

Saguaro

Saguaro National Park
Arizona

National Park Service
U.S. Department of the Interior



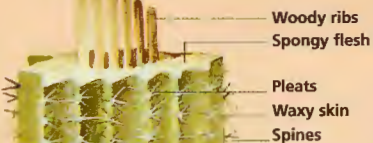
The saguaro has been called monarch of the Sonoran Desert, supreme symbol of the American Southwest, and a plant with personality. It is renowned for the variety of odd, all-too-human shapes it assumes—shapes that inspire wild and fanciful imaginings. Since 1933 this extraordinary giant cactus has been protected within Saguaro National Park. Preserved with it are other members of the Sonoran Desert community—other cacti, desert trees and shrubs, and 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. 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 ecosystems 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 products of the saguaro. In summer the saguaro produces a nourishing bounty of juicy, fig-like fruits. Tohono O'odham Indians knock

them off the cacti with long poles. From the fresh fruit they make jam, syrup, and, for religious ceremonies, wine. The fruit is so important to the Tohono O'odham that they mark the season of its harvest as the

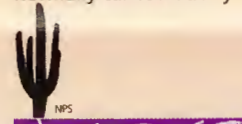
beginning of their new year. Saguaro also provide edible seeds and strong woody ribs that O'odham use to build fences and shelters.



Many features help the saguaro store and conserve that precious desert commodity—water. Accordion-like pleats allow the cactus to expand and hold water collected through its roots. Spongy flesh in its trunk and branches serves as a reservoir, storing water as a slow-

to-evaporate gelatin-like substance. Unlike most plants, the saguaro has no conventional leaves that transpire large amounts of water. The food-making process of photosynthesis normally carried out by

leaves is performed in the trunk and branches. Spines shade the plant, shield it from drying winds, and discourage animals. Waxy skin also aids in reducing moisture loss (see illustration above left).



Saguaros collect water with a network of roots that lies about three inches below the desert surface and stretches as far from the main trunk as saguaros are tall. In a single rainfall, these shallow roots—along

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

Palo verde tree shelters a young cactus (left).

The Sonoran Desert supports a variety of plants (see illustration at right). There are over 25 species of cacti, including hedgehog (1), barrel (2), fishhook (3), teddybear cholla (4), and prickly pear (5). Creosote bush (6) is the most widespread of all North American desert plants. Mesquite (7), a common desert tree, provides shade for wild-

life. Ocotillo (8) sprouts leaves within days after a rainstorm, then drops them as moisture disappears. Annual flowers, like desert marigold (9), bloom in spring or summer if conditions are right. Although desert plants predominate in Saguaro National Park, ponderosa pine, oak, and Douglas fir grow on high mountain slopes.



Saguaro flowers—creamy-white, big, bold, and numerous—color the desert from late April through June. Each blossom opens after sunset in the cool of the night. By the next afternoon the flower has wilted and the brief period of bloom has ended. The spectacle

repeats itself night after night for about four weeks until as many as 100 flowers have bloomed on each saguaro. In the few hours that the flowers are open, flying animals pollinate them. White-winged doves (above) and long nose bats—summer migrants from

Mexico—honeybees, and moths become powdered with sticky pollen as they feed on the flower's nectar. Animals travel from flower to flower, transporting pollen and fertilizing as they go.



Saguaro fruit ripens in June and July. The sugary pulp of each fruit contains as many as 2,000 seeds (see red fruit above right).

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

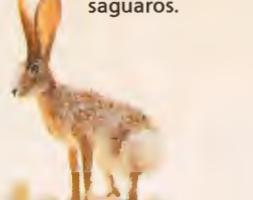


The saguaro is like a multi-storied apartment complex—many animals live in close quarters and occupants change constantly (see illustration at left). Two common residents, the Gila woodpecker (10) and gilded flicker (11), drill nest holes in the trunks and larger branches. The birds excavate new holes each spring, often making and rejecting several cavities in one season before settling

in one to raise a family. This provides holes for other animals, who move in rapidly.

Animals competing for homes include American kestrel (12), Lucy's warblers (13), cactus wrens (14), western kingbirds (15), phainopeplas (16), elf owls (see above), screech owls (17), purple martins (18), and honeybees (19). For residents the holes are a retreat from temperature

extremes. Insulated by thick walls, the holes are up to 20°F cooler in summer and 20°F warmer in winter than outside. Red-tailed hawks (20) and Harris hawks (21) don't live in holes but build bulky nests in saguaros.



