



## KANGAROO RAT - RATA CANGURO - DAHIWA

*Dipodomys spp.*

**Range:** These rodents occur only in the more arid regions of the southwestern U.S. and northern Mexico.

**Habitat:** Kangaroo rats primarily inhabit sandy desert areas but some species range into grasslands.

**Behavior and Interactions:** Kangaroo rats are nocturnal, spending the day in underground burrows. They come out of their dens only at night when it is cool and there is minimum evaporation. Kangaroo rats get their name from their long legs and hopping habit. Kangaroo rats prefer seeds from a variety of plants including mesquite, creosotebush, gramma grass and occotillo. Hawks, owls, snakes and coyotes are among the kangaroo rat's predators.

**Unique adaptations:** Kangaroo rats are uniquely adapted to life in the desert. They do not need to drink water as they are able to get all their water from the food they eat, and they neither sweat nor pant like other animals to keep cool. They also have specialized kidneys that allow them to dispose of waste materials with very little output of water. In addition, they spend their days in their burrows where the air is moist and humid. Consequently, they can survive and be quite comfortable in the heat of the desert summer. Like most nocturnal animals, they have large eyes. Their tail is longer than the head and body and is covered with fur. The tip is "tufted" with longer hairs. The long tail helps the animals' balance when hopping. The tracks of a hopping animal show only the marks of the hind feet and the tail.

**Human interactions:** While there are no known human uses, kangaroo rats have been kept as pets.

## DESERT BIGHORN SHEEP - BORREGO CIMARRÓN - CEÑOÑ

*Ovis canadensis mexicana*

**Range:** Desert bighorns occur in the low desert mountains of Arizona and northwestern Sonora.

**Habitat:** Desert bighorn sheep prefer the desert mountains, foothills, and rocky cliffs of our region. Their distribution is greatly dependent upon seasonal water holes.

**Behavior and Interactions:** Bighorns are generally active during daylight hours, feeding throughout the day, then lying down to chew their cud. They retire to their bedding areas for the night and will use the same bedding sites for many years. When summer temperatures become extreme and water sources dry up, desert bighorns will rest most of the daylight hours and feed at night. During this season, they rely on certain desert plants for both food and moisture. They use their hooves and horns to remove spines from cacti, and then eat the juicy insides. Jojoba is their preferred food in this area. Coyotes, mountain lions, and golden eagles prey on the lambs. Mountain lions can prey upon adult sheep.

**Unique adaptations:** Desert bighorns utilize two mechanisms for cooling -- perspiring and panting, which are fairly uncommon adaptations for desert animals.

**Human interactions:** The bighorn is a highly prized animal for trophy hunters. Research biologists have studied bighorn life histories and patterns of movement. Bighorn sheep have suffered from depredation by man and from diseases and parasites transmitted by domestic sheep.



## COYOTE - COYOTE - BAN

*Canis latrans*

**Range:** Coyotes occur throughout North America from eastern Alaska and Canada to New England and south into Mexico. They are very adaptable and in recent years, have extended their range.

**Habitat:** Coyotes are found in just about every habitat type, including suburban areas of cities. They especially like open desert plains, grasslands, high mesas and open forest.

**Behavior and Interactions:** Coyotes may live alone, in pairs, or in small packs. Mated pairs often stay together for life, hunting as a team throughout the year. They mate in the winter and the female bears her pups in an underground den in spring. By summer the pups are out with their parents learning to hunt. Some may leave in the fall to search for their own territories; others remain to form a small pack with their kin. They hunt both day and night throughout their territories. The coyote is an important predator of rabbits and rodents and will occasionally feed on larger mammals such as deer or pronghorn fawns. In early summer, coyotes feed heavily on saguaro fruit, mesquite beans, and other vegetable matter. They will also eat small reptiles, insects and carrion. It is possible that mountain lions or wolves prey on coyotes.

**Unique adaptations:** Coyotes have a good sense of smell and excellent vision and hearing which, coupled with their evasiveness, enables them to survive both in the wild and in suburban areas of large cities.

