

Saguaro

Saguaro National Park
Arizona

National Park Service
U.S. Department of the Interior



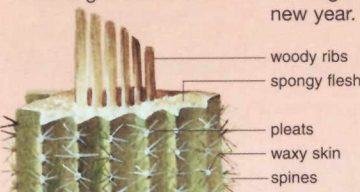
The saguaro has been described as the monarch of the Sonoran Desert, as a prickly horror, as the supreme symbol of the American Southwest, and as a plant with personality. It is renowned for the variety of odd, all-too-human shapes it assumes, shapes that inspire wild and fanciful imaginings. Since 1933 this extraordinary giant cactus has been protected within Saguaro National Park. Preserved along with it are many 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, it is one of the hottest and driest regions on the

continent. Summer midday temperatures commonly climb above 100°F. Fewer than 12 inches of rain falls 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 Park.

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

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

also provided seeds for the Tohono O'Odham and their chickens to eat, along with 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 cactus has no conventional leaves that 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's moisture, shade the plant, and shield it from drying winds. Waxy skin aids in reducing moisture loss.



The saguaro collects water with a network of roots that lies about 3 inches below 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 live in the Sonoran Desert. There are more than 50 types of cacti, including hedgehog cactus (1), barrel cactus (2), fish-hook cactus (3), teddy-bear cholla (4), and prickly pear (5). There is creosote bush (6), the most widespread of all North American desert plants, and mesquite (7), a common desert tree. Ocotillo (8) sprouts leaves within days after a rainstorm, then drops them as moisture disappears. The

palo verde, with its small moisture-saving leaves, is shown above with a young saguaro. Annual flowers, such as the desert marigold (9), bloom in spring or summer when conditions are right. Although the desert community predominates in Saguaro National Park, 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 pinhead. 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, few 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. Saguaros 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. Saguaros that live 150 years or more attain the grandest sizes, towering as high as 50 feet and weighing 8 tons, 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 Saguaros 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. Until recent years deaths have greatly outnumbered the growth of new young

saguaros in some forests within the park. What has caused the decline in these areas?

Biologists believe that severe freezes are the park's major cause of saguaro deaths. The saguaros here are at their extreme northern and eastern 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. 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 of the saguaro is underway in several areas. Thousands of young saguaros have taken hold, and they 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 flowers—big, bold, and numerous—bloom and color the desert in late April, May, and June. Each blossom opens in the cool of the night a few hours after the sunset. By the next afternoon, the flower has wilted and 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. Whitewinged doves (above) and long nose bats—summer migrants from Mexico—honeybees, and moths acci-

dentially 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.



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 Gila woodpecker (10) and gilded flicker (11). These birds dwell in nest holes they make in the trunk and larger branches of saguaros. The birds excavate new 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 rapidly move in. The birds who compete for the homes include American kestrel (12), Lucy's warblers (13), cactus wrens (14), western kingbirds (15), phainopepla (16), elf owls (17), and purple martins (18). Honeybees (19) 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 the summer and 20°F warmer in the winter than outside. Other saguaro dwellers live not in holes but in bulky nests. These include red-tailed hawks (20) and Harris hawks (21).



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 cactus mouse (22) and Western diamond-back rattlesnake (23). Other creatures restrict their activities to cooler morning and evening hours. Gambel's quail

(24), roadrunners (25), and other birds feed at these times, as do many reptiles, including the desert tortoise (26) and the Gila monster (27). Animals who are out at midday have special adaptations for dissipating heat. One animal, the jackrabbit (above) radiates heat from its oversized ears. Desert creatures also have ways of dealing with the acute

shortage of water. During droughts javelinas (28) eat succulent prickly pear pads. The kangaroo rat (29) never needs to drink a drop of water, getting all it needs from seeds it eats. Some animals, such as the cactus wren (30), 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

Visiting Saguaro National Park

The Park
Saguaro National Park consists of two districts: Saguaro West and the much larger Saguaro East. The two areas, separated by the city of Tucson, are about 30 miles apart. Together they preserve 91,327 acres of the life and landscape of the Sonoran Desert, including the park's namesake—the saguaro.

