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**KEY TO THE
CACTI
OF
JOSHUA TREE NATIONAL MONUMENT**



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A Local Geography Lesson

Cacti of the United States are most abundant in the desert and arid regions of Southern California eastward to Central and Southern Texas. Southern California is located on the northern edge of a climatic zone that favors deserts. Local weather factors contribute to the creation of the desert here in Joshua Tree National Monument. The "rainshadow" effect is primarily responsible for this desert area. The moist air from the Pacific Ocean flows eastward, rises and cools, and loses its moisture on the western slopes of the mountains. As the air descends on the east side of the mountains it compresses and becomes warm and dry, consequently drying the land on this side.

The two deserts in Joshua Tree National Monument are the Mojave and the Colorado. The major difference between these two is the elevation. The Mojave desert occurs between 2,000-6,000 ft. and is characterized by the presence of the Joshua tree. The average rainfall is about 10-12 in. per year with winter temperatures low enough for freezing and snow to occur. The Colorado desert ranges from sea level to 2,000 ft. (sometimes a little higher in sheltered spots and has a vegetation type of yuccas and cacti. This desert is milder, with freezing occurring occasionally each year.

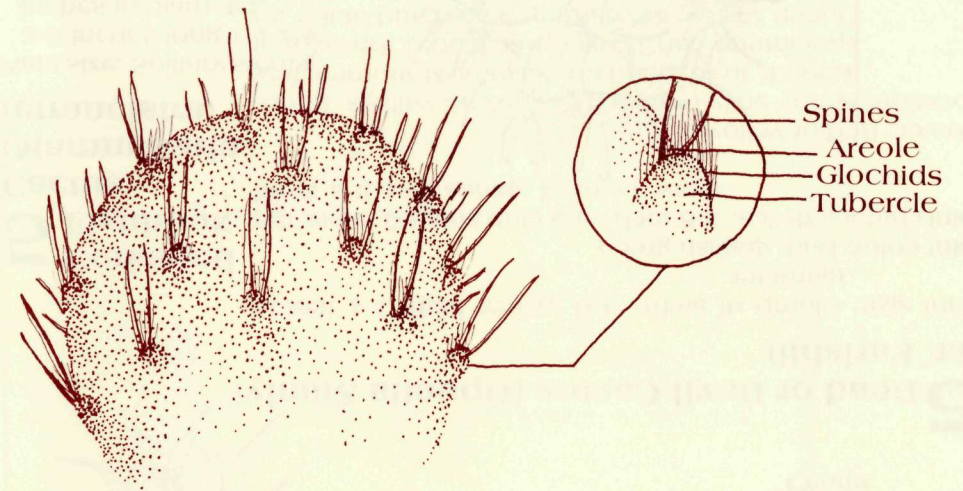
In many areas of the Monument, a transition zone between the two deserts exists. This zone is unique because both vegetation types from the Colorado and the Mojave are found together.

General Facts About Cacti

Cacti store water within their tissues and have shallow root systems which enable quick absorption of any surface moisture. Cacti also have a thick, waxy skin to help retain moisture, (somewhat like a Dixie cup). The fleshy, inner stem is composed of water storage cells. One may ask how photosynthesis, the energy making process, occurs if there are no leaves on a cactus. The photosynthetic process occurs within the stems of cacti. Cacti spines have many useful attributes; they are not there just to hurt people. Spines protect the plant from being gnawed on by animals; they shade the main stem from the hot sun; and they are able to concentrate moisture at their tips which eventually falls around the base of the plant.

Some specific parts of cacti are helpful to recognize when trying to identify them. The **areole** is the area where spines and **glochids** (tiny fine hairs) are produced. The central spines come out of the middle of the areole. Some spines are covered with a papery sheath (like a sword in a scabbard). The **tubercle** projects slightly below the areole. Tubercles on some species of cacti are quite noticeable.

Cacti stems can be divided into segments which are described as joints. This jointing is a major characteristic in the **Opuntia** genus.



Those Terrifying Latin Names !!!

In order to be fairly proficient at identifying cactus it is necessary to learn their botanical names. A quick lesson on how to use the latin name to your advantage follows:

All cacti form a single order Cactales, and a single family Cactaceae. The family in turn is divided into smaller groups or genera (genus is singular). In Joshua Tree National Monument there are six genera from the Cactaceae family. They are separated into species and varieties by specific characteristics. In order to identify them easily, study the provided Cactus Key, while you are looking at **your** specific cactus.

