Sunset
FEBRUARY 1994


P.K. WEIS


DON NORMARK

Saguaro fruits are favored by locals, who harvest them with long poles (far left). Cactus tops serve as perches for birds, such as the mourning dove (left).

It's scenic, rich in plant and animal life, and it offers grand hiking in winter. It's Arizona's

Saguaro Country

By Jim McCausland



As you crunch your way up the hilly trail in the soft dawn light, silhouettes of giant saguaros rise around you. Strangely human, they seem to hold their arms skyward, wave them, or reach out to neighboring saguaros in a kind of freeze-frame dance. Golden wildflowers fleck the rocky soil below, and between the saguaros, palo verdes spread bony green limbs topped with fine clouds of yellow blooms. Calls of flicker, quail, and cactus wren float across the chilly air, and off to the south a pair of coyotes move out of the valley and over the ridge.

This is saguaro country—that rocky,

Like so many nobles standing out in a crowd, saguaros preside over the plants of the lush Sonoran Desert.

JACK W. DYKINGA

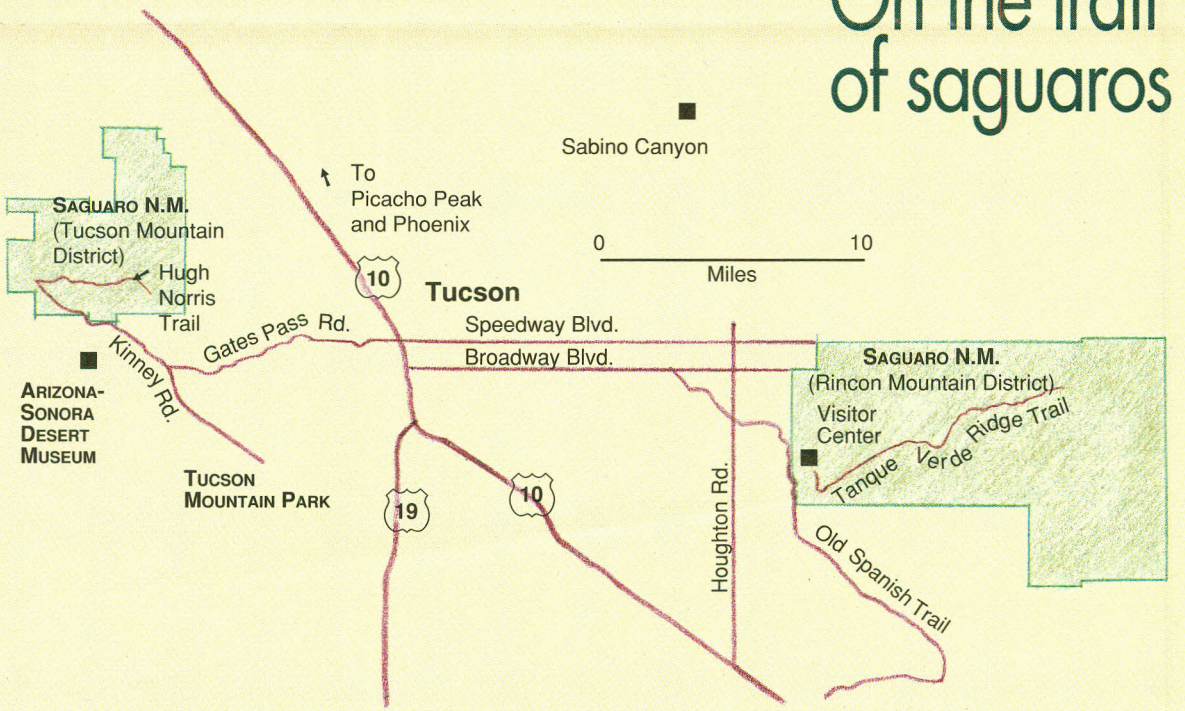




JACK W. DYKINGA

The Sonoran Desert (darker tone), lies partly in Arizona, partly in Mexico. Saguaro cactus grow along a desert wash that makes a good place to hike (above).

On the trail of saguaros



scrubby land known as the Sonoran Desert that sprawls across southern Arizona and into northern Mexico. More than any other plants, the magnificent saguaros that grow here by the hundreds of thousands define this land. Their fruits nourish insects, birds, and bats, and have provided generations of native peoples with tasty harvests. Their hulking frames shelter a rich diversity of animals and birds.

Unfortunately, over the years these majestic cactus have been poached for urban landscapes and shot at—one vandal was crushed to death when the saguaro arm he blasted dropped on top of him. Development, drought, animals, and 100-year freezes also have taken their toll.