Saguaro's Desert Climate

Many people feel that the best season in the desert 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 nighttime, temperatures drop by as much as 30°F, and high in the Rincon Mountains it is even cooler. Rainy seasons occur twice a year: there are short but violent thunderstorms from July through September and gentle rains from January to March. Otherwise, sunshine prevails.



Planning Your Visit

Saguaro National Park's two districts, Saguaro West and Saguaro East, have visitor centers, scenic drives, trails, and picnic areas. Neither district has campgrounds or lodges.

More Information
Saguaro National Park
Tucson, AZ 85730-5699
520-733-5158 (Saguaro West)
520-733-5153 (Saguaro East)
www.nps.gov/sagu

Important Safety Information

- Hiking and other strenuous activities in extreme heat can be hazardous. Pace yourself and rest often. Carry at least one gallon of water per person per day. Drink it even when you do not feel thirsty! There is no water available at picnic areas or along most trails.
- Avoid painful encounters with cacti and other prickly plants. Be very careful near cholla cactus spines. With just the slightest touch, they 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 sight-seeing. Obey speed limits. Driving off-road is prohibited. Always wear your seatbelt.
- Pets must be leashed at all times. They are not allowed on trails.
- **Persons planning to hike or ride a horse on the longer park trails should carry a topographic map.**
- **In an emergency, contact a ranger or call 911.**

Touring Saguaro West

Saguaro West embraces a variety of Sonoran Desert life against the backdrop of the rugged Tucson Mountains.

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

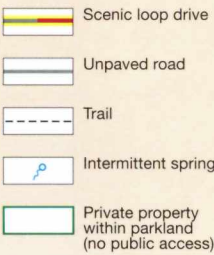
Scenic Drive The six-mile Bajada Loop Drive begins 1.5 miles northwest of the Red Hills Visitor Center. The loop passes through a dense saguaro forest on a graded dirt road. Persons with motor homes or trailers should check road conditions before starting the drive. You can purchase a guidebook at the visitor center.

Trails A hike in Saguaro West can be a stroll on a nature trail or a day-long wilderness trek. Within a mile of the visitor center are two nature trails. The Cactus Garden Trail at the visitor center follows a level paved walkway through a collection of desert plants. The accessible Desert Discovery Nature Trail loops 0.5 mile along the gently sloping bajadas at the foot of

