



Trail and Plant Guide

Mesa del Rincón

San Ignacio, BCS

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INTRODUCTION

LOCATION

San Ignacio is nestled in a side canyon of the San Ignacio Arroyo and is bordered on the south and west by a single large mesa that is split in three by smaller canyons. With its geological history, lava flows (both sheet and block), *tinajas* (seasonal, natural rock pools), variety and density of vegetation, archeological and cultural points of interest, and fantastic vistas, Mesa Rincón is by far the most interesting of the three mesas.

The main path up to the mesa is called the *Camino Real* trail, and is a fragment of the “King’s Highway” that connected the missions of Alta and Baja California. This section led southward into the Sierras and connected San Ignacio to the Guadalupe, Purísima, Comondú and San Javier missions.

CLIMATE

San Ignacio is located in the central region of the Baja California peninsula. It is warm or hot and dry much of the year, though winter morning temperatures can be quite chilly. The best time for most people to visit the mesa is between October and April, when day time temperatures are milder. Except for early morning hours, the summer months can be brutal as the trees have few leaves and shade is hard to find on the mesa.

Make a visit to the mesa part of your Baja California gray whale-watching trip. Plan on a half-day (4 hours) to enjoy the walk at a leisurely pace and explore the plant life. For a longer stay in town, spend a few days exploring the different parts of the mesa. For seasoned hikers and botanical enthusiasts, learn to recognize the plants on Mesa Rincón then climb the steeper mesa known as Mesa de la Cruz on the town’s northeast edge. Maps are available at Casa Lereé and the web sites listed on the back of this pamphlet.

VEGETATION

The vegetation of the mesa is typical of the xerophytic desert scrub of the Sonoran Desert found here in the central peninsula. Drought-adapted plants such as those with succulent stems or thick trunks (as seen in the cacti and Elephant trees), or shrubs and small trees with tiny, deciduous leaves (like Mesquite, Palo Verde and Desert Ironwood) dominate the landscape. Annuals and perennials make their appearance in times of abundant rain.

Many of the trees and shrubs of the region spend a great deal of their life cycle in a dormant, leafless state, often resembling masses of dead twigs. These drought deciduous plants (such as Lomboy, Matorra, Palo Verde and Palo Adán) only produce leaves when there is ample moisture. Please be cautious and don't break off branches or uproot these shrubs, nor trample on these seemingly "dead" plants, or they soon *will* be dead. Please stay on the trails as much as possible and avoid trampling and compacting soils around the bases of plants. Do not collect live specimens of any plants. Note: all cacti are protected by federal and international laws and treaties.

Mammillarias are tiny cacti that grow on the mesa and commonly grow in between rocks on the ground or cracks in rocks. Watch where you step, sit or put your hands.

The plant list at the end of this booklet was compiled after visits to the area in December 2009 and 2010, as well as April 2011, so many late spring or summer annuals and perennials are not well represented in the inventories made.

Distances and elevations are approximate, with many calculated as straight lines between GPS waypoints. GPS coordinates are based on the WGS84 data set, so accuracy will depend on the model and settings of the GPS used. Coordinates correspond well with *Google Earth* maps.

Plants measurements are given in metric units, while distances are both in English and Metric units. Illustrations were created from photographs of live plants and are not necessarily to scale if compared with illustrations of the same or other species. H = height, L = length/long, D = diameter, W = wide

Species names in parentheses that appear within titles of plant descriptions are synonyms (usually outdated names) of the name they appear after.

SAFETY ISSUES & TRAIL ETIQUETTE

- * There are many spiny plants on the mesa, especially low-growing cacti. For that reason, open-toed shoes are NOT recommended.
- * Keep an eye on children and dogs and keep them on the trails.
- * Be aware of where you put down your belongings and hands and where you sit or tread to avoid unpleasant contact with spines. Watch your companion's back too.
- * Carry ample water; bring a snack or lunch to better enjoy the trails at a leisurely pace.
- * Pack out all your trash and pick up any you might find along the way.

TRAIL DESCRIPTIONS

EL CAMINO REAL [½ MI. - 750 M] N 27.2788°/ W 112.8957°

The trail begins along a low rock wall (1 ★), turns and then climbs gradually up less than a hundred feet to the mesa through cuts in the foundation rock. Near the base (2), the wide trail passes through a layer of caliche (limestone with embedded fossilized shells) capped with lava. At the top of the climb (3), the stone steps and path have been hewn out of the lava flow. A basalt block named *Cerro Tepayac* rises above the trail on the east side, with talus slopes below. Look for Turkey Vultures roosting high up on the rocks along the ridge. From here, to the northwest is a vista of the town of San Ignacio.

VISTA DEL CAÑON [50-75 YDS/M] N 27.2754°/ W 112.8949°

This short spur trail will take you through volcanic rubble and natural cactus gardens to the edge of the mesa. The Vista point (6) is an open slab of rock affording a view across the narrow canyon to a rock terrace on the opposite side as well as of the canyon floor. For the sure-of-foot, it is possible to continue past the vista point, walk across lava boulders and follow the wide arroyo about 75 yds/m to meet the Los Corralitos trail at Marker 9.

VIRGEN DE GUADALUPE [50 YDS/M] N 27.2739°/ W 112.8939°

This is a short side trail to an altar site at the base of the *Cerro Tepayac* talus slope.

LOS CORRALITOS [0.6 MILES - 1 KM] N 27.2726°/ W 112.8937°

This trail crosses a fairly flat, volcanic debris field with lots of open ground. The trail is narrow in places, but well marked with an occasional rock painted white. It meanders across the mesa from east to northwest. Shortly after it branches off from the Camino Real trail at #8 (where there is a rock cairn painted white), it passes through a lava flow (9). On either side of the trail at this point, look for the *tinajas* (pools) carved into the rock by water action. Head north along the flow to see the larger pools.

El Atajo trail runs into Los Corralitos from the north at Marker 10. There, at the distinct Y in the trail, continue along Los Corralitos by taking the left fork. The trail is named for its *corralito* (12), an open-air, rock ring campsite created by the nomadic, indigenous people of the area. Please don't disturb this archeological structure. A short distance beyond, there is a spur trail (13) to another vista point on the north edge of the mesa. The trail meanders across the mesa and a cairn (14) marks the beginning of El Malpaisal trail that continues northwest towards *El Rincón* (the Corner), another Vista Point (18) and El Arrecife trail (17). From this same cairn, an old cattle trail continues southward for many miles.

EL ATAJO [130 YDS/M] N 27.2774° / W 112.8964°

This shortcut (*atajo* in Spanish) is a quick, switchback climb up or down from Los Corralitos trail. The trail begins at Marker 21 ★ with a mound of white rocks. There are a number of interesting rock formations in the bedrock of the trail, including a large “cow-pie bomb”, created when a large lump of molten lava was ejected and splatted on the ground, cracking in a circular pattern as it cooled. The ascent/descent is short and steep with loose rocks and gravel and may prove difficult for some.

EL MALPAISAL [¼ MILE - 750 M] N 27.2783°/ W 112.8994°

This is rougher than the Los Corralitos trail because of the volcanic rocks strewn across the trail. *Malpaisal* refers to this type of rocky, tumbled terrain. The trail twists and turns a short distance. After an open, sandy area with robust vegetation (16), the path meets El Arrecife trail (17), and continues on to a lovely vista point (18) with a sweeping view of the town and palm orchards. The area’s volcanos are also visible from here—can you imagine the steam belching from their peaks in the not so distant past?