Using The Cactus Key

If you are not familiar with a plant key — take a few minutes to study the following cactus key. Notice that it is divided into two parts — jointed and non-jointed stems. This is a major difference between the **Opuntia** genus and the rest of the cactus family. Within these two groups there are more differences to help narrow down a plant to its specific name. Go down the key eliminating the characteristics that your plant lacks and eventually you should reach your specific cactus's name — cross your fingers!

After you have gotten the name, look at its description for more detailed information.

Key To The Cacti of Joshua Tree National Monument

1. Stems jointed:
 2. Joints flattened into pads:
 3. Spines lacking Beavertail Cactus (**Opuntia basilaris**)
 3. Spines present:
 4. Spines 3-5 inches long; spine color varies from white to purple; spines are so abundant on each pad they give the appearance of hair . . . Grizzly Bear Cactus (**Opuntia erinacea var ursina**).
 4. Spines 2 inches long or less:
 5. Spines are yellowish; pads are circular; plant is erect (2-3 ft. high) and grows at higher elevations . . . Pancake Cactus (**Opuntia chlorotica**).
 5. Spines light tan to yellow; plant is low to the ground with only a few branches upright Mojave Prickly Pear Cactus (**Opuntia phaeacantha var. major**).
 2. Joints not flattened into pads:
 3. Joints club-shaped, 2-3 inches long; plant grows in a mat and appears dead . . . Dead or Devil Cactus (**Opuntia Stanlyi var. Parishii**).
 3. Joints cylindrical and elongated 4-6 inches; tree or shrub-like; spines covered with a thin papery sheath:
 4. Spines singular in appearance; joints less than ½ inch in diameter; shrublike . . . Pencil Cholla (**Opuntia ramosissima**).
 4. Spines in clusters:
 5. Joints branching near the top of the plant, 1½ inch in diameter; joints detach easily; trunk of small tree-like cactus is dark brown; grows almost exclusively in Cholla Cactus Gardens . . . Jumping or Teddy Bear Cholla (**Opuntia Bigelovii var. Bigelovii**).
 5. Joints branching at the base of the plant; joints not easily detached; plants shrub-like:
 6. Dense spines; spine color varying from silver to gold; grows in upper elevations in western part of Monument Silver or Golden Cholla (**Opuntia echinocarpa**).
 6. Spines not as dense as the above cactus; straw colored spines; tubercles obvious; grows at the lower elevations in eastern part of the Monument . . . Buckhorn Cholla (**Opuntia acanthocarpa**).
 1. Stems not jointed;
 2. Stems with ridges and grooves on the surface; spines and tubercles organized along these ridges:
 3. Stems massive (more than 4 inches in diameter).
 4. Stems single; 1½-3 ft. tall; spine color red to yellow; . . . Barrel Cactus (**Ferocactus acanthodes**).
 4. Globular stems clumped in a group . . . Cottontop Cactus (**Echinocactus polycephalus**).
 3. Stems less than 4 inches in diameter;
 4. Stems commonly clumped in a group:
 5. Cushion-like mounds of stems 4-6 inches high; curved grey interlocking spines . . . Mohave Mound Cactus (**Echinocereus triglochidiatus var. mohavensis**).
 5. Stems 6-12 inches high; spines curved and twisted; spine color varies from red to brown to yellow Calico Cactus (**Echinocereus Engelmannii**).
 2. Stems with no ridges and grooves on the surface; tubercles and groups of spines dispersed evenly across the surface:
 3. Stems less than 5 inches in diameter:
 4. Stems single or multi-stemmed with a dense covering of spines all one length; spines ½-¾ inches long, white at base and red-black tipped . . . Foxtail Cactus (**Coryphantha vivipara var. Alversonii**).
 4. Single stemmed; spines are the same length as the above cactus with the exception of 1-4 spines in each areole that are 1 inch long and red-black in color, they are also hooked on the tip; the seed from the red, fleshy fruit has a corky appearance . . . Corkseed Cactus (**Mammillaria tetrancistra**).

1 Beavertail Cactus (*Opuntia basilaris*)

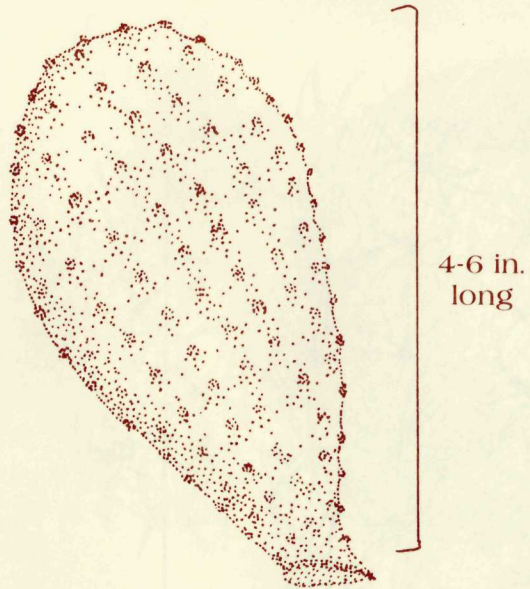
Plant size: Clumps 6-12 inches high and 1-6 feet in diameter

Joint color: Commonly blue green with purple patches.

