

See inside of guide for a selection of plants found on this trail.

## The Flora of Joshua Tree National Park

Three distinct biogeographic regions converge in Joshua Tree National Park, creating a rich flora: nearly 730 vascular plant species have been documented here.

The **Sonoran Desert** to the south and east, at elevations less than 3000 ft (914 m), contributes a unique set of plants that are adapted to a bi-seasonal precipitation pattern (winter and summer), as well as a low frequency of freezing conditions. The higher elevations of the park are dominated by the Little San Bernardino Mountains, an eastern extension of California's **Transverse Ranges**. Although this desert upland area represents the southwestern corner of the **Mojave Desert**, it also serves as a conduit for many plants to reach their easternmost distribution, thus providing for an interesting mix of chaparral, montane, and desert species.

It is the intermingling of species from all three of these biogeographic regions that lends the Park its incredible diversity: shrub assemblages here, for example, are among the most diverse vegetation types in North America. To appreciate the full floristic richness of this area, try to catch the fleeting bloom of annual plants, which represent half the species found in the park. Many of these annuals will only flower after hot monsoonal rain events, at a time of year when many people assume the desert to be completely dormant. Looking at plants is a year-long activity in Joshua Tree. Pair the list in this guide with a botanical field guide and see how many you can identify.

**Happy hiking!**



## Species Checklist

Color	Species	Habit	Season
W	<i>Arctostaphylos glauca</i> (bigberry manzanita)	S	C
W	<i>Atriplex canescens</i> (fourwing saltbush)	S	H
W	<i>Baccharis salicifolia</i> (mule-fat)	S	C, H
W	<i>Baccharis sergiloides</i> (desert baccharis)	S	H
W	<i>Brickellia atractyloides</i> (pungent brickellia)	S	C
W	<i>Chaenactis stevioides</i> (Esteve's pincushion)	A	C
W	<i>Chilopsis linearis</i> (desert willow)	T	H
W	<i>Datura wrightii</i> (jimson weed)	P	C, H
W	<i>Eriogonum davidsonii</i> (Davidson's buckwheat)	A	C, H
W	<i>Eriogonum fasciculatum</i> (California buckwheat)	S	C, H
W	<i>Eriogonum heermannii</i> (Heermann's buckwheat)	SS	C, H
W	<i>Eriogonum nidularium</i> (whiskbroom buckwheat)	A	C, H
W	<i>Eriogonum saxatile</i> (rock buckwheat)	SS	H
W	<i>Euphorbia albomarginata</i> (rattlesnake weed)	A	C, H
W	<i>Galium angustifolium</i> (slender bedstraw)	S	H
W/P	<i>Gilia stellata</i> (star gilia)	A	C
W	<i>Lepidium lasiocarpum</i> (white pepperweed)	A	C
W	<i>Lycium andersonii</i> (Anderson's boxthorn)	S	C
W	<i>Lycium cooperi</i> (Cooper's boxthorn)	S	C
W	<i>Nicotiana obtusifolia</i> (desert tobacco)	S	C
W	<i>Nolina parryi</i> (Parry nolina)	S	H
W	<i>Oenothera californica</i> (California evening primrose)	P	C
W	<i>Prunus fasciculata</i> (desert almond)	S	C
W	<i>Pseudognaphalium luteoalbum</i> (weedy cudweed)	A	C
W	<i>Rhamnus ilicifolia</i> (hollyleaf redberry)	P	C
W	<i>Yucca schidigera</i> (Mojave yucca)	S	C
Y	<i>Acamptopappus sphaerocephalus</i> (goldenhead)	SS	H
Y	<i>Acmispion rigidus</i> (desert rock pea)	SS	C
Y	<i>Adenophyllum cooperi</i> (Cooper's dyssodia)	P	C
Y	<i>Ambrosia salsola</i> (cheesebush)	SS	C
Y	<i>Artemisia ludoviciana</i> (silver wormwood)	P	H
Y	<i>Bahiopsis parishii</i> (Parish's goldeneye)	S	C
Y	<i>Baileya pleniradiata</i> (woolly marigold)	A	C
Y	<i>Brickellia californica</i> (California brickellia)	S	H
Y	<i>Clematis pauciflora</i> (clematis)	P	C
Y	<i>Coleogyne ramosissima</i> (blackbrush)	S	C
Y	<i>Cylindropuntia echinocarpa</i> (silver cholla)	C	C
Y	<i>Dudleya saxosa</i> (desert live-forever)	P	C
Y	<i>Ericameria cooperi</i> (Cooper's goldenbush)	S	C
Y	<i>Ericameria cuneata</i> (rock goldenbush)	S	H
Y	<i>Ericameria linearifolia</i> (linear-leaved goldenbush)	S	C
Y	<i>Gutierrezia microcephala</i> (matchweed)	SS	H
Y	<i>Larrea tridentata</i> (creosote bush)	S	C
Y	<i>Malacothrix glabrata</i> (desert dandelion)	A	C
Y	<i>Opuntia chlorotica</i> (pancake cactus)	C	C
Y	<i>Opuntia phaeacantha</i> (Mojave pricklypear)	C	H
Y	<i>Quercus cornelius-mulleri</i> (Muller oak)	T	C
Y	<i>Rhus aromatica</i> (skunk bush)	S	C
Y	<i>Salix goodingii</i> (Goodding's willow)	T	C
Y	<i>Senegalia greggii</i> (cat's claw acacia)	S	H
O	<i>Ephedra nevadensis</i> (Nevada jointfir)	S	C
O	<i>Sphaeralcea ambigua</i> (apricot mallow)	P	C
R	<i>Echinocereus mojavensis</i> (Mojave mound cactus)	C	C
R	<i>Epilobium canum</i> (California fuschia)	SS	H
P	<i>Astragalus lentiginosus</i> var. <i>fremontii</i> (Fremont's milkvetch)	A, P	C, H