EL ARRECIFE [150 YDS/M] N 27.2788°/ W 112.9007°

This short side trail, with about a 30 ft (10 m) elevation gain is rough going up through a talus slope, but the trip is well worth it, since there are some plants that are rarely seen on the lower part of the mesa. Look for the white rock cairn at the beginning of the trail (17). Follow the white, painted rocks up through several levels of large lava boulders to a flatter area (19). There is an open area at the end of the trail appropriate for camping (20). The plants on the *arrecife* (reef) include an endemic Baja agave and very large specimens of two species of barrel cactus. The rocks forming the talus are lava “blocks” or “clinkers” and many make a wonderful, metallic sound when whacked with another rock. The trail currently ends at Marker 20, but there is still a lot to explore. Head west from #20 to reach the mesa’s edge.

Note on Trail Lengths: Distances are approximate for each trail segment. Conversion between English and metric distances has been rounded, so some distances may not be a true equivalent.

Approximate Trip Lengths:

El Camino Real - El Atajo Loop – 1.2 mile (1.8 km)

One way trips:

El Camino Real to Vista point (via El Malpaisal) – 1 mile (1.5 km)

El Atajo to Vista Point – ½ mile (0.75 km)

PLANTS BY MARKER

- 1 ★ Along this stretch at the bottom of the hill and as the trail begins to climb are primarily Creosote Bushes (*Larrea tridentata*), known locally as Gobernadora.
- 2 On the hill above the caliche cliff face: Old-man Cactus (*Lophocereus schottii*), Torote Colorado (*Bursera microphylla*), Mesquite (*Prosopis glandulosa* var. *torreyana*), Maguey (*Agave cerulata* var. *subcerulata*), Palo Adán or Tree Ocotillo (*Fouquieria diguetii*), Limberbush (*Jatropha cuneata*) and Creosote Bush. Along the trail: Brittlebush or Incienso (*Encelia farinosa*), Limberbush, Barrel Cactus (*Ferocactus peninsulae*), Pitahaya Agria (*Stenocereus gummosus*), and Creosote Bush.
- 3 At the top of the climb, facing the talus slopes of Cerro Tepeyac, look in the foreground for Cholla Barbuda (*Cylindropuntia alcahes*), Casa Rata (*Grusonia invicta*) and Ruellia (*Ruellia californica*). In the mid distance, look for Cardón (*Pachycereus pringlei*) Torote Colorado, Limberbush, and Mesquite. Farther up the hill are Organpipe cactus (*Stenocereus thurberi*), Cardón, Torote Colorado, Cholla Barbuda and Limberbush. Also nearby the marker are Ragweed (*Ambrosia bryantii*), *Euphorbia tomentulosa*, Rock Hibiscus (*Hibiscus denudatus*), Fishhook cactus (*Mammillaria dioica*), Casa Rata, and Creosote Bush.
- 4 Look on the uphill edge of the trail for a Cardón, Torote Colorado and Palo Adán in a close embrace, with Organpipe cactus and Cholla Barbuda nearby. On the opposite side of the trail is Desert Ironwood (*Olneya tesota*), Casa Rata, Hedgehog cactus (*Echinocereus brandegeei*), Palo Adán and Brittlebush. While continuing along the trail, look on the uphill side of the trail in the talus for Torote Colorado and Cardón. Higher up the slope are a few large Palo Verde trees (*Parkinsonia microphylla*).
- 5 Just before the junction on the uphill side is a Cardón and Mesquite. Right near the rock cairn is a Pitahaya Agria. And on the up side of the trail junction opposite the cairn is Palo Adán, Torote Colorado, and Cholla Barbuda. On the down side of the trail junction is a Pitahaya Agria and a small Mesquite.
- 5 to 6 The trail passes through extensive patches of Casa Rata and Chain-link Cholla (*Cylindropuntia cholla*), interspersed with Palo Adán and Torote Colorado. Vegetation transitions to Cholla Barbuda with increasing Limberbush and Palo Adán as the trail nears the canyon edge.
- 6 Below and across from the vista point are Ironwood, Mesquite, Fairy Duster (*Calliandra californica*), Tinta (*Stegnosperma halimifolium*), Jojoba (*Simmondsia chinensis*), Ejotón (*Ebenopsis confinis*), Vara Prieta (*Cordia parvifolia*), Torote Colorado, and Cardón. On the upper rim on the same side as the vista point are: Chollas, Ruellia, Jojoba, Limberbush, Boxthorn, Torote Colorado, Agave, Casa Rata, Hedgehog cactus, Vara Prieta, Palo Adán, Ejotón and Rock Hibiscus.

- 7 Look for the white rock cairn and trail branching to the left. At the cairn are Cholla Barbuda and a Torote Colorado. On the way to the Virgen de Guadalupe shrine, the trail passes Torote Colorado, Chollas, Pitahaya Agria, Palo Adán, and Limberbush. At the entrance to the shrine on the left are a small Pitahaya Agria and Limberbush; on the right are Ejotón, Limberbush, Palo Adán, and Torote Colorado. In the rocks near the base of the shrine are *Euphorbia tomentulosa*, Mariola (*Solanum hindsianum*), Vara Prieta and Boxthorn. Above the shrine are Torote Prieto (*Bursera hindsianum*) and a large Palo Adán.
- 8 At this junction, across the trail from the cairn are a small Cardón, Palo Verde, Ejotón, and two Torote Colorado. A Barrel cactus is on the trail at the rock edge. At the rock cairn are Rock Hibiscus, Torote Colorado, Ejotón and a small, unbranched Cardón. Just beyond that junction, in the middle of the Camino Real trail, is a small Ironwood. Looking toward the Tepayác talus slope, the twisted branches of numerous Torote Colorado can be seen shining in the sunlight.
- 9 This marker is located within a seasonal watercourse with a solid, lava rock bottom, large boulders and *tinajas* (rock pools). Note the increased size of the trees and shrubs here because of water; Torotes, Cardón, Ejotón, Mesquite and Ironwood are all supersized. A gigantic, many branched Cardón grows up through the lava flow, perhaps having found its own secret underground water supply. Look on the rock surfaces for what seems to be a dusting of fuzzy, black paint drops or spray, especially near the bottoms of rocks and in crevices. This crust is lichen, a symbiosis of two organisms, a fungus (the structure) and an alga (the food provider). In the wash, look also for large shrubs of *Euphorbia tomentulosa*, Boxthorn and feather duster. Note that as you pass out of the wash, the vegetation becomes lower and sparser and remains so along the rest of this trail.
- 10 Up to this junction, the vegetation has been very low and spread out, with small Limberbush, Palo Adán, and Vara Prieta. Taller plants include Torote Colorado and Desert Ironwood. Cacti include Casa Rata, Pitahaya Agria and Hedgehog cactus. Across from the cairn, in the **V** created by the two trails is a small Vara Prieta.
- 11 Close to this marker are numerous shrubs of an endemic Ragweed known locally as Chicura (*Ambrosia bryantii*). Along most of the Los Corralitos trail, small treasures can be found growing within the Casa Rata and Hedgehog colonies: Fish Hook cactus and the endemic Pincushion cactus *Mammillaria lewisiana*. Also nearby: Palo Adán, Limberbush, Vara Prieta, Organpipe and Barrel cactus.
- 12 Casa rata, Cholla Barbuda, Palo Adán, Limberbush, Pitahaya Agria, Barrel, Fish Hook and Pincushion cacti are all abundant near the *corralito*. Several Pincushion cacti lurk within the Casa Rata opposite this marker.