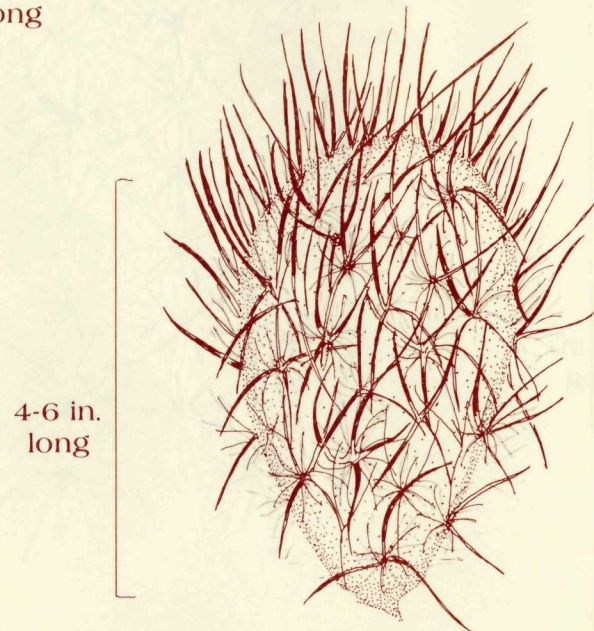
Joint characteristics: Round to 4-6" long oval, frequently wrinkled, usually spineless but sometimes covered with fine hair.

Flowers: Rose to magenta, clustered at upper edge of pad.

Location: Sandy, gravelly and rocky slopes up to 6,000 ft. In Joshua Tree National Monument, the plant can be seen in Pinto Basin, 49 Palms Canyon trail, and 29 Palms Visitor Center.



4-6 in.
long



4-6 in.
long

2 Grizzly Bear Cactus (*Opuntia erinaceae* var *ursina*)

Plant size: Clumps 6-12 inches high, 3 feet or more in diameter.

Joint color: Yellowish green.

Joint characteristics: Oblong shaped 4-6 inches, 1/2 to 1 inch thick covered with spines ranging from white with purple tips to all white on the more mature pads, (sometimes called "Old Man Cactus")

Flowers: Rose or yellow.

Location: Rocky soils at 4,000-5,000 ft. In Joshua Tree National Monument there are a few isolated stands at the base of Queen Mountain in the Queen Valley.

3 Pancake Cactus (*Opuntia chlorotica*)

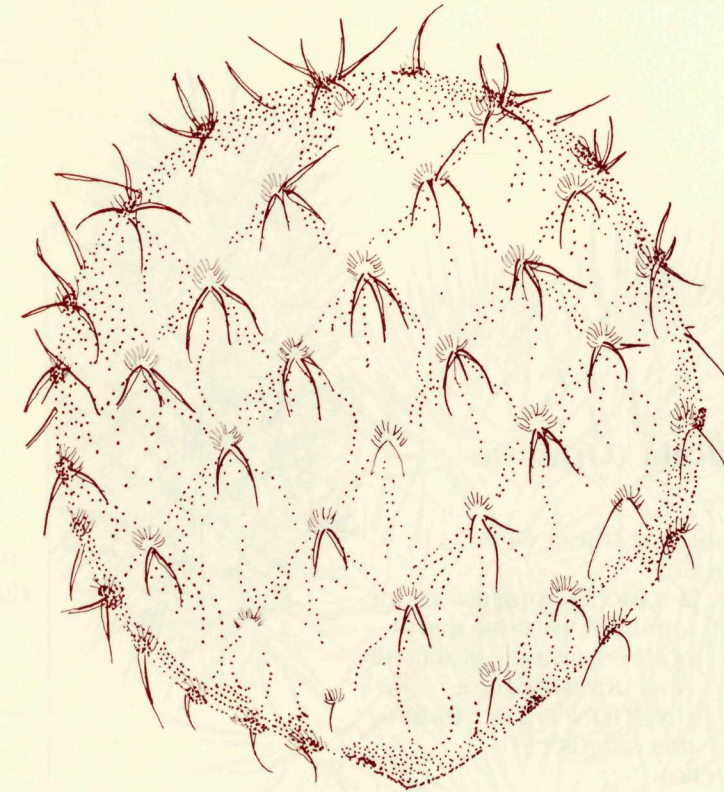
Plant size: 3-6 feet high, 3-4 feet in diameter.