**Human interactions:** Coyotes have been blamed for taking small pets and livestock such as chickens and even small calves and have thus long been considered a nuisance. Killing coyotes for "predator control" is still allowed in most states. Scientists are studying coyotes to understand their populations and behavior.

## JAVELINA - JABALÍ - KO:JI

*Tayassu tajacu*

**Range:** Javelina occur from central Arizona, to central Texas, and southward into South America.

**Habitat:** Javelina are found in desert scrub, especially in thickets along creeks and stream beds. They also occur on bajadas at the canyon mouths of many mountain ranges.

**Behavior and Interactions:** Javelinas live in herds, marking their territories with their droppings. The average herd size is eight to ten animals per herd. Territory size varies with the productivity of the habitat, but averages 750 acres. Since javelinas are found in so many habitats, it is natural that their foods should vary. Javelinas are opportunistic feeders, eating flowers, fruits, nuts, berries, bulbs, and most succulent plants. Their preferred food is cacti, with prickly pear cactus being the most commonly eaten. Predation on javelina is common from mountain lions and bobcats. Coyotes, golden eagles and even foxes are effective predators of young javelina.

**Unique adaptations:** Javelina have a scent gland on their back that is used to mark and identify members of the herd. Their kidney concentrates nitrogenous wastes more efficiently than most mammal kidneys, thereby reducing water loss. Javelina can manage a diet of mainly cactus because their kidneys allow for excretion of oxalic acid prevalent in cactus.

**Human interactions:** Javelinas are hunted by humans both for food and sport. Although, their reputation for being dangerous is greatly exaggerated, they will charge if they feel threatened.



## **GAMBEL'S QUAIL - CODORNIZ DE GAMBEL - KAKAICU**

*Callipepla gambelii*

**Range:** Gambel's quail are widely distributed, occurring through Southeast California, extreme southern Nevada, southern Arizona, southern New Mexico, west Texas, and south into desert regions of Sonora, Mexico.

**Habitat:** These quail prefer desert grassland and desert scrub.

**Behavior and Interactions:** In fall and winter, Gambel's quail assemble in coveys of up to 40 birds. In spring, when mesquite flowers are budding, these quail feed heavily on the buds, thus greatly increasing the bird's vitamin A intake. This stimulates covey break-up, courtship, pairing, and nesting. In years of above average winter and spring rainfall, reproduction increases, producing larger clutches. These quail feed mainly on seeds, grains, some insects, berries and succulent green vegetation. They are ground-nesting birds, preyed upon by snakes, birds of prey, and coyotes.

**Human interactions:** Gambel's quail are hunted by humans for their meat. Some people also spread seed in their yards to attract the quail for viewing pleasure.

## **GILA WOODPECKER - CARPINTERO DE GILA - HIKWIGI**

*Melanerpes uropygialis*

**Range:** Gila woodpeckers are year-round residents of the Sonoran Desert including urbanized areas.

**Habitat:** These woodpeckers live in saguaro forests, riparian woodlands, cottonwood groves, and residential parks and neighborhoods that have tall trees.

**Behavior:** The Gila is a gregarious and noisy woodpecker. Gila woodpeckers are cavity nesters, excavating holes primarily in saguaros. Inside the nest, the young are protected from most predators and are shielded from the desert's intense heat and aridity. The nest cavities are later used by many other kinds of birds for nesting, making the Gila woodpecker an important part of the desert ecosystem. Throughout the year, the birds are fairly omnivorous, eating whatever happens to be available: insects, cactus fruits, and in recent years the offerings at numerous backyard bird feeders.

**Unique adaptations:** They use their strong, pointy beak to excavate cavities in the fleshy pulp of cactus stems.

**Human interactions:** There is little human interaction with this bird except for pleasure viewing and provision of urban habitat.



## TURKEY VULTURE - AURA COMÚN - ÑUWÍ

*Cathartes aura*

**Range:** Turkey vultures occur from southern Canada to the South America, wintering in the warmer latitudes and returning to cooler latitudes in the summer.

