas

eat succulent pricklypear pads. The (29) kangaroo rat never needs to drink a drop of water, getting all it needs from seeds it eats. Some animals, like the (30) cactus wren, use desert plants to their advantage. This bird builds its nest in the spiny cholla, where its nestlings are well protected.

Color illustrations by Robert Hynes

Saguaro : A Park Guide

Saguaro National Monument
Arizona

National Park Service
U.S. Department of the Interior

Planning Your Visit

Saguaro National Monument is divided into 2 districts—Saguaro West, to the west of Tucson, and Saguaro East, to the east. Each has places to obtain park information, scenic drives, trails, and picnic areas. Neither has lodges nor campgrounds. For detailed descriptions of what to see and do in each district, see "Touring Saguaro West" and "Touring Saguaro East" below. For more information write: Saguaro National Monument, 3693 South Old Spanish Trail, Tucson, AZ 85730-5699, or call (602) 883-6366 (Saguaro West) or (602) 296-8576 (Saguaro East).

Saguaro's Desert Climate

Many people feel the best desert season is from October through April, when high temperatures are in the 60s and 70s°F. Nighttime temperatures during this time can fall below freezing. The hottest period is from May through September, when highs average in the 100s°F. Still, at night, temperatures drop by as much as 30°F, and high in the Rincon Mountains it is cooler, too. Rainy seasons occur twice a year—in short but violent thunderstorms from July through September and in gentle rains from January to March. Otherwise, sunshine prevails.

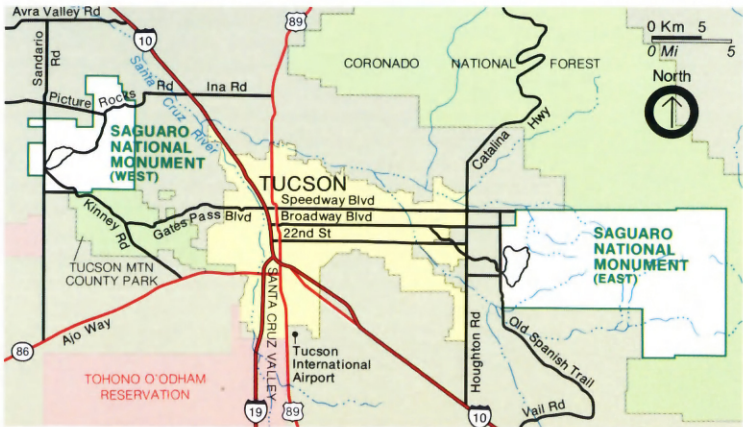
For Your Safety

Hiking and other strenuous activities in extreme heat can be hazardous. Pace yourself and rest often. Carry water (at least 1 gallon per person per day is recommended) and drink even when you don't feel thirsty. There is no water available at picnic areas or along most trails. ● Beware of painful encounters with cacti and other prickly plants. Be especially careful near cholla cactus spines that, with just the slightest touch, can become embedded in your skin. If a cactus joint attaches itself, use two sticks, a pocket comb, or other object as a lever to flip it away. ● The park is a sanctuary for living things. Leave plants