Joint color: Blue-green.

Joint characteristics: Almost round 5 1/2-7 1/2 in diameter, 1/2 inch thick; 1-6 yellow spines per areole turning downward.

Flowers: Light yellow.

Location: Rocky sandy soils at 3,000-4,000 ft.; sometimes on the sides of deep canyons. In Joshua Tree National Monument fine specimens of this cactus can be seen in the back country of the Queen Valley (Desert Queen Mine trail, Pine City, Wonderland of Rocks) and the 29 Palms Visitor Center.

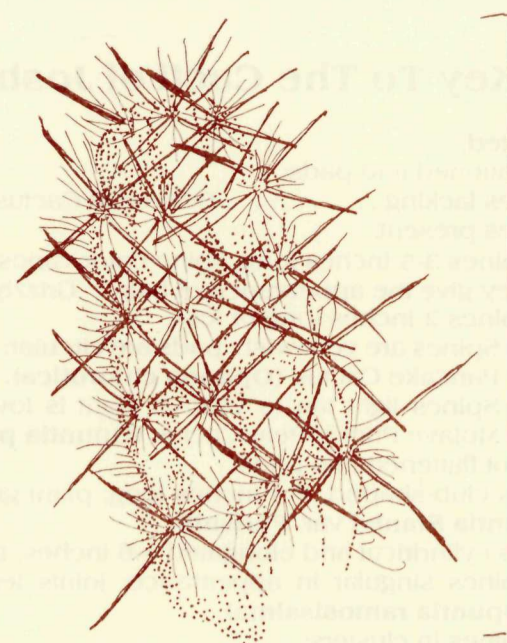
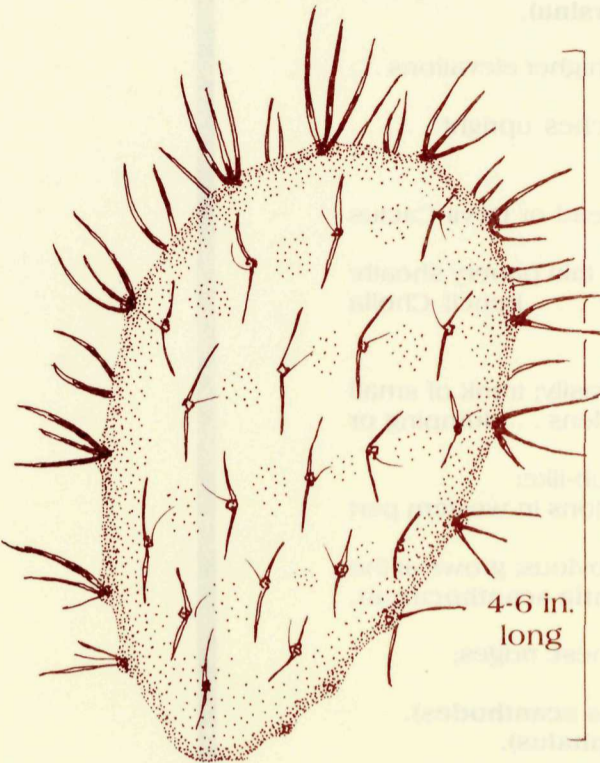


5 1/2-7 1/2 in.
long

4 Mojave Prickly Pear (Opuntia phaeacantha var. major)

Plant size: Up to a foot tall, mostly low and spreading.
 Joint color: Light green.
 Joint characteristics: 4-6" long pear shaped pod, flattened to 1/2 inch thick, 2 inch straw colored spines.

Flowers: Yellow.
 Location: Lower desert up to 4,500 ft. In Joshua Tree National Monument this plant can be seen in and around Cottonwood, Barker Dam and the 29 Palms Visitor Center.