- 13 At the vista point, there are many small Barrel and Pincushion cacti among the low-lying Casa Rata, Pitahaya Agria and Limberbush.
- 15 The trail crosses a narrow watercourse cutting through bed rock and from this point, the vegetation suddenly becomes denser and taller, as do the volcanic rocks along the path. Limberbush, Torote Colorado, Ruellia, Triangle Goldeneye, Palo Adán, Boxthorn, Casa Rata, Barrel cactus and Mariola are abundant.
- 16 This is an open area with widely scattered rocks and plants. The trail is only 5-10 yds/m from the edge and has a great view of town. Check under the Casa Rata for small treasures and note the Chollas, Hedgehog and Barrel cacti, Pitahaya Agria and Organpipe, Ragweed and Torote Colorado.
- 17 Look for the white cairn on the left (west) and white rocks heading up the El Arrecife trail. Right by the cairn is a Boxthorn, Vara Prieta and Cholla Barbuda. In the vicinity are Sweetbush (*Bebbia juncea*), Rock Hibiscus, Brittlebush, and Palo Verde.
- 18 The vista point overlooks the town's vast date orchards. Missionaries introduced date palms (*Phoenix dactylifera*) to the peninsula where they have naturalized within the region's oases. Dried dates and date products can usually be purchased in town and the fruit make a great, refreshing snack after a good workout on the trails.
- 19 There are several levels to the reef. On the first level, the trail passes through many small Mariola plants. Climbing from the second level, it cuts through a rock corral wall and reaches this marker on the third step near a large, snaky Pitahaya Agria. In all directions from here, robust Torote Colorado, Limberbush and Organpipe are visible. The silver-green shrubby Narrow-leaf Saltbush (*Atriplex linearis*) seems to make its first appearance up here. Maguey is at its most abundant all over this reef and the Barrel cacti are especially tall and plump. Look for a second, less common species of Barrel cactus (*Ferocactus emoryi* var. *rectispinus*) with more or less straight spines up to 25 cm long.
- 20 After a final, slight ascent, the trail ends in a wide spot large enough to pitch a tent. On the southwest side is the edge of a lava rock flow, with lovely, large specimens of Cardón and Organpipe cactus. Nearby shrubs and cacti include: Casa Rata, Chollas, Pitahaya Agria, Torote Colorado, Palo Adán, Mesquite and Mariola as well as Fish Hook and Pincushion cactus. The dried Maguey flower stalks, known locally as a *quiote* (key-OH-tay), make a handy walking stick if you need a little help on the return trip.
- 21 ★ Creosote bush, Limberbush, Brittlebush, Saltbush (*Atriplex barclayana*), Boxthorn, Cholla Barbuda and Casa Rata are found near the base of the trail.
- 22 Climbing up the switchback to the top, the trail passes Old-man and Barrel cactus, Palo Adán, Vara Prieta, Ruellia, Torote Colorado, Ejotón, and Cardón.

Agave Family (Agavaceae)

Agave cerulata var. *subcerulata*

Agave, Maguey, Lechugilla



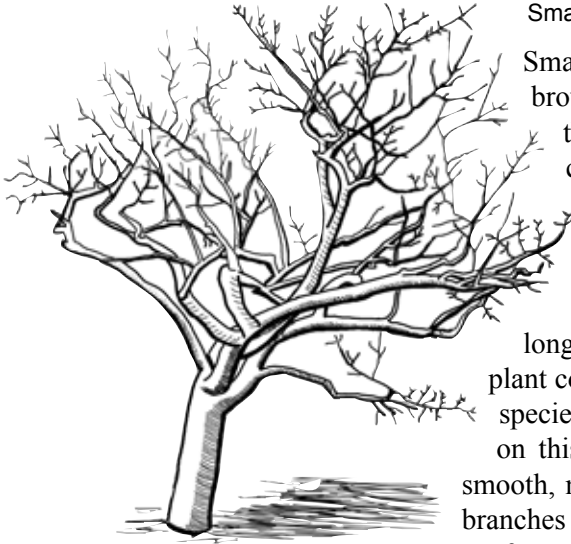
Maguey is a stemless perennial shrub 15-30 cm high and wide. The semi-succulent, strap-like leaves are arranged in a basal rosette and have sharply pointed tips and coarsely serrated margins. Flowers are borne on a slender stalk that grows to 2-3 m tall and has 8-10 lateral

umbels of yellow-green flowers. Each flower has 6 waxy, oblong tepals each about 2 cm L, 6 stamens and a style with 3 stigmas. The fruit is more or less obovoid, glaucous, 3-chambered and 3.5-4 cm L x 1.5 cm D. It has many compressed, dark brown to black seeds each about 7 mm L x 5 mm W. Agave plants only produce one flowering stalk, after which the entire plant dies. It is endemic to BCS and limited in its range from around San Ignacio and to the south as far as Isla San Marcos.

Torchwood Family (Burseraceae)

Bursera microphylla

Small-leaf Elephant tree, Torote colorado



Small tree 2-4 m tall with golden brown to orange, peeling bark, a thick, squat trunk and generally contorted limbs. Upper branches red or brownish. Pinnate leaves with numerous, tiny leaflets. Small cream flowers bloom in summer. Fruit olive like, 1 cm

long, and purple-red. All parts of the plant contain an aromatic sap. A related species, *B. hindsiana*, is less frequent on this mesa. It is a small tree with smooth, non-peeling, grayish bark. Upper branches are dark red or blackish.. Leaves are fuzzy and ovate with toothed margins

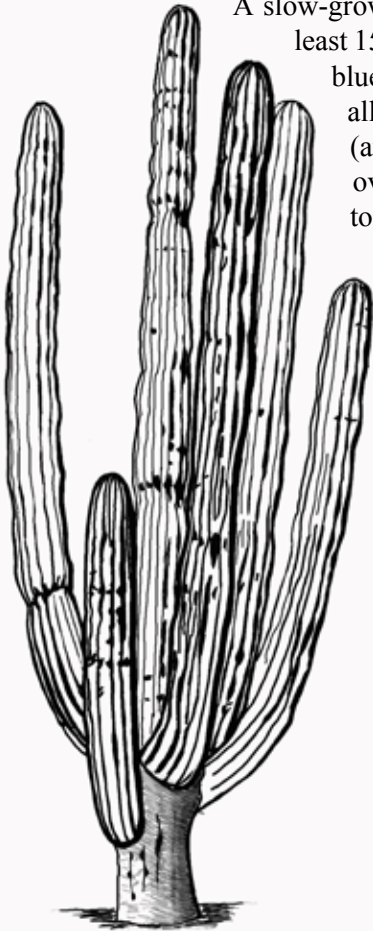
and may have a single blade or 2-5 pinnate leaflets. Fruit is bright red with a black and orange seed.

Bursera belongs to the same family as the Old World Frankincense and Myrrh. Another “Elephant Tree” seen in the Cataviña - Bahía de los Ángeles area as well as the lava flows near Ejido Bonfil has pink or cream flowers. It is the unrelated species *Pachycormus discolor* in the Cashew Family (Anacardiaceae).