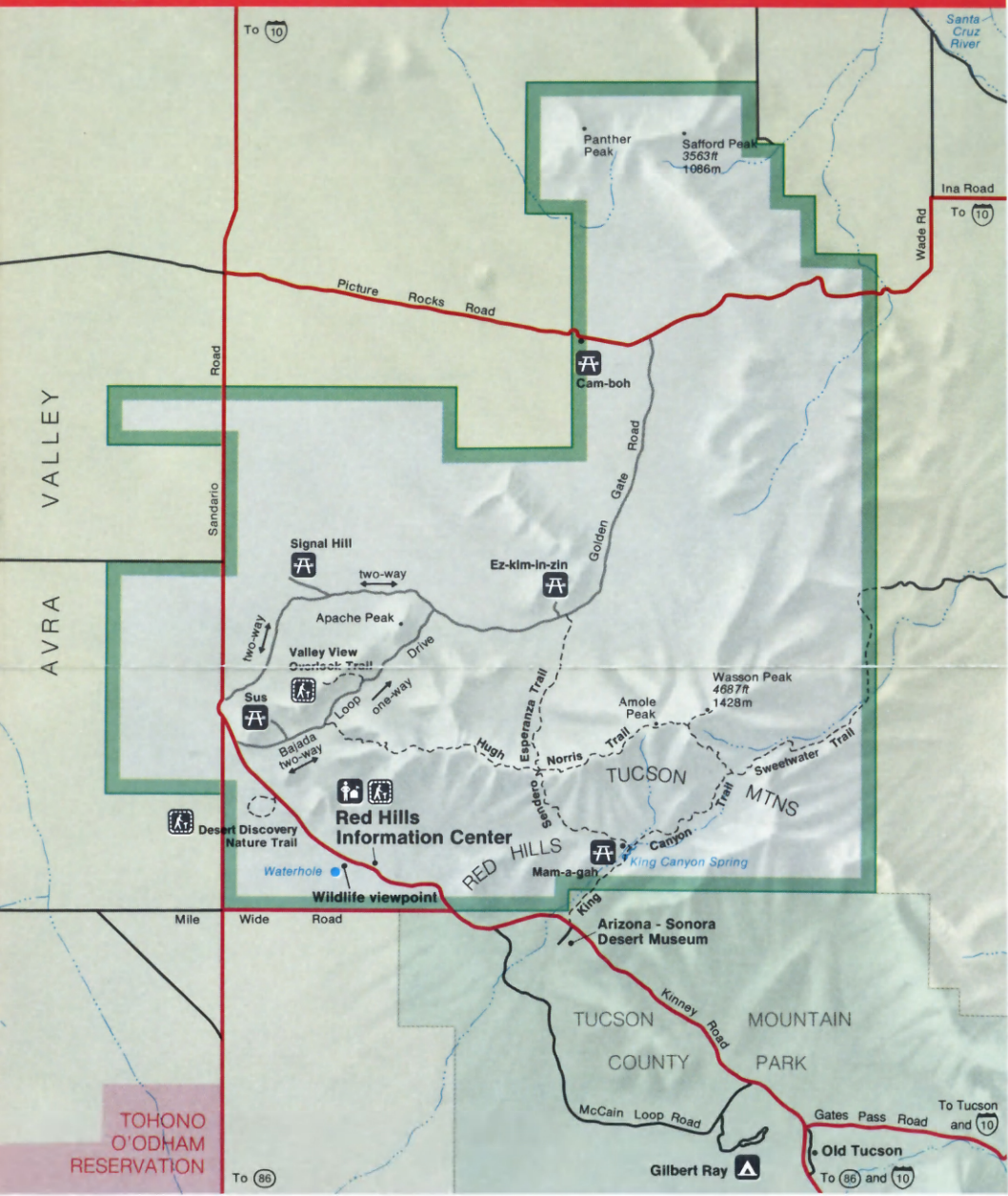
and animals undisturbed. To avoid encountering poisonous rattlesnakes, scorpions, or Gila monsters, carry a flashlight at night and avoid putting your hands and feet under rocks or in other hidden places. All types of weapons are prohibited. ● During thunderstorms both lightning and flash floods pose threats. Avoid open and low-lying areas. ● Park roads are designed for sightseeing. Obey speed limits. Driving off the road is prohibited. Remember to always wear your seat belt. ● Pets must be leashed at all times. They are not allowed on trails. In an emergency, contact a ranger or call 911.

The Park

Saguaro National Monument consists of 2 districts. Saguaro West and Saguaro East. The 2 areas, separated by the city of Tucson, are about 30 miles apart. Together Saguaro West and the much larger Saguaro East (both shown below in more detail) preserve 87,114 acres of the life and landscape of the Sonoran Desert, including the park's namesake, the saguaro.



Saguaro West



- Trail
- Unpaved road
- Intermittent spring
- Ranger station
- Interpretive trail

Touring Saguaro West

Saguaro West, also known as the Tucson Mountain District, embraces a wide variety of Sonoran Desert life against the backdrop of the rugged Tucson Mountains. It is open 24 hours a day.

Information Center The Red Hills Information Center has brochures, books, maps, trail and drive guides, exhibits, and rangers who can discuss plans and interests with you. Schedules of park activities, which include guided hikes, nature walks, and talks, are posted. Most activities are conducted from December through April.

Scenic Drive The 6-mile Bajada Loop Drive passes through dense saguaro forests. This graded dirt road begins 1.5 miles from the information center. A guidebook is available. Persons with motorhomes or trailers should check road conditions before starting the drive.