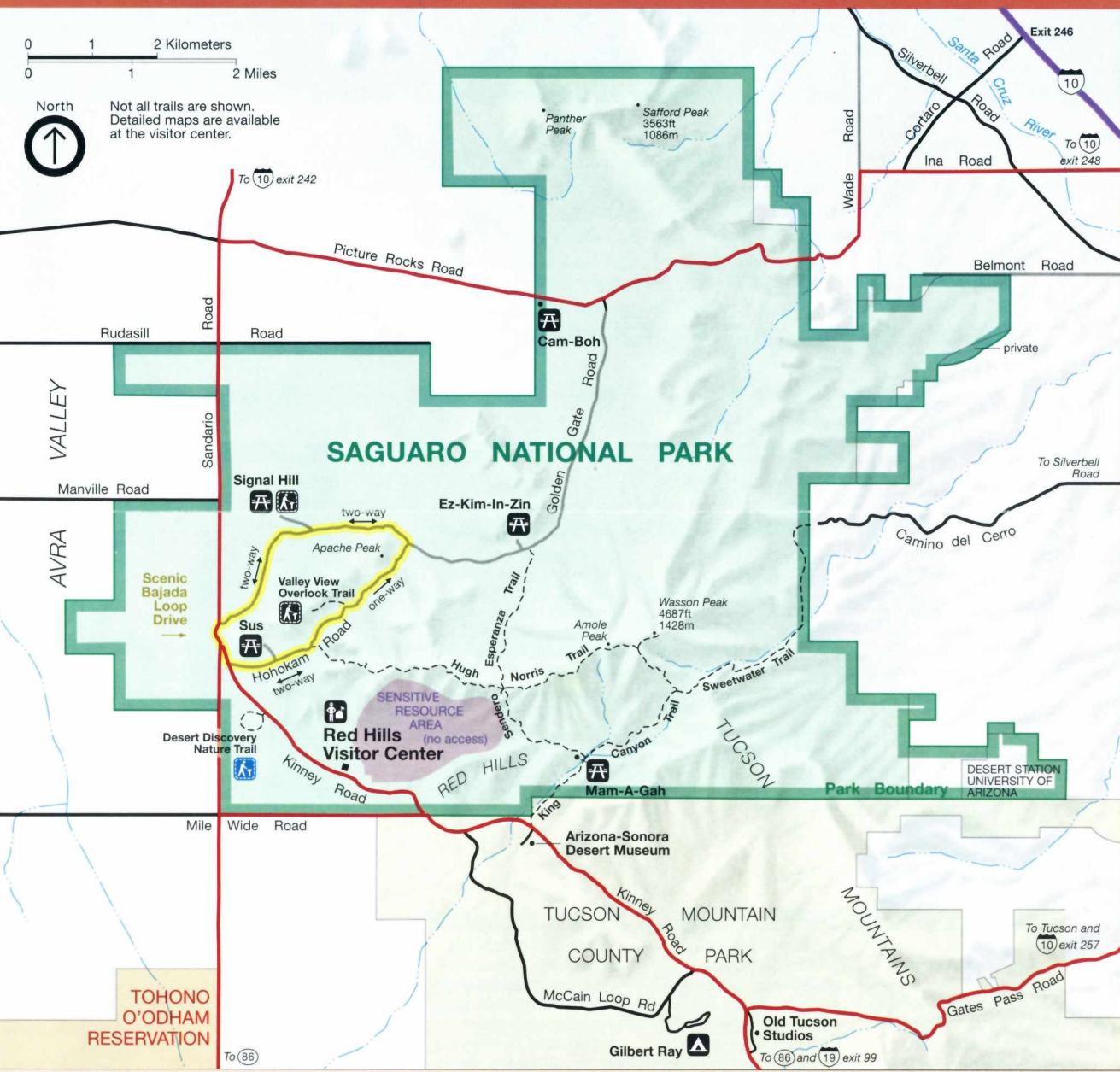
the Tucson Mountains. Another short trail, the Valley View Overlook Trail, 0.8-mile round-trip, has spectacular views of the mountains and desert, and extensive saguaro forests. Longer trails penetrate the wild country of the Tucson Mountains and their foothills. Because these trails intersect one another, you can make your hike as long as desired. Horseback riding is permitted on most trails. Check at the Red Hills Visitor Center for trail information. Hikers and riders should stay on the 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.