Cactus Family (Cactaceae)

Pachycereus pringlei

Elephant Cactus, Cardón

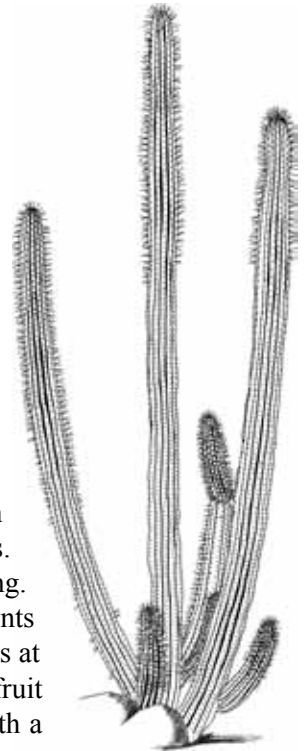


A slow-growing, tree-like, columnar cactus that can reach at least 15 m high. Young plants are usually single-stemmed, blue-green and very spiny. Older specimens generally have a well-defined trunk and several branches (arms). Spines are gradually and permanently lost over time. The large, tubular, white flowers begin to bloom in late March or early April. The fruit is bristly outside, but juicy and edible, with reddish flesh and many tiny black seeds. The woody ribs are used as construction materials.

Stenocereus thurberi (*Lamaireocereus thurberi*)

Organpipe cactus, Pitahaya dulce

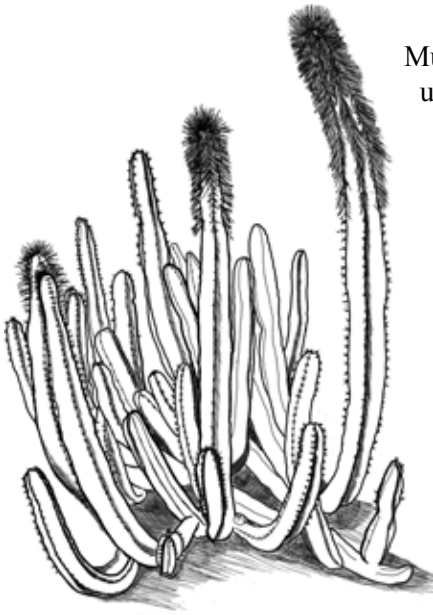
A columnar cactus with many upright branches arising from the ground (lacking a trunk) and reaching up to 8 m high. Branches are 15-20 cm in diameter with 12-19 ribs. Spines are grayish or black, needlelike and 1-5 cm long. The flower is funnel-shaped, the outer perianth segments purplish-red, and the inner white, tinged with pink; opens at night and closes by mid-morning. May-July. The spiny fruit is globose, 5-8 cm in diameter and edible when ripe with a juicy, sweet, red flesh and many tiny, black seeds.



Cactus Family (Cactaceae)

Lophocereus schottii

Old man cactus, Garambullo



Multi-branched, columnar cactus to 8 m tall, usually lacking a main trunk. Stems with 5 to 8 widely spaced ribs. The upper part of the fertile stems are covered in long, bristly spines, while the lower stems have short and stout spines. Flowers are pale pink, white or peach, ± 3 cm in diameter and found only on the upper stems among the spines. Mar-May. Ovoid fruit is ± 3 cm long, fleshy, bright red, edible when ripe, and filled with many small, black seeds.

Stenocereus gummosus (*Machaerocereus gummosus*)

Galloping Cactus, Sour Pitaya, Pitahaya agria

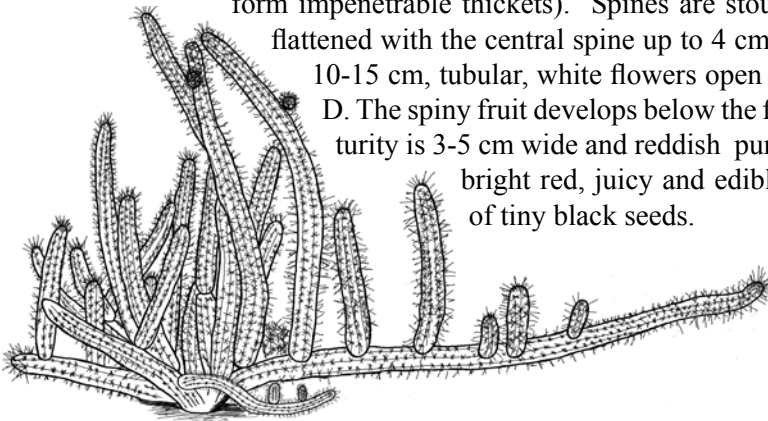
This could well be the most common and widespread columnar cactus found on the peninsula. The stems, which have 8-9 ribs and can reach 3 m in length, can be erect, spreading or reclining on the ground (where the stems can take root and form impenetrable thickets). Spines are stout and somewhat

flattened with the central spine up to 4 cm long. The large,

10-15 cm, tubular, white flowers open to about 8 cm in

D. The spiny fruit develops below the flower and at maturity is 3-5 cm wide and reddish purple. The flesh is

bright red, juicy and edible with hundreds of tiny black seeds.



Cactus Family (Cactaceae)

Cylindropuntia alcahes var. *alcahes*

Cholla, Cholla barbona, Clavelina



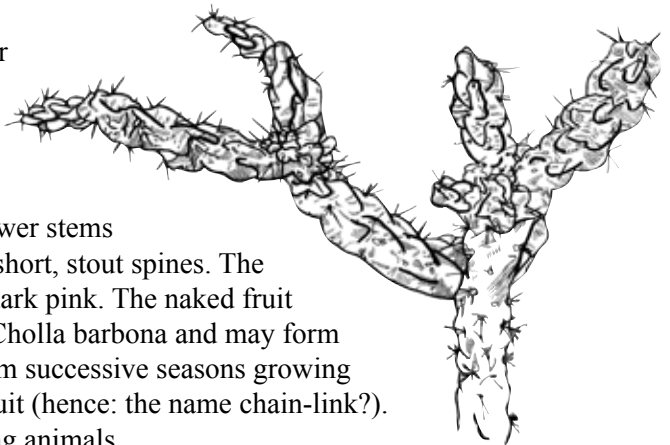
One of several common, widespread chollas. It is a small, much-branched cactus up to 1.5 m tall, with a short trunk and very spiny stems. Like many opuntias, this cactus can start new plants (clones) from stems that fall off and take root. The

flowers are yellow-green (sometimes red-tinged) and generally bloom Feb-May, though they may bloom at other times. The fruit, while edible, is rather dry. It is globose and spineless when mature, may remain for several seasons on the plant and rarely forms chains (see *Cylindropuntia cholla*).

Cylindropuntia cholla

Chain-link cholla, Cholla, Cholla pelona

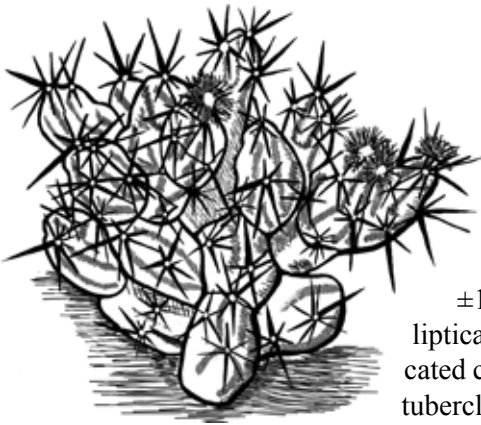
This cholla is very similar in growth form and size to *C. alcahes* var. *alcahes*. However, the older stems are almost spineless, with newer stems generally having sparse, short, stout spines. The flowers (April-July) are dark pink. The naked fruit is more rounded than in Cholla barbona and may form long chains with fruit from successive seasons growing from the top of the old fruit (hence: the name chain-link?). Preferred cholla of grazing animals.