**Habitat:** These vultures exist in a variety of habitats. They will use cliff faces or trees stumps for nesting.

**Behavior and Interactions:** Turkey vultures' large wingspan enables them to soar gracefully for hours high in the sky. When vultures locate a dead animal (by both sight and smell), many vultures will swarm to the carcass and consume it. Vultures are carrion eaters, meaning they eat the decaying flesh of dead animals.

**Unique adaptations:** The lack of feathers on turkey vultures' heads makes it possible for them to sink their heads into decaying carcasses without accumulating rotting flesh on their feathers thereby increasing the risk of bacterial infection or disease. It isn't understood how these birds are unaffected by consuming the rotten, diseased flesh of animals that have died of an illness. Turkey vultures' well-developed sense of smell is unusual among birds.

**Human interactions:** There is little interaction between humans and turkey vultures although these birds perform a valuable service to all organisms by cleaning up the environment from deceased animals.

## CACTUS WREN - MATRACA GRANDE - HOKKAD

*Campylorhynchus brunneicapillus*

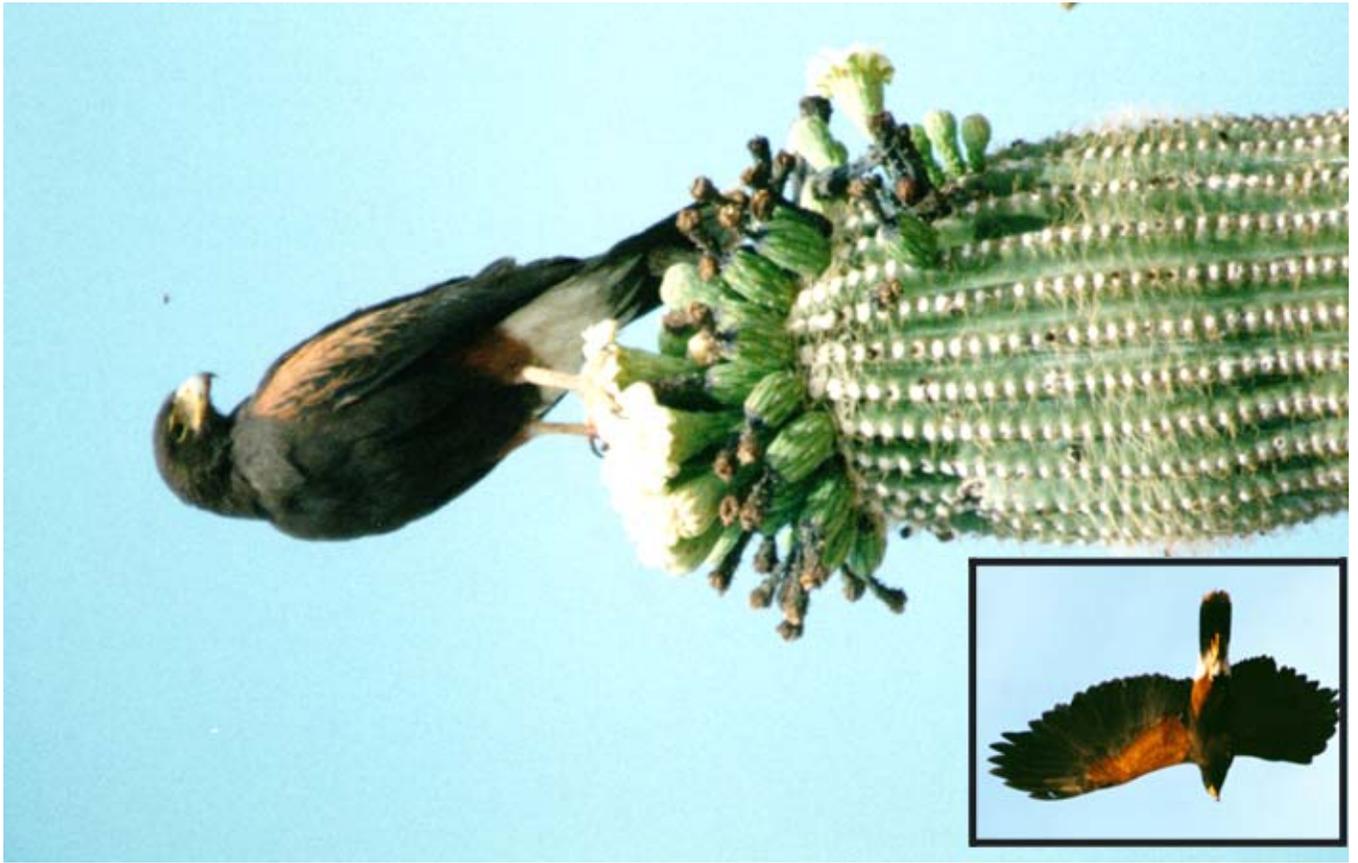
**Range:** Cactus wrens occur from the southwestern United States to central and northeastern Mexico, including Baja California.