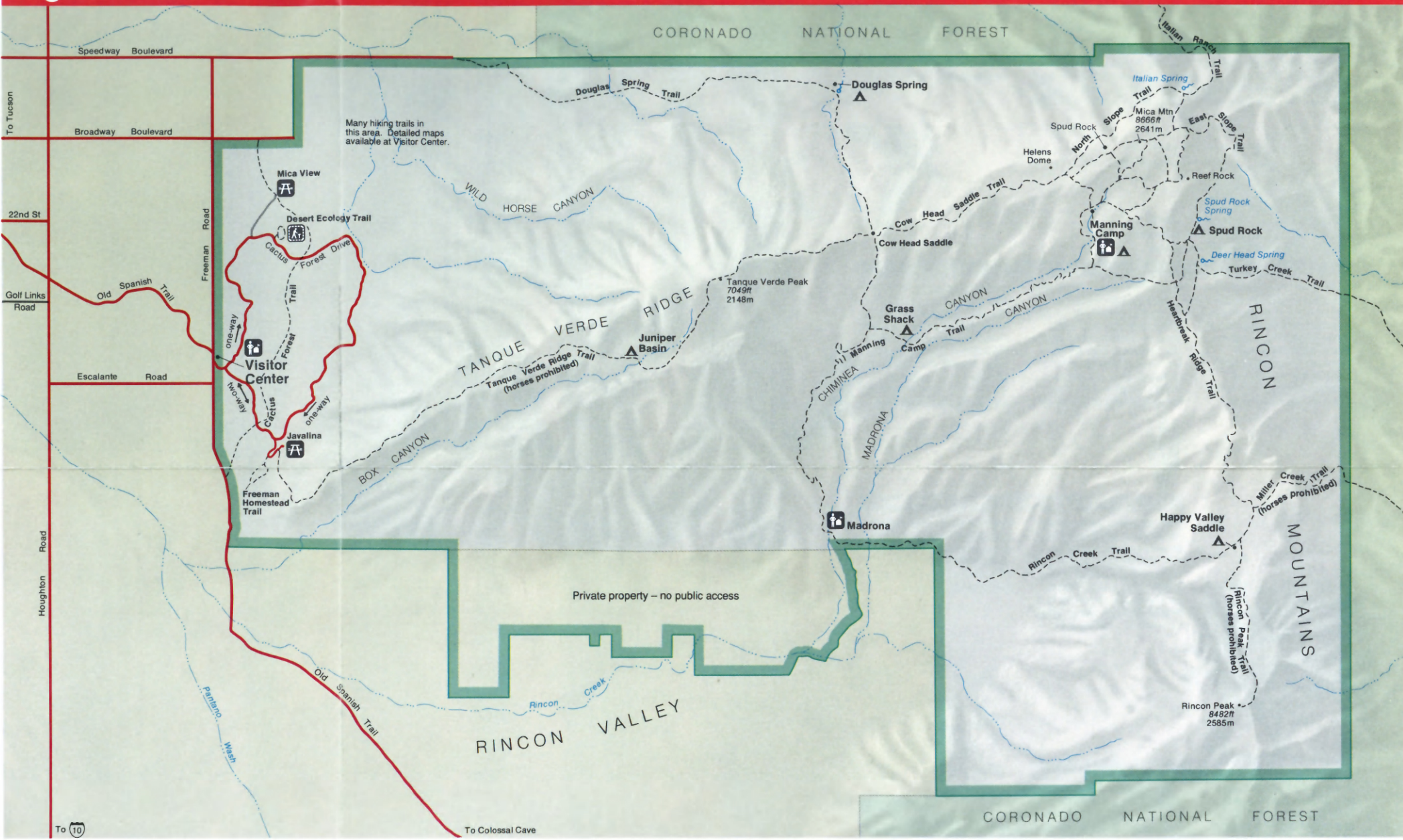
Trails A hike in Saguaro West can be a stroll on a nature trail or a day-long wilderness trek. Within 1 mile of the information center are 2 nature trails. The Cactus Garden Trail, located at the center, follows a level paved walkway through a collection of desert plants. The Desert Discovery Nature Trail loops 0.5 mile along

the gently sloping bajadas at the foot of the Tucson Mountains. Another short trail, the Valley View Overlook Trail, is a 1.5-mile roundtrip with spectacular views of mountains and desert scenery and extensive saguaro forests. Longer trails penetrate the wild country of the Tucson Mountains and their foothills. Because these trails intersect one another, you can make your hike as long or as short as desired. Horseback riding is permitted on all trails. It is recommended that you stay on trails; abandoned mine shafts make off-trail exploration hazardous. Camping is not permitted.