8 Silver or Golden Cholla (Opuntia echinocarpa)

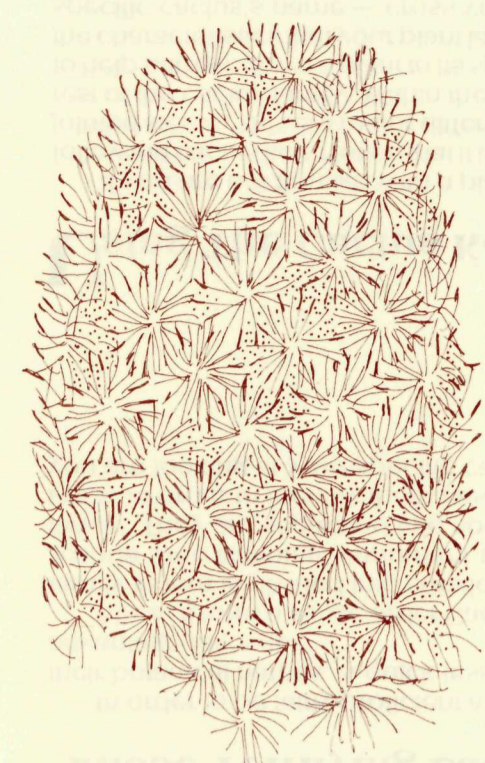
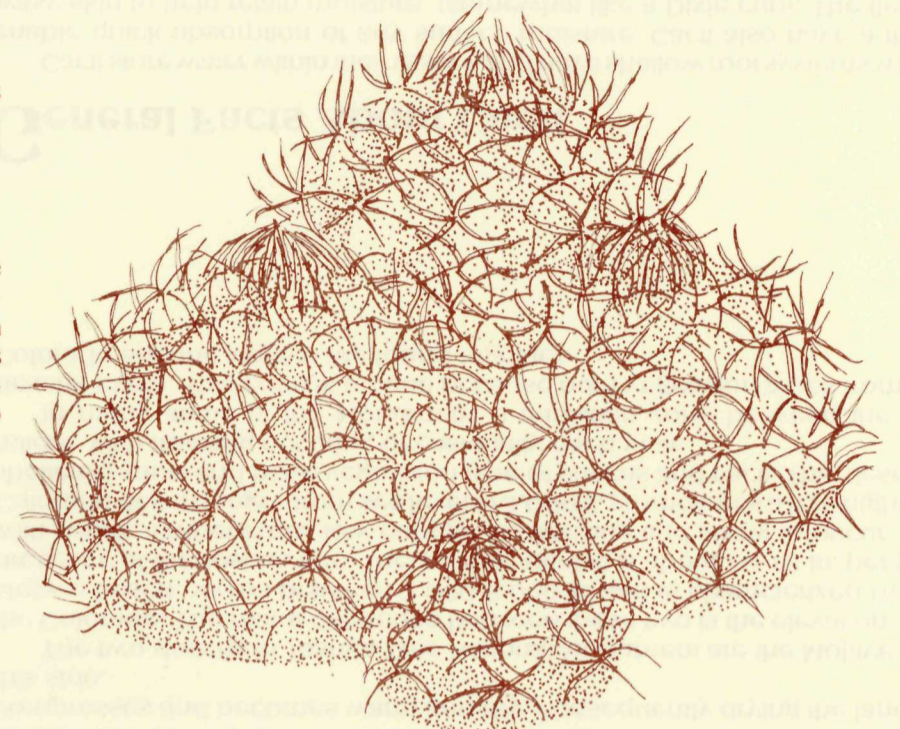
Plant size: 1-3 feet high, 2-3 feet wide.
 Joint color: Pale green.
 Joint characteristics: 2-6 inches long; 1 1/2 inches in diameter; covered densely with silvery or golden 1-1 1/2 inch long spines.

Flowers: Yellowish green.
 Location: Sandy, gravelly soil of the Mojave Desert and less commonly the Colorado Desert, 1,000-4,000 ft. In Joshua Tree National Monument this cholla is seen in the Queen Valley, Hidden Valley, Lost Horse Valley and the 29 Palms Visitor Center.

11 Cottontop Cactus (Echinocactus polycephalus)

Plant size: Stems in clumps 1/2-2 feet high; 1/2-4 feet in diameter.
 Stem color: Grayish-green.
 Stem characteristics: 8-12 inches in diameter, sphere shaped; spines are 2 1/2-3 inches long, arched and grouped in areoles along the ridges.

Flowers: Yellow at the top of the stem.
 Location: Rock or gravel dry hot slopes 100-2,500 ft. In Joshua Tree National Monument they are found in isolated stands northwest of the White Tank backcountry parking lot, and at the 29 Palms Visitor Center.



14 Foxtail Cactus (Coryphantha vivipara var. Alversonii)

Plant size: Each stem 4-6 inches high, 1 1/2-3 inches in diameter.

Stem color: Pale green, (can't really see the main stem).

Stem characteristics: Sometimes multi-stemmed with a dense covering of 1/2-3/4 inch, red-black tipped spines.