The news, however, isn't all bad. Having invested more dollars on saguaros than on any other nonagricultural plant in the United States, researchers know a lot, including how to successfully move small- to medium-size saguaros out of the way of development. And we're learning how to fit human communities close to the saguaro community of plants and animals.

Though you can get to know saguaro country anytime, winter is the best season to start: cool, sunny days make hiking comfortable, and snakes remain in hibernation until the weather warms up.

Saguaros...center of life in the Sonoran Desert

The saguaro's story is written on the desert itself. You can hike through it, read it like a book, and come away knowing much more about the life cycles that drive all natural systems—even those well beyond this corner of the Southwest.

On a hike through saguaro country, for example, you might see a baby saguaro growing beneath the protective cover of a creosote bush, or a mammoth saguaro standing a full 50 feet high with more than 40 arms, countless scars and nest holes (an elf owl might peer out of one), and about 200 years of history behind it. Or you might see the skeletal remains of a long-dead saguaro scattered on the desert floor.

At any stage of life, saguaros are connected in some way with every plant and animal in the desert.



Docent at Desert Botanical Garden in Phoenix shows the ribs that give a saguaro its shape and strength.

NORMAN A. PLATE

Saguaros in Phoenix

The Desert Botanical Garden is a great place to learn about saguaros and the wild plants around them.

Start by taking one of the garden's Monday morning bird walks (they start at 8); docents point out the woodpeckers, flickers, and wrens that nest in saguaros, as well as quail, roadrunners, and a host of smaller birds that live on and around these huge cactus. Because the birds' breeding season is now beginning, songs give away the locations of birds that are silent most of the year.

When the walk ends, pick up a *Desert Botanical Garden Trail Guide* (50 cents at the main gate), a basic field guide to desert plants, then amble through the garden to take a closer look at some of the plants that share the desert with saguaros.

Tree-size mesquites and palo verdes—labels tell which are which—serve as nurse plants for just-sprouted saguaros, shaving as much as 30° off ground temperatures on hot summer days. Cardon (*Pachycereus*) and organpipe cactus (*Lemaireocereus thurberi*) both bear a passing resemblance to the saguaro, and both show up in parts of the Sonoran Desert.

Stop at docent stands to look at cross sections of saguaro bodies, their stavelike ribs, and saguaro "boots." Formed by scar tissue growing around nesting cavities excavated by woodpeckers, these boot-shaped skins are so tough they often outlast the cactus itself.

Joe McAuliffe, the garden's director of research, is among those who have concluded that the massive saguaro die-off in Saguaro National Monument is a natural process.

Before you leave, stop at the greenhouse. Saguaros (*Carnegiea gigantea*) are among the plants for sale. You can buy small seedling-grown plants anytime and larger plants (usually saved from construction at other desert sites) at special sales twice a year.

Desert Botanical Garden, at 1201 N. Galvin Parkway in Papago Park, is open from 8 to 8 daily. Admission costs $5, $4 ages 60 and over, $1 ages 5 through 12.

Saguaros and animals

For a close-up look at saguaro country's creatures, visit The Arizona-Sonora Desert Museum, 14 miles west of Tucson. All the animals mentioned here live in the museum's zoological garden, built in a classic saguaro forest.

As you walk through, you can learn about the relationships among species. Top predators like bobcats, coyotes, and mountain lions keep smaller animals like rabbits and wood rats in check. That's no small service: when rodent populations get out of hand, they turn to saguaro skin for moisture, girdling the giant cactus at ground level and ultimately shortening or ending the cactus's life.

Wood rats, shrews, and kangaroo rats often nest beneath saguaro roots, building stick-covered runways or nests on the surface to protect themselves from the Harris and Swainson's hawks that rest on saguaro arms. Those runways don't stop the snakes, however, who can glide straight into nests, eat the occupants, and set up housekeeping for themselves . . . if roadrunners waiting under the saguaro's nurse plants don't get them first.

You'll also see javelinas at the Desert Museum—they stop traffic when they gobble down prickly pear pads, spines and all. But these recent arrivals in the Sonoran Desert know saguaros only as acquaintances, not as millennial neighbors.

As you think about these creature-to-cactus relationships, try to guess one more: what pollinates the flowers that appear every May? One hint: each flower opens in the evening, closes around noon the next day, then dies.

The answer is that bees do a lot of the work, sharing morning pollination duties with white-winged doves (which you can see in the museum's incomparable, walk-in aviary for native birds). At night, lesser long-nosed bats take over.