Desert animals are well adapted to life in their demanding environment. Many avoid the day's heat by venturing out only at night. These nocturnal animals include the cactus mouse (22) and Western diamondback rattlesnake (23). Other animals restrict activities to cooler

morning and evening hours. Gambel's quail (24), roadrunners (25), and other birds feed then, as do many reptiles, including the desert tortoise (26) and Gila monster (27). Animals out at midday have special adaptations for dissipating heat. The jackrabbit (above) dissipates heat from its oversized ears.

Desert creatures deal with the acute shortage of water. During severe droughts javelinas (28) eat prickly pear pads. The kangaroo rat (29) never needs to drink water, getting all it needs from eating seeds. Cactus wrens (30) build nests in the spiny cholla where their nestlings are protected.

Life of the Saguaro

THE STRUGGLE FOR LIFE BEGINS A saguaro begins its life as a shiny black seed no bigger than a pinhead. But what it lacks in size it makes up for in numbers. One saguaro cactus produces tens of thousands of seeds in a year and as many as 40 million in its lifetime of 175 to 200 years. From the start, odds against survival are great. Out of the millions of seeds that a saguaro produces, few plants survive to adulthood. Seeds and young saguaros have the best chance for survival if they are cared for by nurse trees like palo

verde and mesquite. Seedlings growing under these plants are shaded from the intense sunlight, blanketed from winter cold, and hidden from hungry rodents, birds, and other animals. Rocks can also protect young saguaros. Saguaro grow best on bajadas—gently sloping outwash plains at the foot of desert mountains.

GROWTH OF A GREEN GIANT Saguaro grow very slowly, mostly in spurts in the summer rainy season. By year's end a seedling may

measure only ¼ inch. After 15 years it may be barely 12 inches tall. At about 30 years saguaros begin to flower and produce fruit. By 50 years the saguaro can be as tall as seven feet. After 75 years it may sprout its first branches, or arms. Branches begin as prickly balls, then extend out and upward. By 100 years the saguaro may reach 25 feet. Saguaro that live 150 years or more attain the grandest sizes, towering 50 feet and weighing 16,000 pounds or 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 (see small illustration above left).

DEATH AND REBIRTH Saguaro die of old age, but they also die of other causes. Animals eat the seeds and seedlings, lightning and winds kill large saguaros, and 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 outnumbered new growth in some saguaro forests in the park. What has caused the decline in these areas? Some biologists believe that freezing is the major cause of saguaro deaths. Saguaro here are at their extreme northern and eastern range, where cold winter temperatures occur most often.

Humans, too, have played a part in the decline. Livestock grazing—from the 1880s until 1979—devastated some cactus forests. Seed-

lings were trampled or unable to find suitable places to grow because cattle compacted the ground and killed nurse plants.

Today with grazing eliminated, saguaro recovery is underway. Thousands of young saguaros have taken hold and are thriving. Still, natural forces, invasive species, vandalism, and cactus poaching—steft of saguaros for use in landscaping—take a toll on the park's saguaro forests.

COLOR ILLUSTRATIONS: NPS/ROBERT HYNES

Enjoying Saguaro National Park

THE PARK

Saguaro National Park consists of two districts: Saguaro West–Tucson Mountain District, and Saguaro East–Rincon Mountain District. The two areas, separated by the city of Tucson, are about 30 miles apart. Together they preserve over 91,000 acres of the Sonoran Desert, including the park's namesake, the saguaro cactus.

OUR DESERT CLIMATE

Many people feel that the best time to visit is October through April, when daytime temperatures reach the 70s and 80s°F, and nighttime temperatures may fall below freezing.

The hottest season is May through September, with average highs in the 100s°F. Even then, nighttime temperatures drop by as much as 30°F; in the Rincon Mountains it is even cooler.

Rainy seasons generally occur twice a year (July through August and December through January), and there can be short but violent thunderstorms July through September and gentle rains from January to March. Otherwise sunshine prevails.



Planning Your Visit

Saguaro West and Saguaro East have visitor centers, scenic drives, trails, and picnic areas. Entrance fees apply. No campgrounds or overnight lodging are available in the park. Backpacking in Rincon Mountain District is by permit only. Contact the park about programs, fees, permits, and activities.