## Species Checklist

Color	Species	Habit	Season
P	<i>Boechea perennans</i> (perennial rockcress)	P	C
P	<i>Echinocereus engelmannii</i> (hedgehog cactus)	C	C
P	<i>Eriogonum angulosum</i> (anglestem buckwheat)	A	C, H
P	<i>Grayia spinosa</i> (spiny hopsage)	S	C
P	<i>Nicolletia occidentalis</i> (hole-in-the-sand plant)	P	C
P	<i>Opuntia basilaris</i> (beavertail cactus)	C	C
V	<i>Amsonia tomentosa</i> (woolly bluestar)	P	C
V	<i>Cirsium neomexicanum</i> (New Mexico thistle)	A	C
V	<i>Eriastrum eremicum</i> (desert woollystar)	A	C
V	<i>Gilia sinuata</i> (rosy gilia)	A	C
V	<i>Scutellaria mexicana</i> (paper-bag bush)	S	C
V	<i>Stephanomeria exigua</i> (small wirelettuce)	A	C, H
F	<i>Myriopteris covillei</i> (Coville's lip fern)	F	C
G	<i>Elymus elymoides</i> (squirreltail)	PG	H
G	<i>Hilaria rigida</i> (big galleta grass)	PG	C, H
G	<i>Melica imperfecta</i> (smallflower melicgrass)	PG	C
G	<i>Luphlergia porteri</i> (bush muhly)	PG	H
G	<i>Phoradendron californicum</i> (desert mistletoe)	PP	C
G	<i>Poa secunda</i> (big bluegrass)	PG	C, H
G	<i>Stipa speciosa</i> (desert needlegrass)	PG	C, H
G	<i>Typha latifolia</i> (broadleaf cattail)	P	H
C	<i>Juniperus californica</i> (California juniper)	S, T	C
C	<i>Pinus monophylla</i> (singleleaf pinyon pine)	T	C

### KEY

#### Color (flower color)

W (white); Y (yellow); O (orange); R (red); P (pink to purple); V (violet to blue); F (fern); G (green to brown); C (cone)

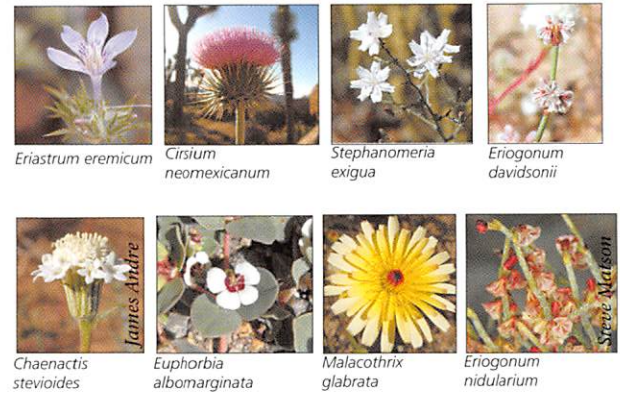
#### Habit (general growth shape)