Cactus Family (Cactaceae)

Grusonia invicta (*Opuntia invicta*)

Club cholla, Dagger cholla, Casa rata



This is a stout, many-stemmed, cactus 20-45 cm H, with erect, decumbent or spreading stems that often form large colonies to 2 m D. Individual stems are ± 15 cm L x 5-9 cm D. Tubercles are elliptical and ± 5 cm L with elongated areoles located centrally or near the upper margins of the tubercles. There are 5-7 thick, flattened, gray to black central spines (red in youth), each ± 5 cm

L. The 4-6 cm D funnellform flowers have a pale yellow perianth with obovate inner parts. The stamens have maroon filaments and yellow anthers. The multiple stigma branches are slightly maroon tinged. The ovoid, densely spiny fruit is somewhat fleshy with a thin wall, little pulp and many flattened, lens-shaped, pale brown seeds. The dried flower is usually persistent. Endemic to BCS.

Echinocereus brandegeei

Hedgehog cactus, Strawberry cactus, Pitayita

This hedgehog species is a many-stemmed cactus forming rounded clusters to 30 cm H x 30-40 cm D. Its size, shape, and spines are highly variable. On the mesa, stems are cylindrical, erect and 4-5 cm D with 8-10 "ribs" formed by vertical rows of elliptical tubercles. The areole is white-hairy. There

are 1-4 central spines that are unequal, 2-6 cm

L, gray-colored, straight and flattened, but

triangular in cross-section. The 9-12 radial

spines are 1-2 cm L, straight, mostly

slightly flattened and white or gray.

Flowers are campanulate to tubular, up

to 7 cm L x 8 cm D. The outer perianth

parts are purplish with closely-set,

white-wooly areoles. The inner parts

are lanceolate with acute tips, and light

purple to magenta with a darker colored

base. The many stamens are dark red or

purple. The style, which is well-exserted

above the stamens has numerous creamy

white lobes. The fruit is \pm globose, ± 3 cm D, and has many fine, reddish spines.

The numerous, minute seeds are black and tuberculate. Endemic from central BC

to the Cape.

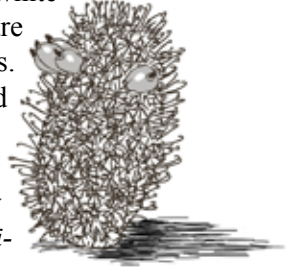
Cactus Family (Cactaceae)

Mammillaria dioica

California fishhook cactus, Strawberry cactus, Biznagita, Viejita

Small cylindrical cactus. Stems solitary or in small clusters, each 3-5 cm in diameter and 4-30 cm high. Conical tubercles (nipples) are arranged in 8-12 spirals around the stem. Each tubercle with spines of 2 types: a long, hooked, central spine; and a number of smaller, radial spines. Bristles also present between tubercles. The 10-20 mm long, funnel-shaped flowers are white with a pink central stripe on each perianth part. Stamens are many and the style has five or more lime green branches. The slightly tart, edible berry is club-shaped, bright red and filled with many minute, black seeds.

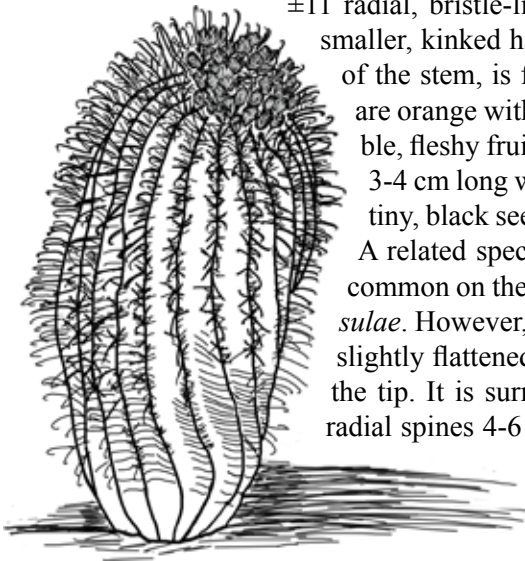
Watch your step! This tiny cactus can be hidden between rocks in the path. It also likes to grow within the shadow and protection of other plants. A related species, *M. lewisiana* (pincushion cactus) is also found on the mesa. Stems are blue green, 5-7 cm diameter and high. The central spine is straight and there are no bristles between the tubercles. The flower is whitish.



Ferocactus peninsulae

Barrel cactus, Biznaga

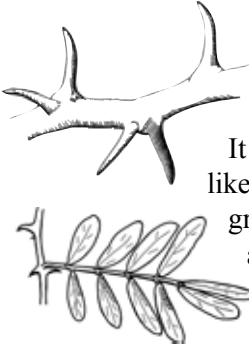
Short and squat columnar cactus generally with one main stem up to 1.5 m tall and 40 cm wide; the 12-20 ribs may spiral around the stem. The areole has a central grayish spine, up to 5 cm long that is flattened but has a strongly hooked tip and ± 11 radial, bristle-like spines. There may also be much smaller, kinked hairs. The flower, arising near the top of the stem, is funnel-shaped; the perianth segments are orange with a red mid-stripe. Apr-May. The edible, fleshy fruit resembles a small, yellow pineapple 3-4 cm long with scales instead of spines and many tiny, black seeds. A lovely example is located at #8. A related species, *F. emoryi* var. *rectispinus* is less common on the mesa. It is of similar size to *F. peninsulae*. However, the central spine is up to 25 cm long, slightly flattened and straight, not strongly hooked at the tip. It is surrounded by 6-7 similar (but smaller) radial spines 4-6 cm long. The flower is yellowish or orange-red with a darker midstripe.



Legume Family (Fabaceae)

Olneya tesota

Desert ironwood, Palo fierro, Uña de gato



A large shrub to tree with dark gray or brown bark. It is armed with 1-2 short, straight or hooked spines like a cat's claw below the pinnate leaves which are gray-green and minutely hairy. Leaflets are oblong, and mostly irregular in size. Flowers are pea-like, 10-12 mm, with five purple-pink petals tinged with white near their bases. Mar-May. Pods are several-seeded, dark brown and sticky. A FEDERALLY

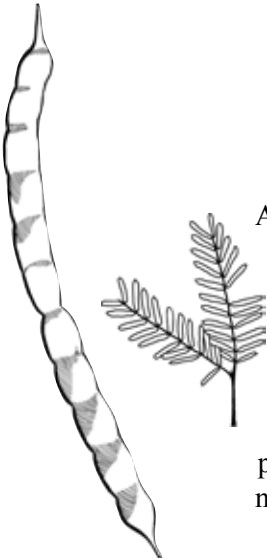
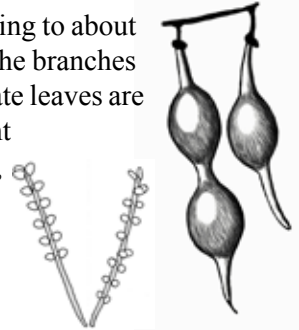


PROTECTED SPECIES: do not collect it for firewood or for any other use as it is threatened by over-harvesting.

Parkinsonia microphylla (Cercidium microphyllum)

Palo verde, Small-leaf palo verde, Jerusalem thorn, Dipúa

Large, unarmed shrub or tree with a rounded crown reaching to about 6 m high. Trunk and branches bright green. The ends of the branches are broom-like with sharply pointed tips. The small, pinnate leaves are about 2-2.5 cm L, drought-deciduous, and usually absent when flowers or fruit are present. Flowers with 5 petals, the uppermost white (but darkening after pollination), the others yellow. The cylindrical, beaked pods are somewhat constricted between each of the one to three seeds.