SAFETY FIRST

Ask rangers for safety tips and know the regulations. *Remember—your safety is your responsibility.*

- Hiking and 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 even if you don't feel thirsty! There is no water at picnic areas or along most trails.
- Avoid painful encounters with prickly plants. Be very careful near cholla cactus spines. With the slightest touch they can become embedded in your skin. If a cactus joint attaches itself, use sticks, a pocket comb, or other object to flip it away.
- All plants, animals, and other natural and cultural resources are pro-

More Information
Saguaro National Park
3693 South Old Spanish Trail
Tucson, AZ 85730-5699
520-733-5158 (Saguaro West)
520-733-5153 (Saguaro East)
www.nps.gov/sagu

To learn more about national parks visit www.nps.gov.

ected by federal law. Be respectful.

- Avoid poisonous rattlesnakes, scorpions, or Gila monsters. Don't put your hands or feet in places you can't see. Carry a flashlight at night.
- Lightning and flash floods pose threats during thunderstorms. Avoid open and low-lying areas.
- Park roads are designed for sight-seeing. Obey speed limits. Driving off-road is prohibited.
- Pets must be leashed at all times; they are allowed only on roadways and in picnic grounds.
- If you plan to hike or ride a horse on the longer park trails, carry a trail map.

• **Emergencies: call 911.**

Saguaro West–Tucson Mountain District

The Tucson Mountain District embraces a variety of Sonoran Desert plants and animals against the backdrop of the Tucson Mountains. The park is open daily.

Visitor Center The Red Hills Visitor Center has information, exhibits, audio-visual programs, brochures, books, and maps to help you learn about and enjoy the park. Staff can answer questions and help you plan your visit. The visitor center is open daily except December 25.

Scenic Bajada Loop Drive This five-mile scenic drive begins 1.5 miles northwest of the Red Hills Visitor Center. It loops through a dense saguaro forest on a graded, unpaved road. All unpaved roads are closed to vehicles from sunset to 6 am. Persons with motor homes or trailers should check road conditions before starting the drive.

Trails A hike can be a stroll on a nature trail or a day-long wilderness trek. The Cactus Garden Trail (at the visitor center) follows a level paved walkway through a variety of desert plants. The wheelchair-accessible Desert Discovery Nature Trail

(one mile north of the visitor center) loops 0.5 mile along gently sloping bajadas at the foot of the Tucson Mountains. **Valley View Overlook Trail**, 0.8-mile round-trip, has views of the mountains, desert, and saguaro forests. Get trail maps and details at the visitor center.

For your safety stay on the trails; abandoned mineshafts make off-trail exploration extremely hazardous. Horseback riding is permitted on some trails. Camping is not allowed. Before hiking or horseback riding here, check on trail status and conditions with a park ranger.

Picnic Areas Four picnic areas are along park roads. A backcountry picnic area can be reached by trail; please pack out all trash from this site. Each area has tables, grills, shade ramadas, and pit toilets, but no water. There are no grills or toilets at Mam-A-Gah.