A (annual); P (perennial); PG (perennial grass); SS (subshrub); C (cactus); S (shrub); T (tree)

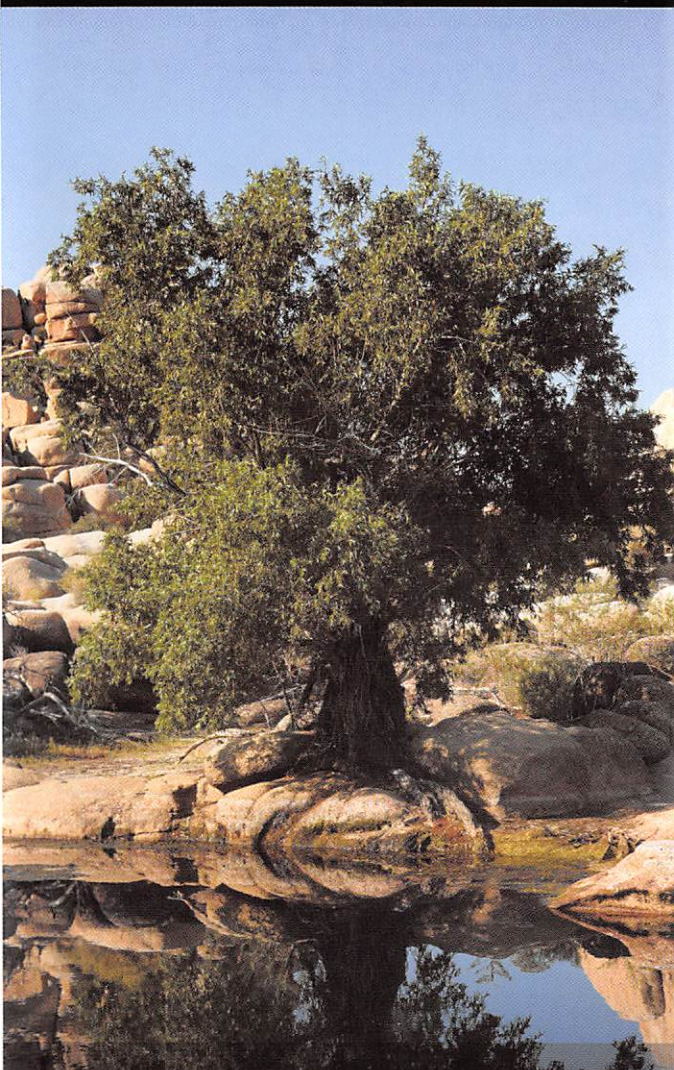
#### Season

H: responds to hot season precipitation (generally blooms June-Oct); C: responds to cool season precipitation (generally blooms Feb-June)

### Spring Annual Plants



## Joshua Tree National Park



# Barker Dam Loop

## A Botanical Trail Guide

This trail is an easy 1.1 mile loop with minimal elevation gain. The presence of standing water brings a unique set of freshwater indicator species to this trail, which you see in and around Barker Dam. The trail winds through bouldery outcrops with pinyon-oak woodlands, desert willow riparian corridors, and loamy basins dominated by Joshua tree woodlands or creosote bush scrub.



## Key to Symbols



Denotes bloom months.  
Green=spring;  
Yellow=summer;  
Orange=fall;  
Blue=winter.



Displays the silhouette of a particular plant. Look for the form, then get closer for details.

## Section 1

### Desert Tobacco (*Nicotiana obtusifolia*)



This plant is a member of the Solanaceae family, which also includes tomatoes, potatoes, and eggplant. Give it a sniff! Many members of this family contain alkaloids, such as nicotine. These chemical compounds discourage herbivory and give the plant a distinct fragrance. Desert tobacco is in the same genus as commercially produced tobacco (*N. tabacum*) and, like that plant, was traditionally smoked by Native Americans, to whom tobacco was sacred rather than recreational.



### Woolly Bluestar (*Amsonia tomentosa*)



The species name *tomentosa* refers to the matted and intertwined hairs you may see on some of these plants. Curiously, this species may have individuals that are completely covered in hairs, appearing grayish-white in color, while other individuals growing directly adjacent can be completely green and hairless. Some individuals even have both forms growing on the same plant!



