

Plant Identification Guide

To the Common Trees, Shrubs, and Cacti of the Phoenix-Area Desert

© 2008, 2010 Udo M. Savalli

The Phoenix area contains numerous city parks as well as surrounding desert areas that are characteristic of the Arizona Upland division of Sonoran Desert scrub. Typical areas include Thunderbird Park in Glendale, Piestewa Peak and South Mountain preserves, among others, in Phoenix, and White Tanks Park. These areas are dominated by shrubs such as creosote bush (*Larrea tridentata*), bursage (*Ambrosia* spp.) and brittlebush (*Encelia farinosa*), small trees such as palo verdes (*Parkinsonia* spp.) and catclaw acacia (*Acacia greggii*) and various cacti. This guide is designed to introduce you to the most common woody plants in these parks. It is in no way complete and does not cover riparian vegetation.

Trees

The majority of the trees and large shrubs in the Sonoran desert belong to the family **Leguminosae** (also called Fabaceae). This family is characterized by having distinctive fruits that form a two-part pod (legume). Most local legumes also have **compound leaves**, meaning that each leaf is actually subdivided into numerous individual **leaflets**. Legumes are particularly important to ecosystems because their roots harbor endosymbiotic *Rhizobium* bacteria that have the ability to fix nitrogen.

Blue Paloverde, *Parkinsonia florida* (family Leguminosae). This species was formerly classified as *Cercidium floridum*. This species and the next can both be easily recognized even at a distance by their distinctive *green bark*. Blue paloverde leaflets are quite small, about 5mm, but larger than those of little-leaf paloverde. Furthermore, the fruits of blue paloverdes lack an obvious constriction. Both species have similar yellow flowers in spring.



Fig 1. Blue paloverde leaves and pod.

Fig 2. Flower of blue paloverde. Little-leaf paloverde flowers are similar, but smaller and paler.



Little-leaf or Yellow Paloverde, *Parkinsonia microphylla* (family Leguminosae). Formerly classified as *Cercidium microphyllum*. As with the blue paloverde, its *green bark* is distinctive. It can be distinguished from that species by its very *tiny 2mm long leaflets* and by pods with *distinct constrictions* between the seeds. A word of caution: in landscaped areas, additional non-native species and various hybrids can complicate identification.



Fig 3. Little-leaf paloverde; note the tiny leaves, green stems. **Inset:** pods.

Desert Ironwood, *Olneya tesota* (family Leguminosae). This tree is similar to many of the other legumes, but can be distinguished by its *light gray bark* and *larger leaflets, about 20 mm long*. It is distinguished from catclaw acacia by its leaf structure (one subdivision instead of two) and spines that are only slightly recurved and occur at the base of each leaf.



Fig 5. Desert ironwood leaf closeup.



Fig 4. Desert ironwood branch.

Catclaw Acacia, *Acacia greggii* (family Leguminosae). Catclaw acacia is most readily distinguished by its *6mm long curved spines* that line the branches. Also note the *twice-divided compound leaves*: each leaf is divided into several primary leaflets that are then divided into numerous secondary leaf-like leaflets. Each of these secondary leaflets is about 5 mm long. Its pods are often curled or twisted.



Fig 6. Catclaw acacia branch with pod.

Honey Mesquite, *Prosopis juliflora* (family Leguminosae). Formerly known as *P. glandulosa*. The honey mesquite is distinguished by its pods, thorns, and leaves. The *Pods are long and slender* with constrictions between the seeds. The *spines can be quite long* (up to 30 mm) and occur at nodes on the branches. As with acacias, the leaves are twice divided, but the leaflets are longer (10-30 mm) but quite narrow (3 mm).



Fig 7. Honey mesquite leaves and pods.

Shrubs

Shrubs differ from trees in their smaller size and having multiple trunks emerge from the ground (many desert "tree" species are technically shrubs as well). This is the most abundant and obvious growth form for Sonoran Desert plants. By far the most abundant shrubs are creosote bush and triangle bursage.

Brittlebush, *Encelia farinosa* (family Compositae). A common, low shrub in which the flowers project above the leafy plant. Even when not flowering, the old, dried, straw-colored flower stalks extend above the leaves. Leaves variable in size (depending on moisture), but are generally fuzzy, silvery-gray, and triangular. They differ from the leaves of the bursages in having smooth not toothed edges.



Fig 9. Closeup of brittlebush leaves.



Fig 8. A flowering brittlebush.

Triangle Bursage, *Ambrosia deltoidea* (family Compositae). Leaves are up to 30 mm long, *triangular, serrated* (have toothed edges), and covered in fine hairs (depending on hair density, color varies from green to whitish). Flowers are clustered on a stalk but inconspicuous (it is wind pollinated).



Fig 11. Triangle bursage, leaf closeup. Note serrated edge.