In July, when saguaro fruit is ripe, the bats and white-winged doves go into action, this time to disperse seeds. After eating, the doves fly off and alight on mesquites, palo verdes, or other desert shrubs, where they drop the seeds to the ground in a dollop of guano. Seedlings emerge in the protective shelter of their new nurse shrubs, and another generation gets its start. Bats drop guano-covered seeds randomly as they fly back to their daytime roosts.

The Arizona-Sonora Desert Museum is at 2021 N. Kinney Road, in Tucson Mountain Park. Hours are 8:30 to 5 daily. Admission costs $7.95, $1.50 ages 6 through 12.

Stalking the wild saguaro

Take a walk in the east or west districts of Saguaro National Monument (see map at left) and you'll know why saguaros have been called desert statuary. Whether it's the plant's size,

A SAGUARO HABITAT

A saguaro is a giant condo for all kinds of desert life. Gila woodpecker and gilded flicker excavate nest holes in spring, raise their young, and move on. Then the holes' walls callus, leaving relatively cool, well-insulated spaces that can be taken over by owls, warblers, flycatchers—even bees. Cactus wrens, white-winged doves, and red-tailed hawks build nests in the crotches between arms and the trunk. Vultures rest atop the saguaro, while other raptors hunt from saguaro arms: when prey passes beneath, they swoop silently down for the kill. After the big plant drops fruit, everything from javelinas and coyotes to birds moves in to feast, dispersing seeds in the process.



LIFELINE OF THE SAGUARO



ILLUSTRATION BY PETE COLLINS

AT SEEDLING STAGE, *all spines, the saguaro is most vulnerable to heat, gnawing by rodents, and trampling. This one is in its first year.*



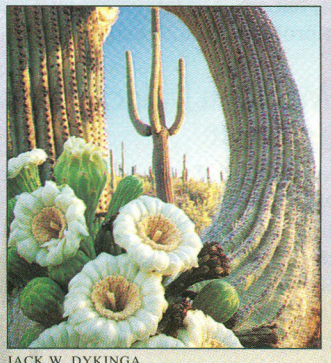
JIM HONCOOP

PRECOCIOUS *youngster pushes up through the mesquite that has sheltered it from the sun and the cold.*



DON NORMARK

FIRST FLOWERS *and arms can show up when the sagauro is about 60 years old.*



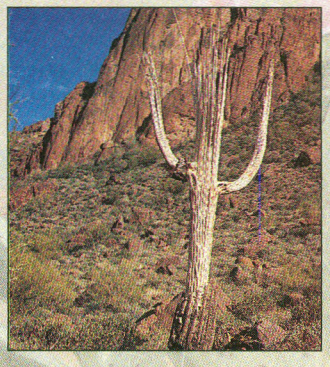
JACK W. DYKINGA

RED SAGUARO FRUITS *follow flowers; they have a sweet, fruity flavor with a hint of strawberry.*



DAVID ELMS

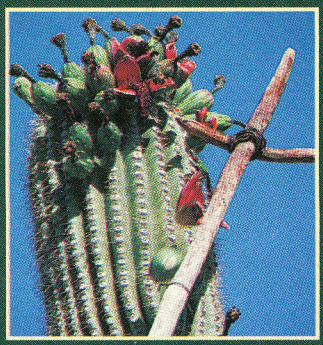
SAGUARO SKELETON *remains after the plant dies—150 to 200 years after germination.*



Saguaro fruit...from harvest to kitchen



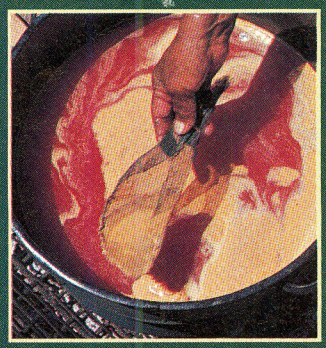
DAVID ELMS



A Native American uses a pole (left, above) to reach ripe fruit in July.



The red fruit, pulpy and full of seeds, splits when it's ripe.



Stirred over a flame, fruit is cooked into jam or aged into wine.

P.K. WEIS

its human form, or its stark simplicity against the desert sky, it's hard to imagine a plant that's more striking (though Joshua tree and organpipe cactus, which have national monuments of their own, come close).

There once was a lot of saguaro theft in both districts of the monument, but strict enforcement and heavy fines have reduced that problem dramatically.

Rincon Mountain District: the once and future forest

Imagine a massive forest of giant saguaros, some 400 to the acre, and you'll know why our forebears set aside this national monument, bordering Tucson, in 1933. But where is that forest now? Take off on any of the trails near the Rincon Mountain District Visitor Center, and you'll see young and some middle-age saguaros but few clues about what happened to the old forest. That riddle took almost half a century to solve.