Picnic Areas Four picnic areas are located along park roads. A fifth, in the backcountry, can be reached only by trail. All trash must be packed out of this site. Each area has tables, grills, shade ramadas, and pit toilets.

Nearby Places of Interest Located south of Saguaro West, the Arizona-Sonora Desert Museum has a live collection of about 200 desert animals and 300 kinds of plants. Also to the south is Tucson Mountain County Park, which has hiking and horse trails and a campground.

Saguaro East



- Campground
- Backcountry campsite
- Picnic area

0 1 2 Kilometers
0 1 2 Miles

Persons planning to hike or ride a horse on the longer park trails should carry a topographic map.

Another essential item is drinking water because sources of water in the desert are scarce and un-

dependable. Each person should carry at least one gallon of water per day.

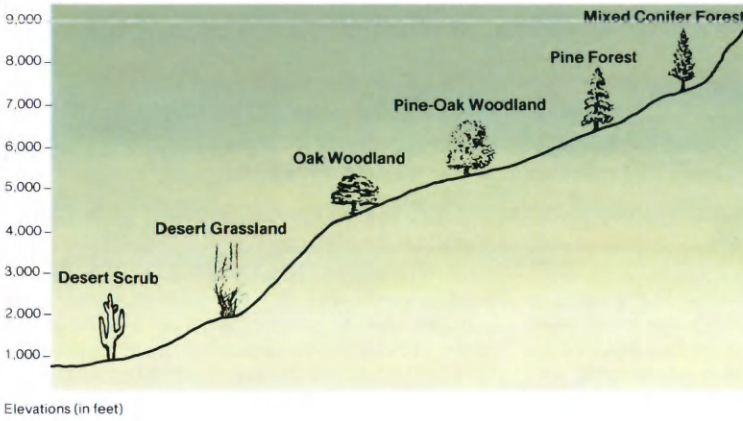
Touring Saguaro East

Saguaro East, also called Rincon Mountain District, encompasses an aging saguaro forest at the foot of the majestic Rincon Mountains, as well as an exceptional variety of other desert communities. The park is open daily.

Visitor Center At the visitor center, you will find books, brochures, maps, trail and drive guides, exhibits, and a slide program about the saguaro and the Sonoran Desert. Rangers are available if you have questions about what to see and do. Schedules of ranger-guided walks and other park activities that are offered in the winter are posted. The center is open daily.

Scenic Drive The 8-mile Cactus Forest Drive winds through the heart of an extensive saguaro forest and offers a close leisurely look at a variety of Sonoran Desert life. This one-way road, which begins at the visitor center, is paved.

Trails About 128 miles of trails wind through the desert and mountain country of Saguaro East. Short hikes will introduce you to the plant and animal life of the Sonoran Desert. The 0.25-mile paved Desert Ecology Trail, located along Cactus Forest Drive, provides a brief explana-



tion of water's role in the desert. This self-guiding trail is accessible to the disabled. Many other trails along the scenic drive are suitable for short hikes into the nearly pristine desert environment of this area. For information on these trails, stop at the visitor center. Several longer hiking trails penetrate the vast wilderness of the Rincon Mountains and their foothills. This is

part of the park few people experience because it is accessible only by foot or on horseback. It is quite unlike the lowland cactus deserts. In the Rincon Mountains, woodlands of scrub oak and pine and forests of ponderosa pine and Douglas-fir similar to those of the northern United States and southern Canada prevail.

Desert Plant Communities

In Saguaro National Monument several desert plant communities grow from the hot, dry desert lowlands to the cooler, moister mountain peaks. In Saguaro West, lowland communities of desert scrub—where the saguaro appears in exceptionally fine stands—and desert grasslands occur. Saguaro East, with its wider range of elevations, has all the communities shown here. This area has one of the most diverse assortments of plants in the Southwest.

Because many of the trails of Saguaro East intersect one another, trips of varying length can be planned. Horseback riding is permitted on all trails except the Tanque Verde Ridge Trail, Miller Creek Trail, and the Rincon Peak Trail. Before hiking or horseback riding into the Rincon Mountains, check with a park ranger on trail conditions.

Backcountry camping is allowed but only at designated sites. Backcountry use permits must be obtained at the visitor center in advance of an overnight trip.

Picnic Areas There are 2 picnic areas in Saguaro East, both located along the Cactus Forest Drive. Each has picnic tables, fire grills, and pit toilets. They do not have drinking water.

Nearby Places of Interest Coronado National Forest, which surrounds Saguaro East on the north, east, and south, has campgrounds, hiking trails, and picnic areas.