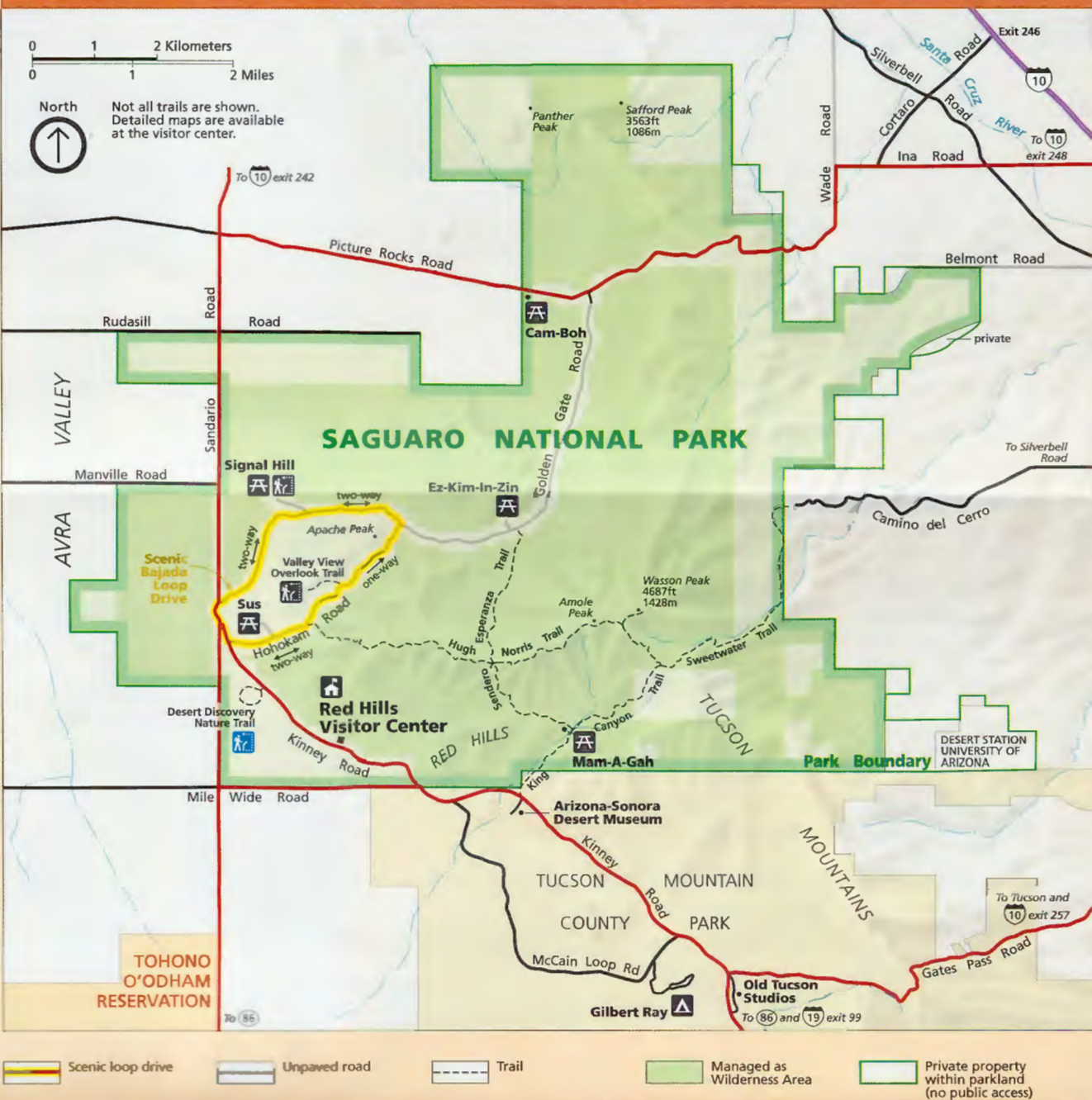
Things To See Nearby The Arizona-Sonora Desert Museum has about 200 desert animals and 300 desert plants. Tucson Mountain County Park has camping, hiking, and horse trails (see map at right).

- ▲ Ranger station
- ▲ Picnic area
- ▲ Self-guiding trail
- ▲ Wheelchair-accessible self-guiding trail
- ▲ Campground
- ▲ Backcountry campsite