Prosopis glandulosa var. torreyana

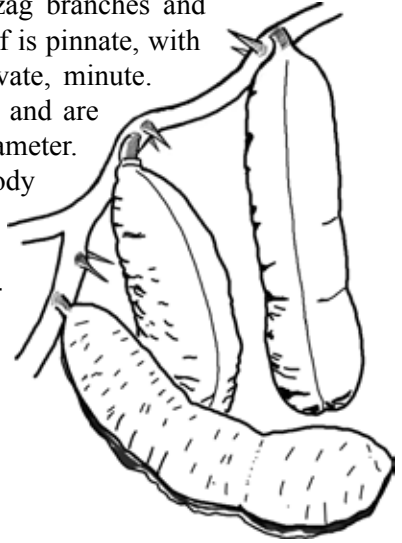
Honey Mesquite, Mezquite

A small, armed tree reaching 12 meters, the bark dark brown, furrowed, the straight 1-4 cm long spines in pairs at leaf nodes. Leaves compound pinnate, with 1 pair of pinnae per leaf. Leaflets 6-20 pairs, their length variable and from 2-5 times their width; the space between leaflet bases generally > leaflet width. Flowers are tiny, tubular, yellow and arranged in long, dense cylindrical spikes. Jan-Jun. The tan bean pod is 8-15 cm long, slightly flattened and mostly not regularly constricted between seeds.

Ebenopsis confinis
(*Pithecellobium confine*)

Ejotón, Palo fierro

Dense, armed shrub 1.5-2 m high with zig-zag branches and slender, straight spines 7-15 mm long. The leaf is pinnate, with one pair of pinnae. Leaflets: 2-5 pairs, obovate, minute. The minute flowers are cream or pale yellow and are found in a dense, globose cluster 1.5-2 cm diameter. Feb-April. The large, thick, 7.5-10 cm long woody pods are the plant's most prominent feature, remaining on the plant long after opening.



They are velvety green or chocolate when young but become dark brown or black and develop a cracked, scaly surface.

Spurge Family (Euphorbiaceae)

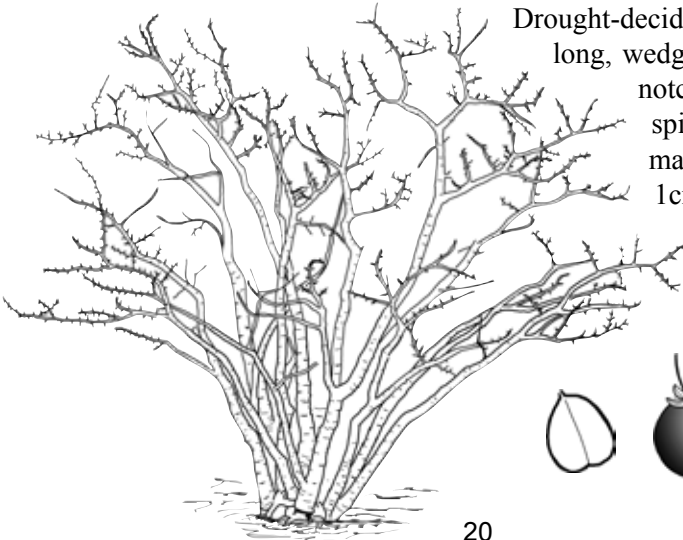
Jatropha cuneata

Limberbush, Matacora

Limberbush is probably one of the most common and ubiquitous desert plants on the peninsula. It has numerous alternate, knobby side branches and bark that ranges from blackish to yellow, green or golden brown. The upper twigs can be bent in a circle without breaking.

Drought-deciduous leaves are 1-2 cm long, wedge-shaped and generally notched at the tip. Inconspicuous, cream-colored male and female flowers < 1cm bloom in the summer.

The fruit is a small, 1-seeded capsule.



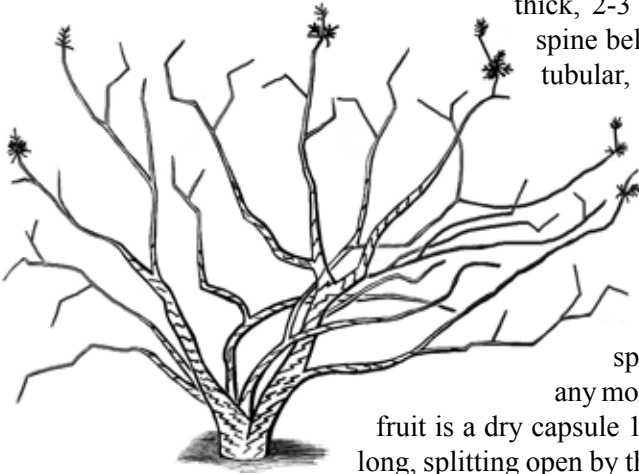
Ocotillo or Candlewood Family (Fouquieriaceae)

Fouquieria diguetii

Adam's Tree, Tree Ocotillo, Palo Adán

Shrub or small tree 2-8 m tall with a very short trunk (about 20 cm high).

Branches usually contorted and often divided. Leaves elliptic to ovate, thick, 2-3 cm long; a long, stiff spine below each leaf. Flowers tubular, dark red with 5 erect lobes and arranged in short, conical inflorescences 5-15 cm long. This species is very sensitive to small amounts of moisture and may sprout leaves and/or flowers any month. The fruit is a dry capsule 1.5-2 cm long, splitting open by three valves to release its papery winged seeds.



MORE PLANT DESCRIPTIONS

ACANTHACEAE (ACANTHUS)

Ruellia californica ssp. *californica*

Ruellia, **Flor de campo**

Shrub with 3 cm purple, tubular flowers; leaves tacky, pungent; bark silvery-gray.

APOCYNACEAE (DOGBANE)

Asclepias subulata

Milkweed, **Jumete**

Perennial with many densely clustered, thin, gray-green, erect, reedlike stems; sap milky; flowers cream, in dense umbels at top of stem; pods elongated; seeds with a cottony parachute.

ASTERACEAE (SUNFLOWER)

Ambrosia bryantii

Ragweed, **Chicura**

Rounded, intricately branched shrub with fragrant, finely lobed leaves. The fruit is a silvery, star-shaped bur with 5 or more long spines up to 5 cm long.

Bahiopsis triangularis

Triangle-goldeneye, **Margarita**

Shrub with rough, sand papery, wedge-shaped leaves. Flower heads 6 cm diameter with many yellow ray flowers and brownish-maroon disk flowers.

ASTERACEAE (SUNFLOWER) - CONT.

Bebbia juncea

Sweetbush, **Barba de chivo, Apán**

Rounded, open shrub with thin, bright green, mostly leafless, reedlike stems. Small, yellow, cylindrical flower heads near tips, lacking ray flowers; achenes (fruits) with small, umbrella-like parachute (pappus). Attractive to bees, wasps and butterflies.

Encelia farinosa

Brittlebush, **Incienso**

Rounded shrub with gray-green to silvery green leaves; sap clear, sticky and fragrant; large flower heads sit well above the leaves; yellow rays and maroon disk flowers.