**Habitat:** These large wrens prefer desert bajadas and foothills where large cacti are found. They also occur in urban areas within their range.

**Behavior and Interactions:** Cactus wrens are curious and gregarious birds. They are very inquisitive, exploring new or unusual things in their area, such as parked cars or tents. Using mainly dried grasses and forbs, wrens build pouch-shaped nests with an internal chamber reached by a narrow tunnel. They frequently build their nests among the extremely spiny stems of cholla cacti. Where chollas are scarce they may build in the branches of palo verde, acacia, or saguaro. They feed on insects and other arthropods, and fruit pulp and seeds.

**Unique adaptations:** Cactus wrens can tolerate high temperatures. They are known to build "decoy" nests, which may distract predators from the nest bearing the young birds.

**Human interactions:** Other than viewing, there are no known human uses of this bird. This is the state bird of Arizona.



## **HARRIS' HAWK - AGUILILLA CHINCHADA - WAKAW**

*Parabuteo unicinctus*

**Range:** Harris' hawks range from southwestern Texas and southern Arizona throughout Mexico and south to Chile and Argentina.

**Habitat:** These raptors prefer semi-arid woodland, brush land, savannas, and saguaro forests.

**Behavior:** Harris' hawks nest in large trees such as mature mesquite. They are also a common nester in saguaros and are known to nest in yucca. They prey on rodents, rabbits, snakes, lizards and small birds.

**Unique adaptations:** Harris hawks have a unique social system. Two males will sometimes help one female with incubation, feeding and rearing of young. Sometimes siblings or other offspring will stick around and work with the group in feeding future broods. These hawks will also hunt in teams, taking turns to chase and exhaust the prey.

**Human Interactions:** Because they are a relatively calm bird of prey, Harris' hawks have long been used by humans for the sport of falconry. Other interactions include hawks being accidentally killed by power lines and automobiles. Many humans also like to observe raptors such as Harris' hawks.

## **GREAT HORNED OWL - TECOLOTE CORNUDO -**

**CHUKUD**

*Bubo virginianus*

**Range:** These owls occur throughout the Americas, except the extreme northern areas.

**Habitat:** The great horned owl is found in every habitat within our region.

**Behavior and Interactions:** The great horned owl is a nocturnal bird of prey. It has excellent hearing and, along with its keen night vision, it is very good at hunting at night. Since great horned owls are nocturnal predators, they mainly hunt small mammals such as rodents, rats, and rabbits that can be found at night. They are also known to hunt skunks.

**Unique adaptations:** This is the largest owl in the Sonoran Desert. It does not really have horns but it does have feathery tufts on the top of its head.

**Human interactions:** Some humans are attracted to owls and enjoy hearing and watching them. Many cultures have a fear of owls and consider them messengers of evil or bad news.



## WESTERN DIAMONDBACK RATTLESNAKE - VIBORA DE CASCABEL - KO' OWÍ

*Crotalus atrox*

**Range:** These rattlesnakes range from southeastern California east to central Arkansas, south into northern Mexico.

**Habitat:** Diamondbacks are found in a variety of habitats including arid and semiarid areas from plains to mountains, brushy desert, rocky canyons, and sparsely vegetated rocky foothills.