Fig 10. Triangle bursage; whole plant.

Canyon Ragweed, *Ambrosia ambrosioides* (family Compositae). Similar to the bursages, but leaves are more lance-shaped (elongated triangle) and *much larger* (up to 13 cm). Tends to grow more erect (and thus taller) than bursage. Generally only found in washes.



Fig 12. Canyon ragweed.

Creosote Bush, *Larrea tridentata* (family Zygophyllaceae).

One of the most abundant desert plants, it can be recognized from a distance by its more olive-tinged shade of green. The leaves are small (≈ 10 mm), waxy, and shiny. Fuzzy white fruits may be present as well. In spring (and sometimes late fall) produces yellow 5-petaled flowers.



Fig 13. Creosote bush leaves, fruit, and flower (inset).

Fig 14. Fremont thornbush flowers.



Thornbushes, *Lycium* spp.; (*L. fremontii* is shown; family Solanaceae). Small tubular flowers are present primarily in early spring; eventually replaced by red berries. Flower color varies from white to purple, depending on species. Without flowers, look for the succulent, spatula-shaped leaves, up to 25 mm long, growing along branches.

Jojoba, *Simmondsia chinensis* (family Buxaceae).

Leaves grayish green, leathery, ≈ 50 mm long and usually oriented vertically. This species has separate sexes. Fruits are an acorn-like capsule.



Fig 15. Jojoba bush.



Fig 16. Desert Lavender

Desert Lavender, *Hyptis emoryi* (family Labiatae). A shrub with oval, grayish, woolly leaves. Small purple flowers are bilaterally symmetric and grow in clusters at the base of the leaves. Minty odor.

Desert Senna, *Cassia covesii* (family Leguminosae). A small shrub with compound leaves composed of 6 oval leaflets. Look for either the 5-petaled yellow flowers or small pods that split open when dry.

Fig 17. Flowering desert senna



Desert Broom, *Baccharis sarothroides* (family Compositae). A very distinctive shrub composed of green, usually leafless stems (the inconspicuous narrow leaves are present only during the rainy seasons). Flowers are small, whitish. Typically found in disturbed areas (it is common on campus).



Fig 18. Stems and flowers of desert broom.

Cacti & Ocotillo

Cacti (family Cactaceae) are the quintessential plants of the desert. As a group they are easily recognized by their thick, succulent stem, lack of leaves, and spines (the spines are actually modified leaves, and the stem instead is the photosynthetic organ). Use caution near these plants as their spines can be painful. The ocotillo also has a distinctive growth form but is not a cactus.

Saguaro, *Carnegiea gigantea*. Also known as *Cereus giganteus*. Mature individuals are unmistakable. Smaller juveniles might be confused with barrel cactus, but saguaros have only a single type of grayish spine growing along the ribs.



Fig 19. Saguaro.

Arizona Barrel Cactus, *Ferrocactus wislizenii*. A robust, barrel-shaped cactus that grows to 2 m tall. Two types of spines: slender hairlike spines in a dense cluster and a projecting central spine that is large, flattened, pinkish, and with a hooked tip.



Fig 20. Arizona barrel cactus.

Strawberry Hedgehog Cactus, *Echinocereus engelmannii*. This low growing cactus (usually less than 50 cm) forms clusters of cylindrical stems and has a dense array of long, yellowish spines.



Fig 21. Strawberry hedgehog cactus.

Buckhorn Cholla, *Cylindropuntia acanthocarpa*.

Formerly in the genus *Opuntia*. This cactus has a shrub-like form with numerous branching, cylindrical arms. It can be distinguished from the closely related teddy-bear cholla by its thinner arms with visible tubercles (bumps or ridges) and less-dense spines.



Fig 22. Buckhorn Cholla.

Teddy-bear Cholla, *Cylindropuntia bigelovii*. Formerly in the genus *Opuntia*. This species has a misleading common name as it is anything but cuddly. Like the buckhorn cholla, it has a branching structure. It is densely covered in yellowish spines with barbs that allow them to easily and painfully enter and stick in skin. Furthermore, the segments (joints) of the arms can easily detach from the plant (it uses this as a means of dispersal), leaving one with even more spines to contend with. Use caution around this evil plant!



Fig 23. Teddy-bear Cholla.



Tangled Fishhook or Pin-cushion Cactus, *Mammillaria microcarpa*.

A small cactus, usually less than 15cm tall. Dense covering of whitish spines with larger hooked central spines. Red fruits may be present.

Fig 24. Tangled fishhook cactus, with fruit.

Ocotillo, *Fouquieria splendens* (family Fouquieriaceae). Its distinctive growth form is unmistakable. The small leaves lining the branches are lost during the dry seasons.



Fig 25. Ocotillo, in leaf