Porophyllum gracile

Odoro, **Hierba del venado**

Small perennial or shrub with strong scent (unpleasant to some) due to oil glands on herbage and flower heads. Leaves threadlike, gray green; flower heads cylindrical with pink florets, lacking ray flowers, stamens purple. Achene (fruit) with umbrella-like parachute (pappus).

BORAGINACEAE (BORAGE FAMILY)

Cordia parvifolia

Vara prieta

Open shrub with very dark gray to black bark. Leaves dark green, crinkled, tough and raspy, often lacking. Flowers white, 2.5 cm D, campanulate, often clustered near tips of branches.

CHENOPODIACEAE (GOOSEFOOT FAMILY)

Atriplex barclayana

Saltbush, **Chamizo**

Low, perennial herb with gray-green, scurfy leaves. Male and female flowers on different plants; males in yellow glomerules on spikes; female greenish, inconspicuous, on separate spikes or among leaf joints. Fruiting bracts 2-4 mm, slightly fleshy, with toothed margins.

Atriplex linearis (*A. canescens* var. *linearis*)

Narrow-leaf saltbush, **Chamizo**

Gray-green shrub with narrow leaves; flowers arranged in similar manner to *A. barclayana*. Fruiting bracts in spikes, fleshy, 5-6 mm, each with 4 wings.

EUPHORBIACEAE (SPURGE FAMILY)

Euphorbia tomentulosa

Liga, Jumetón

Small shrub with interlaced branches; sap milky; leaves opposite, pairs somewhat overlapping; tiny flowers in clusters; 5 white "petals" each with an oval, maroon gland at its base.

Euphorbia polycarpa

Spurge, Sandmat, **Golondrina**

Small, prostrate, annual herb often forming a mat on the ground; sap milky; leaves tiny, opposite; flowers minute with 4 white "petals", each with an oval, maroon gland at its base.

FABACEAE (PEA FAMILY)

Calliandra californica

Fairyduster, **Tabardillo**

Shrub with pinnate leaves and a bright red, feathery cluster of flowers; fruit a narrow, fuzzy, brown bean pod.

KRAMERIACEAE (KRAMERIA FAMILY)

Krameria erecta

Little-leaf ratany, **Mezquitillo**

Low shrub with stiff, gray, interlacing branches; leaves often resembling tiny pine needles in fascicles; flower 5-parted, fuchsia; fruit a globose to heart-shaped capsule covered with reddish, soft spines that cling to clothes and fur.

MALVACEAE (MALLOW FAMILY)

Hibiscus denudatus

Rock hibiscus, **Malva**

Gray-green perennial with ovate leaves; flowers pink (almost white at times) with a fuchsia central column. Capsule splits open into 5 segments, exposing the black seeds with their cottony parachutes.

Melochia tomentosa

Teabush, **Malva rosa**

Perennial with velvety, ovate, gray-green, crinkled leaves with toothed margins; 5-petaled dark pink flowers about 1.5 cm.

NYCTAGINACEAE (FOUR-O'CLOCK FAMILY)

Allionia incarnata

Windmills

Prostrate, creeping annual, often forming mats along the ground. Leaves glandular-hairy, in pairs, with each leaf a different size, margins often red; 3 dark pink flowers in a tight cluster 1-1.5 cm D easily seen as a single flower; each perianth shallowly 3-lobed with 4-7 stamens.

SIMMONDSIACEAE (GOATNUT FAMILY)

Simmondsia chinensis

Goatnut, **Jojoba**

Shrub with leathery, ovate, gray-green leaves, the pairs of opposite leaves usually oriented in an upright manner to reduce sun exposure.

SOLANACEAE (NIGHTSHADE FAMILY)

Lycium andersonii

Boxthorn, **Frutilla**

One of several shrubby species called Wolfberry, Boxthorn or Frutilla. Branches stiff with sharply pointed (spinose) side-shoots often at right angles. Up to 1.5 m tall. Leaf alternate or in fascicles, linear to oblanceolate, 3-15 mm long, minutely hairy (as is the bark). Flower small, tubular with a long greenish tube and 4-5 lavender lobes. Fruit a red, globose or ovoid, edible berry 6-8 mm D.

CALTROP FAMILY (ZYGOPHYLLACEAE)

Larrea tridentata

Creosote bush, **Gobernadora**

Creosote bush is mostly found along the trails near the mesa's base. The stems are knobby. Leaves are bright to olive green (depending on moisture), leathery, resin-coated and very aromatic, smelling to some like turpentine. Yellow, 5-petaled flowers are 1-1.5 cm wide, bloom much of the year and give rise to fruits resembling small cotton balls.

GLOSSARY OF TERMS



Tree

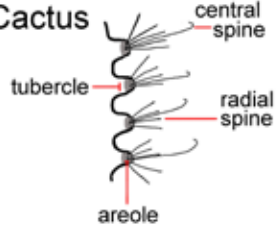


Shrub



Herb

Cactus



Spines



Spinose



Decumbent



ovate



obovate



linear

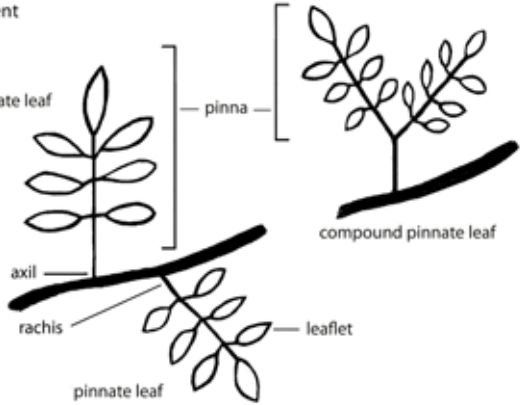


lanceolate



dentate

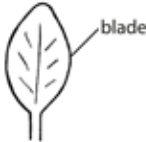
pinnate leaf



compound pinnate leaf



cordate



oval/elliptical



fasciated

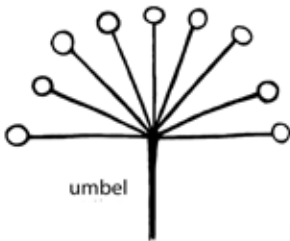
fleshy bract



front

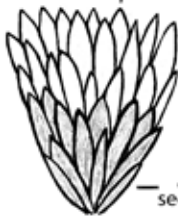


side view



umbel

inner segments



perianth of cactus flower

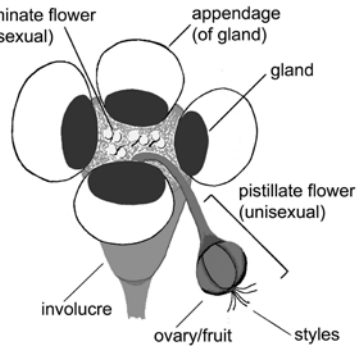
outer segments

staminate flower (unisexual)

appendage (of gland)

gland

pistillate flower (unisexual)



involucre

ovary/fruit

styles

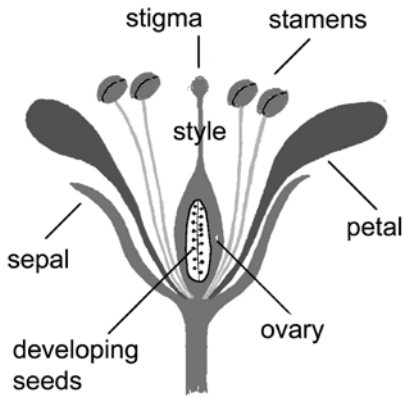
Involucre of Chamaesyce (Euphorbiaceae)



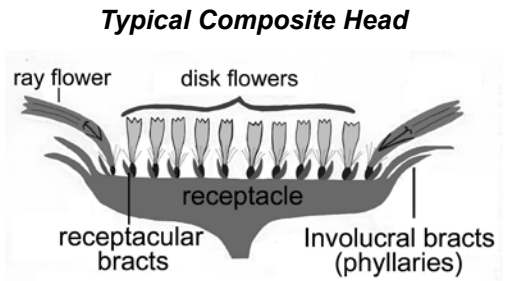
spike



raceme (spikelike inflorescence)

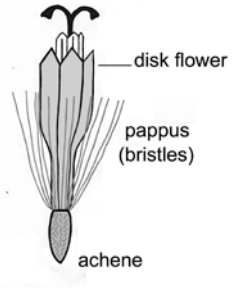


Longitudinal view of typical flower



Typical Composite Head

Disk floret of composite



Areole—place on the cactus stem/pad where the spines and glochids are located and from which flowers generally arise.