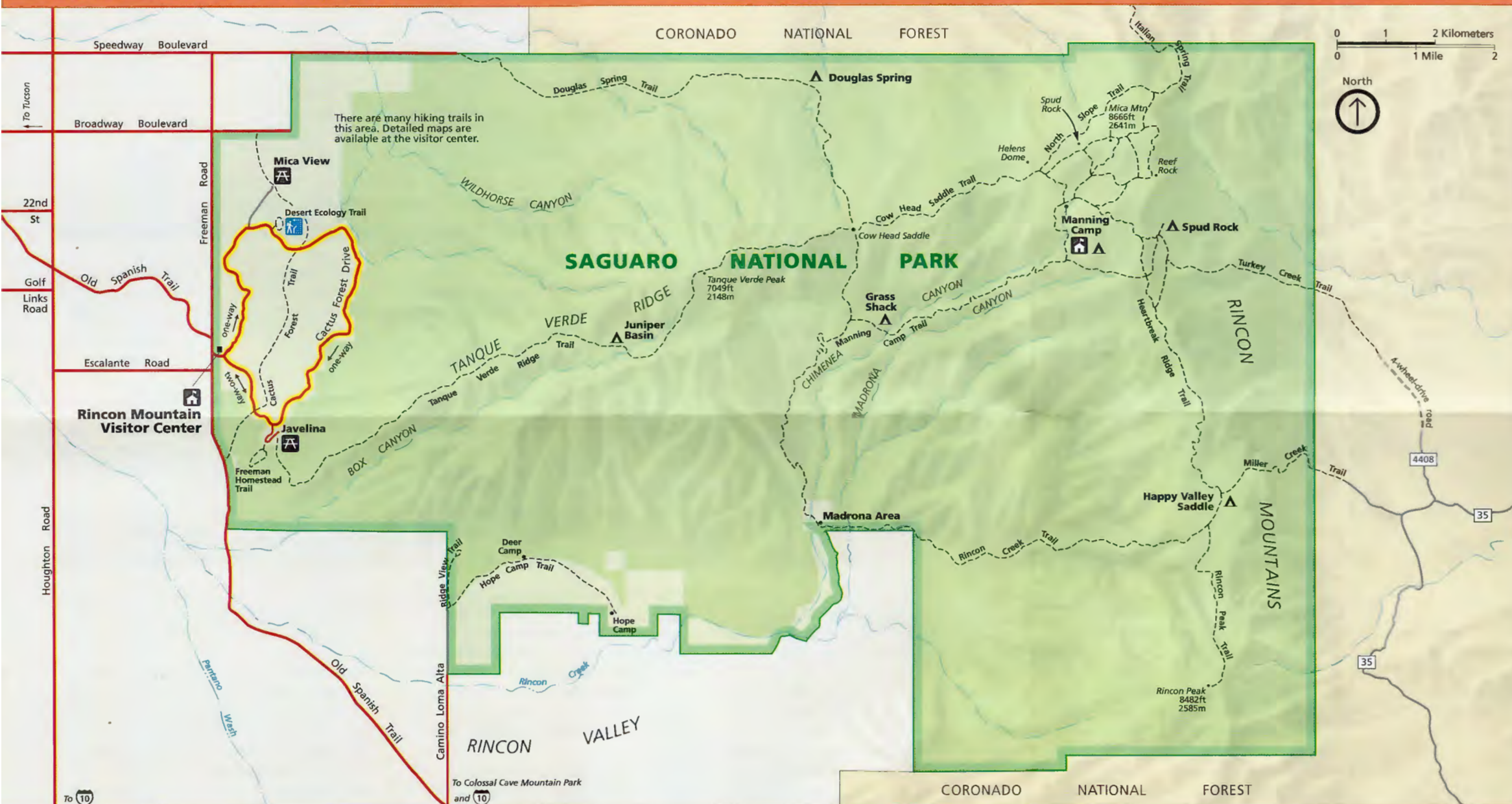
SAGUARO WILDERNESS

In 1976 Congress designated over 70 percent of the park as wilderness area. Wilderness areas preserve the land's natural conditions and provide opportunities for solitude and primitive recreation. Preserving wilderness shows restraint and humility and benefits generations to follow. For more information visit www.wilderness.net.

Saguaro West–Tucson Mountain District



Saguaro East–Rincon Mountain District



Saguaro East–Rincon Mountain District

Rincon Mountain District includes a healthy saguaro forest at the foot of the Rincon Mountains and a variety of other desert communities. The park is open daily.

Visitor Center At the Rincon Mountain Visitor Center you will find books, brochures, trail and drive guides, maps, exhibits, and a slide program on the saguaro and Sonoran Desert. Rangers can answer questions and help you plan your visit. Schedules of park activities offered in winter are posted. The visitor center is open daily except December 25.

Cactus Forest Drive This eight-mile scenic drive winds through a saguaro forest and offers a close and leisurely look at a variety of Sonoran Desert life. This paved one-way road begins at the visitor center.

Trails Some 128 miles of trails wind through the desert and mountain country of Rincon Mountain District. Short hikes will introduce you to the life of the Sonoran Desert. The 0.25-mile paved Desert Ecology Trail, along Cactus Forest Drive, provides an exploration of desert life. This self-guiding trail is wheelchair accessible.

Other trails along the scenic drive are suitable for short hikes into the desert environment. For information about these trails, stop at the visitor center. Several longer hiking trails penetrate the wilderness of

the Rincon Mountains and their foothills. This is a part of the park few people experience because you can get to it only by foot or horseback. Unlike the lowland cactus desert, the Rincon Mountains have 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 intersect, trips of varying length can be planned. Horseback riding is allowed on most trails. Before hiking or horseback riding in the Rincon Mountain District, check on trail status and conditions with a park ranger.

Backcountry Backcountry camping is permitted at designated sites only. You must get backcountry use permits at the visitor center before taking an overnight trip. Camping permit fees apply.

Picnic Areas There are two picnic areas in the Rincon Mountain District, both off Cactus Forest Drive. Each has picnic tables, fire grills, and pit toilets. There is no water.

Things To See Nearby Coronado National Forest adjoins the Rincon Mountain District. It has campgrounds, hiking trails, and picnic areas. Colossal Cave Mountain Park, 11 miles southeast of the park, has cave tours, hiking trails, and camping (see map at left).