**Behavior and Interactions:** When rattlesnakes are disturbed, they will coil their bodies and rattle their tails as a warning. Rattlesnakes will lie out in the sun to warm up their bodies but will seek out shade under rock crevices when it gets too hot. In the winter, they gather in underground "dens" where they hibernate until it warms up again. This rattlesnake feeds mainly on rodents (such as rats and mice) and other small mammals or birds (such as small rabbits or quail). It will use its venom to help subdue its prey.

**Unique adaptations:** This is the largest rattlesnake species, averaging 3 to 5 feet in length. It has hypodermic needle-like fangs through which it injects very toxic venom.

**Human interactions:** To this species' misfortune, people seem to have a fascination with these venomous, potentially dangerous serpents. There are many misconceptions about the potential danger rattlesnakes' pose to humans, livestock and pets, but this snake will strike when threatened. Some people kill rattlesnakes and make their skins into hatbands, belts and other adornments. In some areas, this has had a detrimental affect on the snake's populations.

## REGAL HORNED LIZARD - CAMALEÓN - CEMAMAGI

*Phrynosoma solare*

**Range:** This lizard occurs only in southern Arizona and northern Sonora in the warm area of the Sonoran Desert.

**Habitat:** These horned lizards are found in desert scrub areas of arid and semi-arid flats and valleys, and rocky foothills.

**Behavior:** Horned lizards burrow themselves nightly just below the soil surface. Each morning they dig out of the soil and bask in the sun. Throughout the morning, they remain active, mostly eating ants. They retreat to shady spots during the hottest part of the day. Their activity is dictated by their need to maintain optimal body temperature. Horned lizards will hibernate from around the end of September to April. Ninety percent of this lizard's diet consists of ants. The rest of the diet is other insects. Roadrunners, shrikes, coyotes, and various raptors prey on the horned lizard.

**Unique adaptations:** Horned lizards conserve water by excreting uric acid instead of urine (which must be flushed with water). Instead, their excretions are semi-solid. It is true: horned lizards can squirt blood from their eyes. This is one of their means of defense and they are able to do it by constricting certain muscles in their eyes. Their primary means of defense is camouflage. Another defense is the sharp horns on their head, which make them difficult to swallow.

**Human interactions:** Horned lizards have been a subject of native art for centuries. They are also sometimes kept as pets.



## **PINACATE BEETLE - PINACATE - KOMIKAM**

*Eleodes obscurus sulcipennis*

**Range:** Various species of Pinacate beetles occur throughout the southwestern United States and northern Mexico.

**Habitat:** These beetles are found throughout a variety of desert habitats.

**Behavior:** These jet-black beetles are active day and night but may seek shady refuge during the hottest part of a summer day. The grasshopper mouse is one of the few animals that has learned how to cope with this beetle's scent gland. The mouse grabs the beetle by the head and sticks the rear of the beetle in the dirt. The mouse eats just the front half of the beetle.

**Unique adaptations:** This large, sturdy, black beetle has a curious habit of standing on its head. This is a defensive posture that exposes a certain gland on the tip of the abdomen. The gland produces a very distasteful chemical that repels just about everything.

**Human interactions:** Humans have created several myths about the beetle and why it stands on its head. The Cochiti say the beetle is ashamed, having dropped the stars it was supposed to hold up, hence forming the Milky Way. The Pinacate Mountain and Biosphere Reserve are named for this beetle.

## **TARANTULA - TARÁNTULA - HIAÑ**

*Aphonopelma chalcodes*

**Range:** Tarantulas are common to the Sonoran, Chihuahuan and Mojave deserts of the U.S. and Mexico.

**Habitat:** Tarantulas may be found in most desert areas.

**Behavior:** Male tarantulas are most commonly seen as they move about at night and during cool times of day. They are particularly active in late summer and fall when seeking a mate. Females are less likely to be seen wandering around in the desert. They stick close to their burrow and will spin "trip wires" of their silk to indicate when potential prey is nearby. In winter, tarantulas plug their burrows with soil, leaves and silk and stay there until the weather warms up. Tarantulas feed upon insects, primarily beetles and grasshoppers, and other small creatures, including young rodents. They are parasitized by the Pepsis wasp (tarantula hawk). Other predators may include coatis, skunk, coyote and many other desert omnivores.