Axil—the joint (node) where a leaf attaches to the branch; in a cactus, the base of the tubercle.

Beaked—ending in a long point, like the beak of a bird.

Berry—a fleshy fruit with one to many seeds, like a tomato or blueberry.

Bur—A rough or prickly covering surrounding the flowers, seeds or fruits of a plant that generally does not split open to release the seeds (also: burr).

Campanulate—bell-shaped.

Capsule—a dry fruit that, when mature, splits open to release the seeds.

Drought-deciduous—leaves falling off when available moisture drops below a certain level determined by the plant.

Drupe—a fleshy or dry fruit with one or few hard seeds, like an olive or avocado.

Endemic—restricted to a given area and not naturally found outside of it.

Exserted—extending beyond a given structure, such as the corolla or calyx.

Glochids—short, bristly hairs easily separated from a cactus plant.

Pappus—specialized hairs forming a crown or parachute on top of the fruits of composites (Sunflower family) that aid in dispersal.

Perianth—collective term for sepals and petals; used to indicate when the sepals and petals are hard to differentiate from each other, or when there is only a petal-like calyx.

Tuberculate—covered with small, rounded or knob-like projections.

Valve—The junction between sections of a fruit and the line by which some fruit, especially capsules, will split open to expose or expel the seeds.

Xerophytic scrub—low or stunted vegetation (scrub) that is adapted to a dry (or xeric) environment.

PLANT LIST

Common Name (local name in bold)	Species name	Family
Barrel cactus, Biznaga	<i>Ferocactus emoryi</i> var. <i>rectispinus</i>	Cactaceae (Cactus)
Barrel cactus, Biznaga	<i>Ferocactus peninsulae</i>	Cactaceae (Cactus)
Boxthorn, Frutilla	<i>Lycium andersonii</i>	Solanaceae (Nightshade)
Brittlebush, Incienso	<i>Encelia farinosa</i>	Asteraceae (Sunflower)
Cardón , Elephant cactus	<i>Pachycereus pringlei</i>	Cactaceae (Cactus)
Casa rata , Club/Dagger cholla	<i>Grusonia invicta</i>	Cactaceae (Cactus)
Chainlink cholla, Cholla	<i>Cylindropuntia cholla</i>	Cactaceae (Cactus)
Cholla barbuda , Cholla	<i>Cylindropuntia alcahes</i> var. <i>alcahes</i>	Cactaceae (Cactus)
Creosote, Gobernadora	<i>Larrea tridentata</i>	Zygophyllaceae (Caltrop)
Ejotón , Palo Hierro	<i>Ebenopsis confinis</i>	Fabaceae (Pea)
Fairyduster, Tabardillo	<i>Calliandra californica</i>	Fabaceae (Pea)
Fish hook cactus, nipple cactus, Viejita	<i>Mammillaria dioica</i>	Cactaceae (Cactus)
Hedgehog cactus, Pitayita	<i>Echinocereus brandegeei</i>	Cactaceae (Cactus)
(Desert) Ironwood, Palo fierro , Uña de gato	<i>Olneya tesota</i>	Fabaceae (Pea)
Jobo , Goatnut	<i>Simmondsia chinensis</i>	Simmondsiaceae (Goatnut)
Liga , Jumetón	<i>Euphorbia tomentulosa</i>	Euphorbiaceae (Spurge)
Limberbush, Matacora	<i>Jatropha cuneata</i>	Euphorbiaceae (Spurge)
Little-leaf ratany, Mezquitillo	<i>Krameria erecta</i>	Krameriaceae (Krameria)
Lomboy , Ashy limberbush	<i>Jatropha cinerea</i>	Euphorbiaceae (Spurge)
Maguey , Agave	<i>Agave cerulata</i> var. <i>subcerulata</i>	Agavaceae (Agave)
Mesquite, Mezquite	<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Fabaceae (Pea)
Milkweed, Jumete	<i>Asclepias subulata</i>	Apocynaceae (Dogbane)
Narrow-leaf saltbush, Chamizo	<i>Atriplex linearis</i>	Chenopodiaceae (Goosefoot)

Common Name (local name in bold)	Species name	Family
Needle grama, Navajitas	<i>Bouteloua aristidoides</i>	Poaceae (Grass)
Odoro, Hierba del venado	<i>Porophyllum gracile</i>	Asteraceae (Sunflower)
Old-man cactus, Senita, Garambullo	<i>Lophocereus schottii</i>	Cactaceae (Cactus)
Organ pipe cactus, Pitahaya dulce	<i>Stenocereus thurberi</i>	Cactaceae (Cactus)
Palo Adán , Tree ocotillo	<i>Fouquieria diguetii</i>	Fouquieriaceae (Coachwhip)
Palo verde, Dipúa	<i>Parkinsonia microphylla</i>	Fabaceae (Pea)
Pincushion cactus, Viejita	<i>Mammillaria lewisiana</i>	Cactaceae (Cactus)
Pitahaya agria , Galloping cactus Cactaceae (Cactus)		<i>Stenocereus gummosus</i>
Ragweed, Chicura	<i>Ambrosia bryantii</i>	Asteraceae (Sunflower)
Rock hibiscus, Malva	<i>Hibiscus denudatus</i>	Malvaceae (Mallow)
Ruellia, Flor de campo	<i>Ruellia californica</i> ssp. <i>californica</i>	Acanthaceae (Acanthus)
Saltbush, Chamizo	<i>Atriplex barclayana</i>	Chenopodiaceae (Goosefoot)
Six weeks grama, Aceitilla	<i>Bouteloua barbata</i>	Poaceae (Grass)
Spurge, Sandmat, Golondrina	<i>Euphorbia polycarpa</i>	Euphorbiaceae (Spurge)
Sweetbush, Barba de chivo , Apán	<i>Bebbia juncea</i>	Asteraceae (Sunflower)
Teabush, Malva rosa	<i>Melochia tomentosa</i>	Malvaceae (Mallow)
Torote colorado , Elephant tree	<i>Bursera microphylla</i>	Burseraceae (Torchwood)
Torote prieto , Elephant tree	<i>Bursera hindsiana</i>	Burseraceae (Torchwood)
Trailing windmills	<i>Allionia incarnata</i>	Nyctaginaceae (4-O'Clock)
Triangle goldeneye, Margarita	<i>Bahiopsis triangularis</i>	Asteraceae (Sunflower)
Vara prieta	<i>Cordia parvifolia</i>	Boraginaceae (Borage)

This list represents the most commonly seen plants on the mesa, but does not reflect all that may be seen, depending on season and previous rainfall.

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