When the monument was established, it consisted only of this, the east district. Because water was here, cowboys ran cattle over the land, and settlers cut wood to fuel lime kilns. Researchers surmise that cattle trampled untold numbers of seedlings and that woodcutters reduced the number of nurse plants available to protect saguaro seedlings, so fewer young cactus survived summer heat.

The effect on the forest went unnoticed until around 1940, when freezes started killing vast numbers of saguaros already weakened by age. In dying, the plants oozed black sap, which pathologists attributed to a mysterious plague called bacterial necrosis.

To stop the "epidemic," dying saguaros were buried or burned, but like hair on a balding head, the forest continued to thin. In 1945, the regional director of the National Park Service recommended abandoning Saguaro National Monument; the director of the National Park Service rejected the proposal. By 1962, with half of the monument's original population gone, some researchers predicted the extinction of saguaros by the year 2000.

In 1958, at the tail end of a nasty drought, the Park Service increased efforts to stop ranchers from grazing cattle on monument land. Within a decade, seedling saguaros began to reappear, and regeneration has accelerated up to the present.

But much remains to be learned about large-scale regeneration; some researchers suspect that, even under perfect conditions, it comes in waves spaced as much as 50 years apart.

As you hike through the Rincon Mountain District, the only evidence you'll see of former grazing is burroweed, a dense low shrub that covers disturbed areas. You'll also see large numbers of young saguaros pushing up through nurse plants. Many have no arms and are still too young to flower.

Huge saguaros still exist, but in reduced numbers. In fact, the world's biggest saguaro, nicknamed Old Granddaddy, stands on a mesquite flat about 12 miles from the visitor center. In its death throes, it's losing its arms and literally collapsing—probably not worth the hike.

Before you leave the Rincon Mountain District, hike a few miles up scenic Tanque Verde Ridge Trail. You'll see the life zones change quickly as you gain elevation, eventually rising above the saguaros into grassland, oak woodland, and pine-oak habitats.

The Rincon Mountain District Visitor Center is at 3693 S. Old Spanish Trail, about 6 miles north of Interstate 10. For directions, call (602) 296-8576. Pick up a trail map at the visitor center, open 8 to 5 daily; roads are open 7 to 5. Admission to this district of the monument costs $2 per person or $4 per vehicle. Backcountry camping is allowed by permit only (free at the visitor center).

Tucson Mountain District: high and pristine

To see some of the best saguaro stands anywhere, head for Tucson Mountain District, just north of Tucson Mountain Park. It was added to Saguaro National Monument in 1961.

Go in early morning or late afternoon, when colored skies and low light add drama to an already dramatic landscape. Dawn is even better: you'll hear a symphony of bird calls and see more animal life than at any other time of day.

Start at Desert Discovery Nature Trail, about 3 miles north of The Arizona-Sonora Desert Museum. Threading through a natural desert garden, this ½-mile flat loop trail gives you an unsurpassed look at how lush the Sonoran Desert can be. Interpretive signs cover the area's natural history, and small shaded areas give you places to sit and soak in the peace of the place.

From here, drive on to one of several trailheads. Our favorite short hike (1½ miles round trip) is Valley View Overlook Trail, which gives sweeping views across thousands of acres of the Sonoran Desert. For a longer and more strenuous walk, take Hugh Norris Trail, which you can follow for miles through large old plants. As you walk, look beneath shrubs for young saguaros just coming up, and at the bases of well-branched old saguaros for the bleached, woody remains of the

plants that once nursed them to maturity.

Be sure to get a close-up look at the saguaro's structure. The plant's vertical ribs expand, eventually doubling the diameter of the plant, as it takes up water after seasonal rains.

The district's entrance is on Kinney Road about a mile north of The Arizona-Sonora Desert Museum. Entry to this district is free, and roads and trails are open all the time. No backcountry camping is allowed. Until the new Red Hills Visitor Center opens (around March 1), get maps and information at a ranger-staffed table in front of The Arizona-Sonora Desert Museum. For current information, call 296-8576.

Picacho Peak

Anybody who's ever driven from Phoenix to Tucson knows this landmark mountain, which is a little more than halfway between the two great cities. Next time you make the trip, stop at Picacho Peak State Park, just west of Interstate 10 at exit 219. Take plenty of water: this is a dry mountain.

Day-use hours are dawn to 10 P.M. (but you must be off mountain trails by nightfall). Admission costs $3 per car. At the entry station, pick up a map; it shows the hikes we list here.