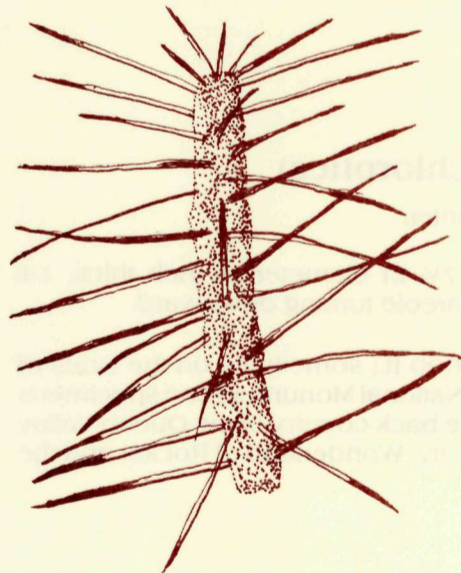
Flowers: Pink-lavendar, open for only 1-2 hours.

Location: Sandy gravel areas 250-4,000 ft. In Joshua Tree National Monument this smaller cactus is found mostly in the decomposed granite in the Wonderland of Rocks, and the 29 Palms Visitor Center.

5 Dead or Devil Cactus (Opuntia Stanlyi var. Parishii)

Plant size: Clump of stems 4-6 inches high; 2-4 feet in diameter.
 Joint color: Dark grayish green.
 Joint characteristics: 3-6 inch long club shaped joints; the straw colored spines give it a dead look.

Flower: Red or yellow.
 Location: Sandy soils of desert plains and valleys 3,000-4,000 ft. In Joshua Tree National Monument few specimens can be seen scattered throughout Queen Valley, Keyes Ranch area and at the 29 Palms Visitor Center.



6 Pencil Cholla (Opuntia ramosissima)

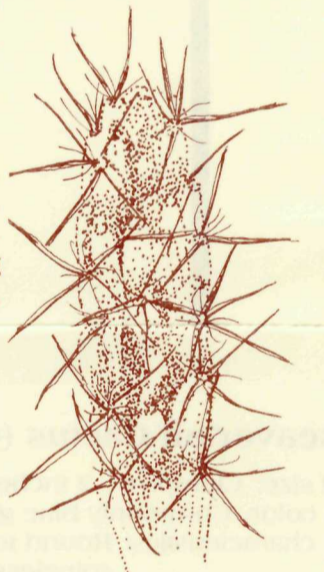
Plant size: 1/2-3 ft.
 Joint color: Grayish green.
 Joint characteristics: Slender pencil shaped joints up to 4 inches long; tubercles diamond shaped, one major spine per areole.

Flower: Red-brown.
 Location: Fine sandy soils of the Colorado Desert 100-2,000 ft. (sometimes found higher). In Joshua Tree National Monument this cholla is found abundantly from the North Entrance to Pinto Wye and up to Jumbo Rocks, and can be seen at the 29 Palms Visitor Center.

9 Buckhorn Cholla (Opuntia acanthocarpa)

Plant size: 1-3 feet high, 2-3 feet wide.
 Joint color: Pale green.
 Joint characteristics: 6-12 inches long, 1/2-1 1/2 inches in diameter; tubercles extremely noticeable, not as densely covered with spines as the Silver Cholla and spines are more of a straw color.

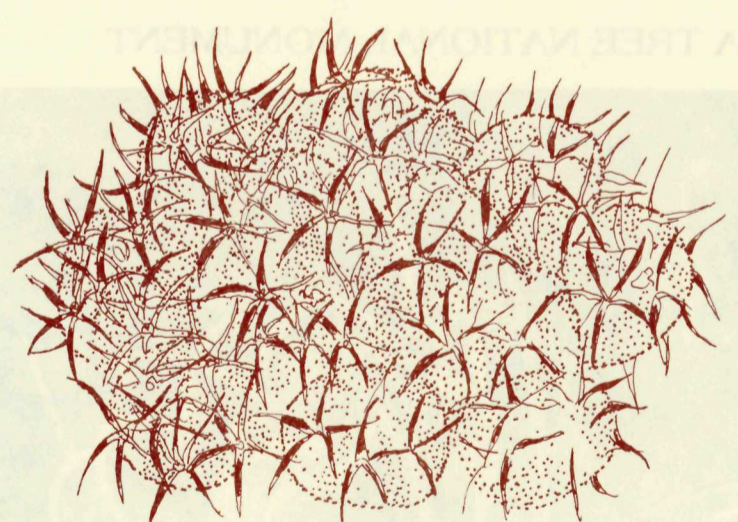
Flowers: Purplish red, or yellow.
 Location: Sandy, gravelly soils in the lower Mojave and Colorado Deserts, 2,000-4,000 ft. In Joshua Tree National Monument this cholla can be seen along the Pinto Basin Road, Cottonwood, and the 29 Palms Visitor Center.