**Unique adaptations:** As a means of defense against predators, the tarantula will kick the barbed hairs from the back of its abdomen into the face of a potential predator. The hairs then lodge in the mucous membranes of the molester, irritating it to the point of distraction and enabling the tarantula to escape.

**Human interactions:** Tarantulas are sometimes kept as pets. Although their large and hairy bodies are sometimes frightening to people, they are actually very docile. These spiders are reluctant to attack people. Usually the venom is no more poisonous than that of bees. This is the largest spider in our area. Tarantulas live much longer than other spiders. Females may live up to 25 years.



## DESERT TORTOISE - TORTUGA DEL DESIERTO - KOMCKUD

*Reprobates agassizii*

**Range:** Desert tortoises occur in the Mojave and Sonoran deserts of the U.S. and Mexico.

**Habitat:** They prefer arid, sandy or gravelly areas, with creosote, cacti and desert scrub. They can also be found in washes and canyon bottoms.

**Behavior:** The desert tortoise has the ability to enclose its feet, tail and head within its "box" shell. However, they primarily dig burrows and find shelters in rocky crevices. They will pass the winter in the warmth and safety of a burrow or crevice. The presence of soil suitable for digging burrows is a limiting factor to distribution. Some of these burrows extend just beyond the ground surface while others extend several feet deep. A single tortoise may have a dozen or more burrows distributed over its home range. Different tortoises may use these burrows at different times. They get their water from the food they eat, which includes grasses, desert shrubs, and when ripe, they will eat the fruit of the prickly pear cactus.

**Unique adaptations:** Its shell is its main protection from foxes, coyotes and other predators. The tortoise's strong limbs and sharp claws are used to dig their burrows.

**Human interactions:** Humans are known to keep desert tortoises as pets. There are but a few ancient records of them being used for food. Tortoises are also frequent road-kill victims. They are protected by law and it is unlawful to touch, harm, harass, or collect a wild tortoise. State, federal, and tribal wildlife and land management agencies are actively involved in programs to help the conservation of the desert tortoise throughout its range.