For an easy climb through a mix of saguaros, other cactus, and desert shrubs, follow Calloway Trail. This mile-long path ends at a saddle southeast of the peak, and gives you great views to the southeast. You can't, however, continue from the saddle to the mountaintop. If that's your goal, take the trail described in the next paragraph.

Hunter Trail winds up a bedrock path, in and out of good saguaro populations. After 2 tough miles and a 1,400-foot elevation gain, you'll be atop Picacho Peak. Views are splendid in all directions, especially in the morning or late afternoon, when long shadows give depth to the landscape. Allow about 2 hours each way.

Sabino Canyon

This canyon, in Coronado National Forest just northeast of Tucson, carries cold, clear water from the Santa Catalina Mountains into the desert most of the year. Saguaros stand watch on spires and ramparts that rise above the road here, while lines of ash, cottonwood, oak, sycamore, and willow crowd the creek below.

Take this walk any weekday morning, starting out from Sabino Canyon Visitor Center, where you can pick up a bird list and natural history information. For $5, a shuttle will take you 4 miles up the canyon, drop you off, and let you walk back down this paved, low-traffic road (only Forest Service vehicles are allowed on it). Numerous rest rooms are situated along the way, and drinking water is available near the canyon's mouth.

Include plenty of sitting time in your walk plans: on warm days, you can soak your feet or take a swim along the road. If you get tired, use your ticket to reboard a shuttle and return to the visitor center.

This collision of habitats—dry, saguaro-covered slopes dropping into a moist canyon—increases the amount of wildlife you're likely to see. From coyote to bobcat, quail to roadrunner, almost anything is possible...even a cougar, if you're very lucky.

Sabino Canyon Visitor Center is at 5700 N. Sabino Canyon Road (call the visitor center for directions, 749-8700). Shuttles head up the canyon every 30 minutes from 8 to 4:30 daily.

For more information

The best primer on saguaros is *All About Saguaros,* by Carl Hodge (Arizona Highways, Phoenix, 1991; $8.50). ■

Ensuring saguaros' future

During the 1980s, Rocking K Development Company announced plans to put a resort and residential community on a 5-mile strip of ranch land that bordered part of Saguaro National Monument. Many people feared that the district's boundary would have unspoiled desert on one side, houses and hotels on the other.

Tucson, once several miles to the west, was already pushing up to the district's western gates. Would the district become an island—Joni Mitchell's prophetic tree museum?

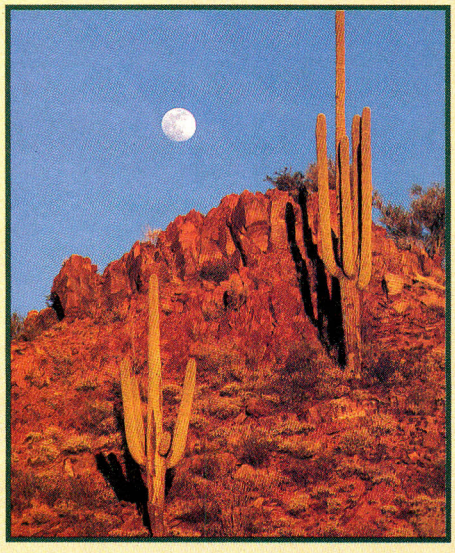
Rocking K, the World Wildlife Fund, and the National Park Service made sure that didn't happen, by putting together the Rincon Institute—an independent, nonprofit foundation with long-term funding (from the developer and fees from resort guests and land titles). Its mandate, supported by deed restrictions and a full-time Rincon Institute biologist, is to make sure that development is done in an environmentally sensitive way.

About 80 percent of the Rocking K development will be on land that has already been largely destroyed by grazing and ranching operations. Built-up areas will include wildlife corridors; 1,900 acres of outstanding saguaros have already been sold to the monument.

In addition, landscaping in the new development will lean heavily on plants that need little or no extra water. And an environmental education program is being set up to teach guests and residents of the new community about the land. Trails will connect the development and the monument.

This plan offers so much to all sides that another organization, the Sonoran Institute, was formed in part to bring these principles to bear on other places debating private development near national parks—Santa Monica Mountains National Recreation Area and North Cascades National Park, for example.

For details, write or call Luther Propst, Sonoran Institute, 6842 E. Tanque Verde Rd., Suite D, Tucson 85715; (602) 290-0828.



JACK W. DYKINGA

Standing in the timeless light of a waxing moon, two saguaros stand solidly against a craggy peak. How long can plants like these remain? New approaches to development and conservation have brightened the plants' future prospects.