12 Mohave Mound Cactus (Echinocereus triglochidiatus)

Plant size: Many stems grouped together in cushion like mound 4-6 inches high and 1-4 feet in diameter.
 Stem color: Warm green.
 Stem characteristics: 2-3 inches in diameter with curved gray spines 1 3/4-3 3/4 inches long.

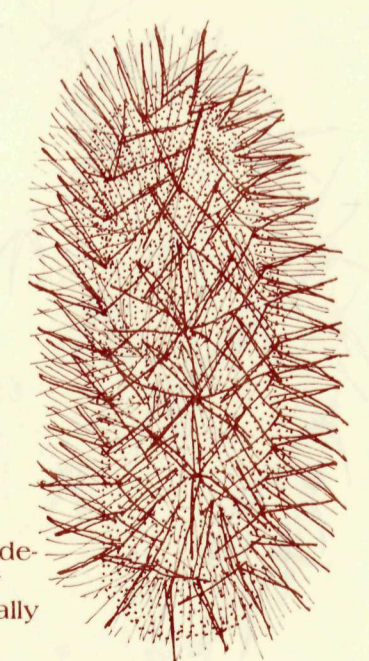
Flowers: Scarlet red.
 Location: Rocky hills and canyons in pinyon-juniper areas of the desert, 3,500-6,000 ft. In Joshua Tree National Monument this cactus is found throughout the Queen Valley, Wonderland of Rocks, and the 29 Palms Visitor Center.



7 Jumping Cholla (Opuntia Bigelovii)

Plant size: 3-5 feet high, 2-3 feet wide.
 Joint color: Light green.
 Joint characteristics: 2-5 inches long readily detachable; profuse straw colored spines practically obscuring the joint.
 CAUTION: Do not touch this cactus !!!

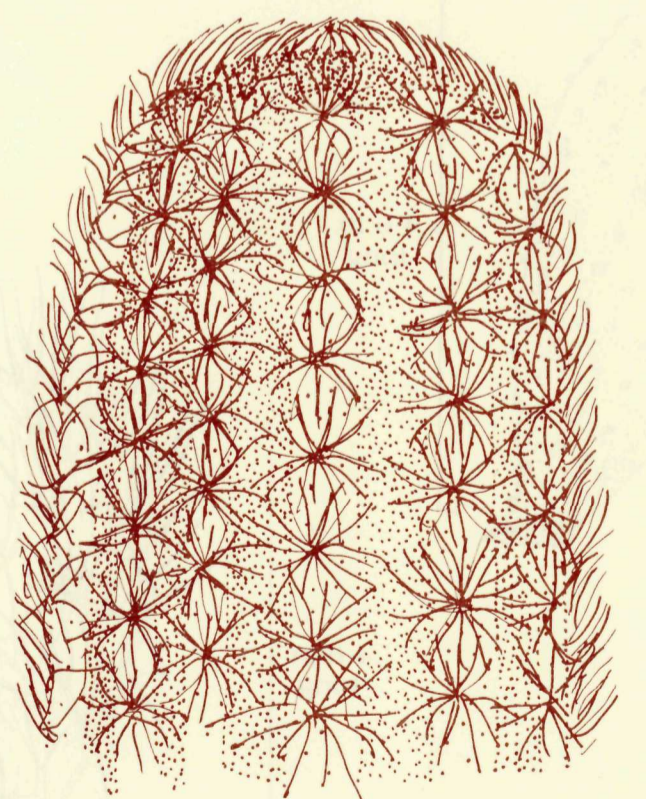
Flower: Greenish yellow.
 Location: Rocky gravelly south facing slopes or flats of the Colorado Desert, 100-2,000 ft. In Joshua Tree National Monument this plant can be seen at the Cholla Gardens and at the 29 Palms Visitor Center.



10 Barrel Cactus (Ferocactus acanthodes)

Plant size: Single stems are 1-3 feet tall, 3/4-1 foot in diameter.
 Stem color: Light green.
 Stem characteristics: Single, massive with verticle ridges; areoles are located along these ridges; spine color varies red to yellow.