## ENGLEMANN'S PRICKLY PEAR CACTUS - NOPAL - NAW

*Opuntia engelmannii*

**Range:** This cactus occurs throughout the deserts of southwestern United States and northern Mexico.

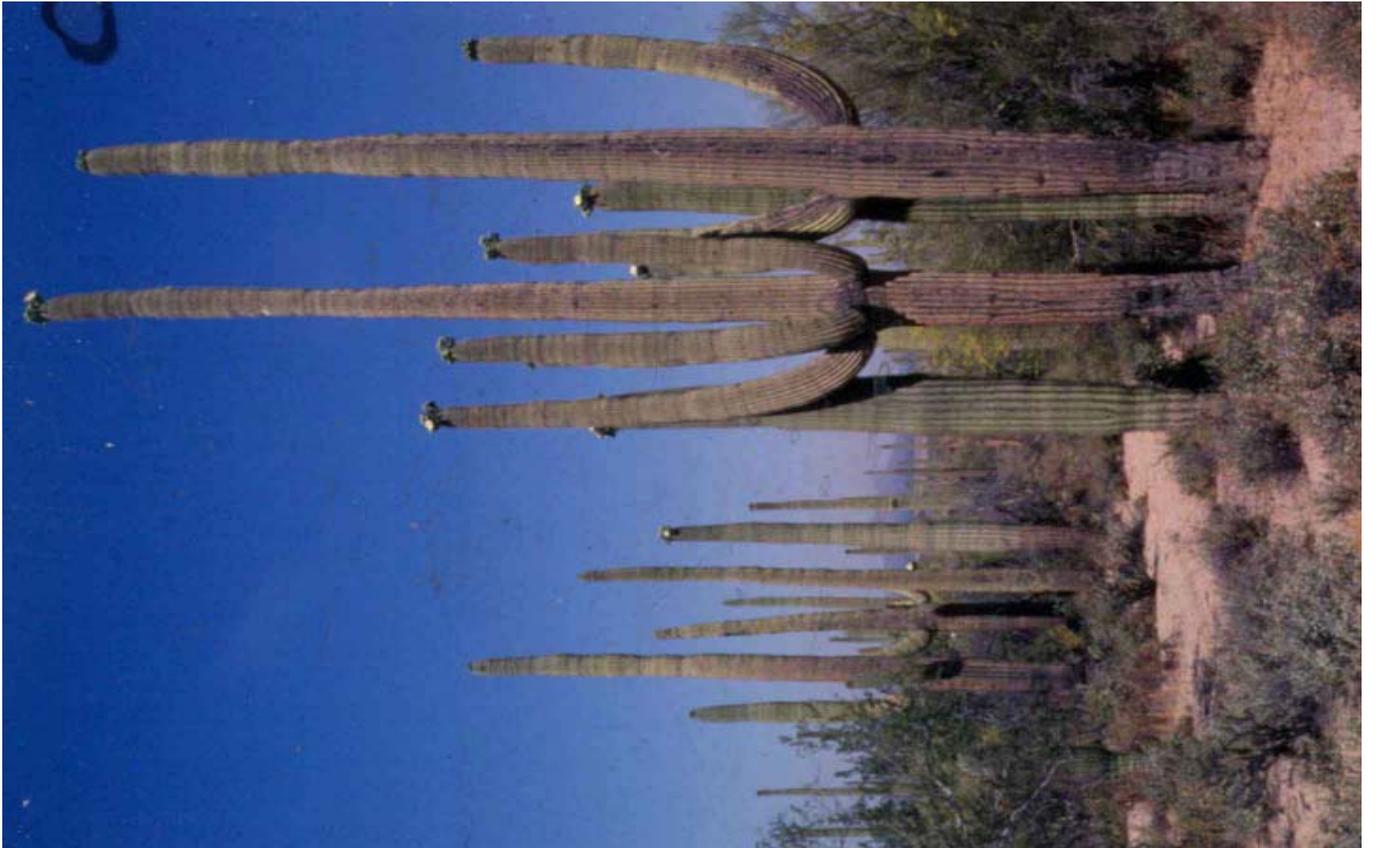
**Habitat:** This species lives on desert hillsides and bajadas throughout its range.

**Characteristics:** The prickly pear is so named because of the shape of its pads, which are actually modified stems. The pads are capable of storing water for the plant and are fairly thick and succulent. Its many-petaled, yellow flowers each last only a day.

**Interactions:** Numerous insects are attracted to the flowers. Solitary bees will wiggle deep into the flower to obtain the nectar and in doing so, collect pollen on their bodies. As they visit the next flower, the pollen is deposited on that flower's stigma, pollinating it. Javelina, pack rats, and desert tortoises, among others, will eat the fleshy pads of this cactus. The ripe, sweet fruit are also eaten by numerous desert animals.

**Unique adaptations:** The prickly pear survives the long, dry, hot desert summers by storing water in its pads. It is also covered with sharp spines to aid in predator avoidance.

**Human uses:** Humans collect the young pads, called "nopalitos" and cook them as food. The fruit is also collected and made into jellies and syrups.



## BLUE PALOVERDE - PALO VERDE - KO' OKMADK

*Cercidium floridum*

**Range:** The blue palo verde can be found in central and southern Arizona, southeast California, and north-western Mexico.

**Habitat:** This desert-loving tree grows along desert watercourses and valleys and sometimes on lower slopes of deserts and desert grasslands.

**Characteristics:** Of the three common palo verde trees in our area, this can grow the largest. Its leaves have a bluish cast, giving it its name. In spring, the tree is covered with yellow blossoms.

**Interactions:** Several different native bee species and the introduced honeybee are important pollinators of this tree. Bruchid beetles and rodents rely heavily upon the seeds as food.