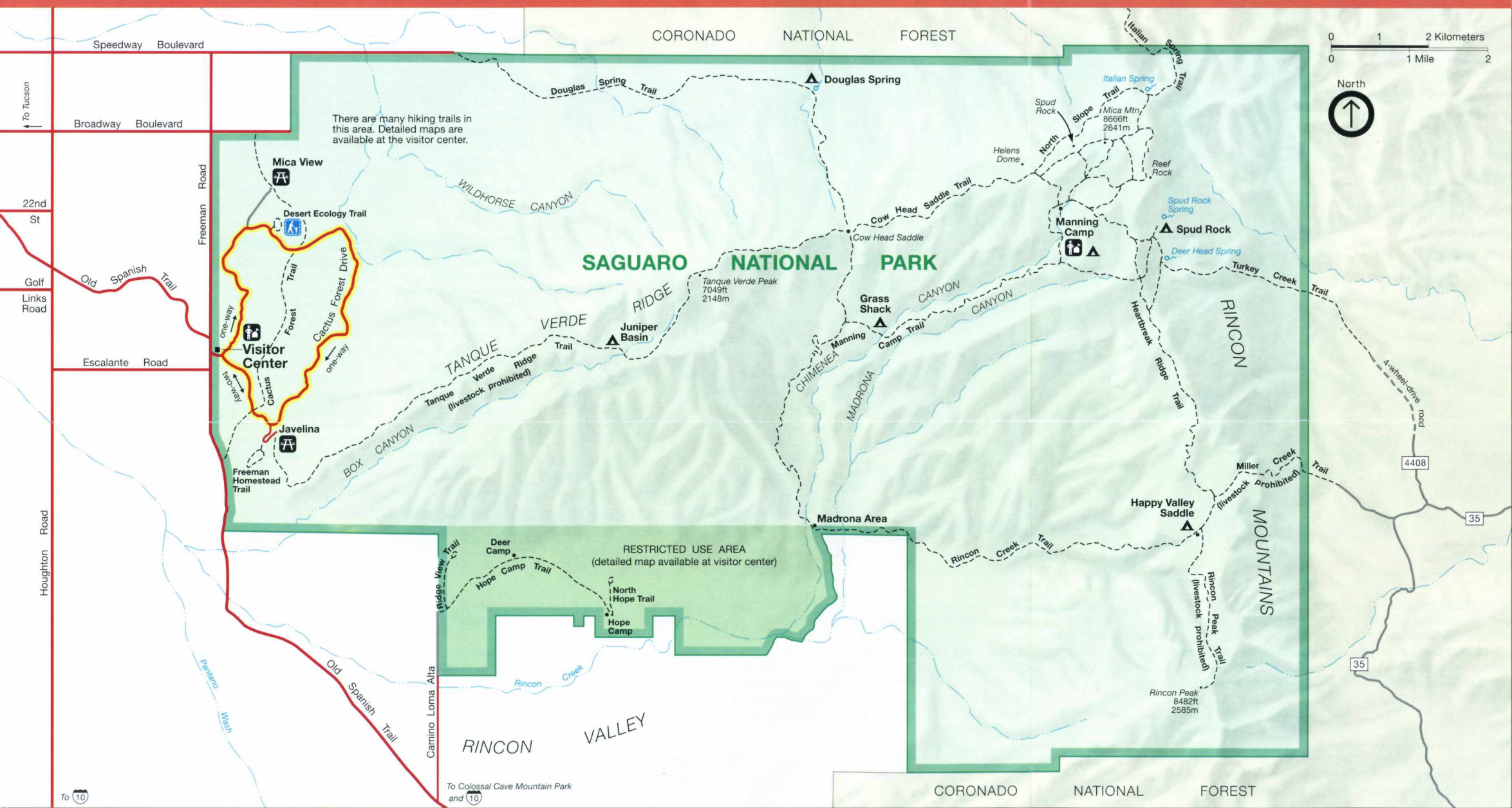
Nearby Places of Interest South of Saguaro West, the Arizona-Sonora Desert Museum has a collection of about 200 live desert animals and 300 kinds of plants. Also to the south is Tucson Mountain County Park, which has hiking and horse trails and a campground.



Saguaro West: Tucson Mountain District



Saguaro East: Rincon Mountain District



Touring Saguaro East

Saguaro East encompasses an aging saguaro forest at the foot of the majestic Rincon Mountains and an exceptional variety of other desert communities. The park is open daily.

Visitor Center At the visitor center you will find books, brochures, trail and drive guides, maps, exhibits, and a slide program on the saguaro and the Sonoran Desert. Rangers are available to answer 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 visitor center is open daily.

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

Trails Some 128 miles of trails wind through the desert and mountain country of Saguaro East. Short hikes will introduce you to the life of the Sonoran Desert. The 0.25-mile paved Desert Ecology Trail, located along Cactus Forest Drive, provides a brief explanation of water's role in the desert. This self-guiding trail is accessible to visitors with disabilities.

Other trails along the scenic drive are suitable for short hikes into the desert environment of this area. For information about these trails, stop at the visitor center. Several longer hiking trails penetrate the vast wilderness of the Rincon Mountains and their foothills. This is a part of the park few people experience because it is

accessible only by foot or on horseback. It is unlike the lowland cactus deserts. In the Rincon Mountains there are 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.

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 Rincon Peak Trail. Before hiking or horseback riding into the Rincon Mountains, check on trail conditions with a park ranger.

Backcountry 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 two picnic areas in Saguaro East, both located off the Cactus Forest Drive. Each has picnic tables, fire grills, and pit toilets. There is no drinking water.

Nearby Places of Interest Coronado National Forest adjoins much of the boundary of Saguaro East. It offers campgrounds, hiking trails, and picnic areas.

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