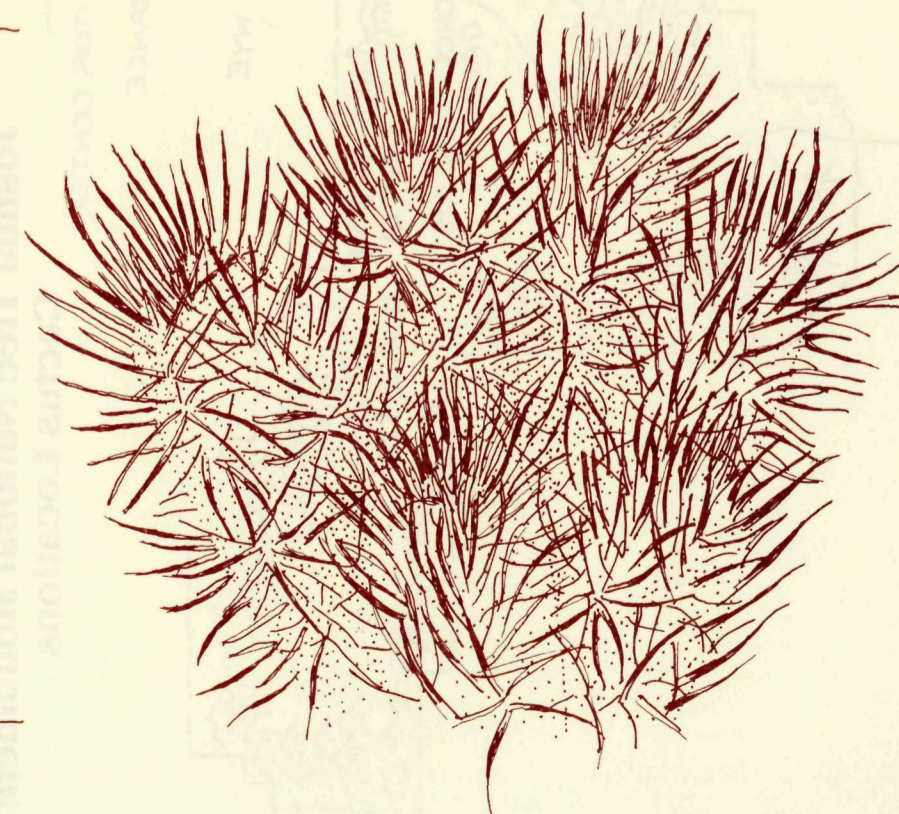
Flowers: Yellow
 Location: Rocky south facing slopes 2,500-4,000 ft. In Joshua Tree National Monument these cactus are found along the 49 Palms Canyon trail, southeast end of Pleasant Valley, and the 29 Palms Visitor Center.



13 Calico Cactus (Echinocereus Engelmannii)

Plant size: Mounds of stems up to 2 ft. high, and 2-3 ft. wide.
 Stem color: Light green.
 Stem characteristics: Vertically ridged; each stem is 2-3 inches wide and up to 2 ft. high; spine color varies from strawberry red to light tan; spines are 2-4 inches long and curved.

Flowers: Purple to magenta.
 Location: Sandy, gravelly areas at 2,000 to 5,000 ft. In Joshua Tree National Monument this cactus is found throughout the higher valleys (Queen, Hidden, and Lost Horse), Cholla Cactus Gardens, and the 29 Palms Visitor Center.

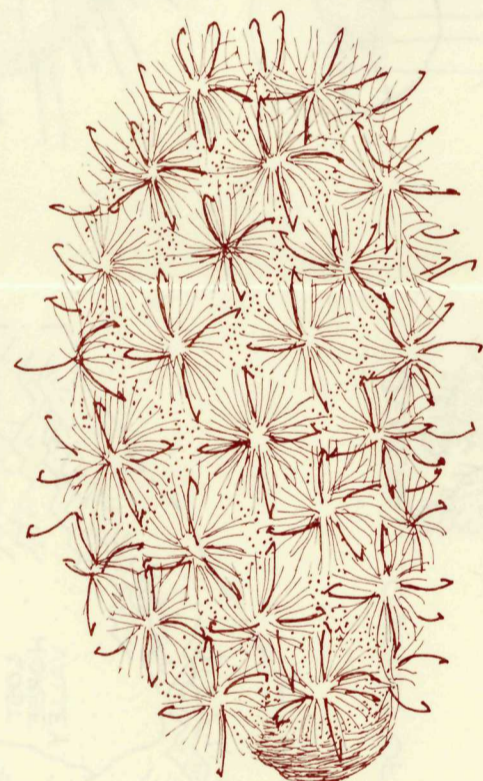


15 Corkseed Fishhook Cactus (Mammillaria tetrancistra)

Plant size: Solitary stems, 3-6 inches long 1 1/2-2 1/2 inches in diameter.
 Stem color: Pale green (can't really see the stem).

Stem characteristics: Spines the same size and color as the Foxtail Cactus with the exception of 1-4 central spines which are 1 inch or more long and hooked on the tip.
 Flowers: Rose pink to purple. (Fruit is small and red with corky tissue).

Location: Sandy soils of hills and valleys, 450-2,400 ft. In Joshua Tree National Monument this is a more rare cactus and may be found in the backcountry of the Wonderland of Rocks.



Joshua Tree National Monument Cactus Locations