**Unique adaptations:** These trees can photosynthesize through their blue-green bark of the stems and branches.

**Human interactions:** The seeds, flowers and immature pods have all been used as food. Blue palo verdes are often planted as landscape plants.

## SAGUARO - SAGUARO - HA: SAÑ

*Carnegiea gigantea*

**Range:** This giant, columnar cactus is native to the Sonoran Desert.

**Habitat:** Saguaros occur on desert slopes and flats, especially rocky bajadas.

**Characteristics:** Arms form when the saguaro is between 50 and 100 years old. It's hard to spot smaller saguaros because they're usually hidden under nurse plants, which are trees or shrubs that shelter young cacti from sun, frost, and predators.

**Interactions:** In late spring, the saguaro's large, white flowers bloom, attracting white-winged doves, curved-billed thrashers, other birds, bats, and insects to their pollen and nectar. In summer, the sweet fruits attract numerous species to feed. These sweet fruits are packed with up to 2,000 seeds each, and are sought by consumers that help to disperse the seeds. While the white-winged dove (whose northern range coincides with range of the Saguaro) is one of its primary pollinators, it is the Gila woodpecker and the gilded flicker who make their home in the saguaro cactus by excavating small holes in the trunk.

**Unique adaptations:** The saguaro cactus is well adapted to dry conditions. Its waxy, tough coating prevents water loss. Its wide-spread, shallow root system can quickly absorb a great deal of rainfall, while its expanding trunk and arms can store up to six tons of water for long periods.

**Human interactions:** The fruit of the saguaro is collected and eaten by the Tohono O'odham. It is also made into a wine, which is drunk as part of the rain ceremony. The woody ribs of the saguaro are used in shelters and as sticks to collect the fruit.



## **OCOTILLO - OCOTILLO - MELHOG**

*Fouquieria splendens*

**Range:** Ocotillo occur in the Sonoran, Chihuahuan and Great Basin Deserts.

**Habitat:** They are common on rocky slopes and plains and can be abundant on limestone.

**Characteristics:** The ocotillo is very unique in its growth and can be recognized by its tall spindly branches that originate from a common central base. The bright red flowers bloom in March and April.

**Interactions:** Hummingbirds and carpenter bees are the primary pollinators of this plant. Other flower visitors are solitary bees, butterflies and a variety of bird species including orioles, finches, verdins, and warblers.

**Unique adaptations:** Leaves grow in response to rain. Although the branches are often bare, ocotillos may experience as many as five or six leafy periods during the year.

**Human interactions:** Because stem cuttings root easily, ocotillo is commonly used to create living fences in the southwestern U.S. and northern Mexico. Dead stems were used to support thatched roofs. Seri Indians have been known to use the dead stems as a framework for brush houses. Apaches boiled the roots of the plant and bathed in that water to relieve fatigue. They also applied the powdered root to painful swellings. The Cahuilla Indians of southern California reportedly ate the flowers and fruit. The flowers may also be used to make a tea-like drink.

## **SOAP TREE YUCCA - PALMILLA - TAKUI**

*Yucca elata*

**Range:** This yucca occurs across southern Arizona and northern Sonora to southern Texas and northern Chihuahua.

**Habitat:** This yucca prefers desert grasslands, gravelly washes, and silty desert plains.

**Characteristics:** Reaching up to fifteen feet in height, this yucca produces a rosette of spiky leaves on a shabby trunk. The creamy white flowers bloom from May to July atop long flower stalks.

**Interactions:** Cattle are known to eat the young flower stalks, as will other large browsers. The flower can only be pollinated by one species of moth, the yucca moth, which lays its eggs in the pollinated seedpod.

**Unique adaptations:** Because their preferred habitat is desert grassland, they are prone to range fires. Although the plant will burn to the ground, they will sprout several new trunks from the base.

**Human interactions:** This yucca is so named because of its abundance of saponins, which are chemicals, which produce lather in water. The roots were pounded to create these suds and then used as soap. The leaves are the primary source of fiber in Tohono O'odham baskets. The fibers have also been used to make mats, nets, and sandals.