### Perennial Rockcress (*Boechera perennans*)



As its name indicates, you will often find the perennial rockcress in rugged habitats such as the gaps between stones. The flower has four pink petals with four long and two short stamens. This trait, along with a bean-like fruit known as a silique, helps to place this species in the mustard family (Brassicaceae); this is the same family as many commonly eaten vegetables, such as cauliflower.



## Section 2

### Goodding's Willow (*Salix gooddingii*)



Joshua Tree National Park has four species of willow—a surprising number for such an arid landscape! Willows are phreatophytes, plants that depend on ground water. For this reason, you will only find willows along canyon washes, near springs, or wherever there is surface water, such as at Barker Dam. All willows produce a chemical similar to aspirin called salicin; the leaves of Goodding's willow are commonly used in Mexico for treating fevers.



### Mule-fat (*Baccharis salicifolia*)



Mule-fat is also common near water sources, and you might at first mistake it for a willow. In fact, *salicifolia* refers to the fact that the leaves resemble those of the genus *Salix* (willows). You can distinguish the two because mule-fat has leaves with three main veins arising from the leaf base, where willow only has one. Additionally, flowers of the two genera are completely different: mule-fat belongs to the Asteraceae family, which includes sunflowers.



### Skunk Bush (*Rhus aromatica*)



This species is our only representative of the Anacardiaceae family, which contains many species toxic to the touch, such as poison ivy and poison sumac. Don't worry: skunk bush won't give you a rash. It has several uses and is known to the Cahuilla people as *selet* and to the Chemehuevi as *soo-hoo-vimp*. They ate the berries raw, or dried and ground them into a powder which could be used to make a tasty drink. They also used the stalks of skunk bush in basket making; the Serrano skinned the stalks and used them as a splint base for baskets.



### Broadleaf Cattail (*Typha latifolia*)



Cattails are common and widespread at freshwater wetlands throughout North America. The broadleaf cattail, or *ku'ut* to the Cahuilla people, was an important traditional food source. They dried and ground the roots into a meal, and ate the more tender portions of the plant raw. The pollen from flowering stalks is high in nutrients, and the Cahuilla took advantage of this by forming it into cakes and porridges.



## Section 3

### Heermann's Buckwheat (*Eriogonum heermannii*)



*Eriogonum* is by far one of the most species-rich genera in North America. In Joshua Tree National Park alone we have 25 species! Plants in this group are important members of the desert ecosystem due to the large number of butterflies and moths that use them as a larval food source. In many cases, these butterflies are considered monophagous, meaning their caterpillars will only feed on this genus or even one particular species. The desert Sheridan's hairstreak is an example of a butterfly that depends on Heermann's buckwheat. This densely branched shrub can be found growing among boulders, but you won't see the delicate white flowers until autumn.



### Bush Muhly (*Muhlenbergia porteri*)



The Mojave Desert is home to many native perennial grasses, including bush muhly. You can identify this species most easily in summer, when its light pink, spreading inflorescence is in bloom. Like many grasses that thrive in the desert, bush muhly uses C4 photosynthesis. This type of photosynthesis is much more efficient at producing energy at high temperatures, because it prevents water loss through complex metabolic pathways. This strategy allows many summer-blooming species to flourish in the high heat, while other species are essentially dormant.



### Mojave pricklypear (*Opuntia phaeacantha*) Pancake Cactus (*Opuntia chlorotica*)



These two species of cactus are very closely related, but you can find distinct differences in their morphology. The pancake cactus has very round paddles, while those of the Mojave pricklypear are more oblong; the spines of the latter are generally reddish brown at the base and white at the tip, whereas the spines on pancake cactus are only one color. The biggest difference, however, is in their stature: the pancake cactus can be up to eight feet tall with a tree-like central stem at the base. The Mojave pricklypear, on the other hand, sprawls on the ground, becoming wider than tall. The pads of both species can be diced and boiled before eating. The fruit can be eaten raw, but only after removing the outer spines by rolling the fruit on the ground.



### Clematis (*Clematis pauciflora*)



You will likely find this vining species supporting itself on other plants. Primarily a coastal and montane species of Southern California, clematis is at the far eastern edge of its range here in the park. It is a good example of the cismontane (mountainside) component of our park flora. This genus is known for its beautiful flowers with showy sepals and unique fruiting structures; many species are cultivated as ornamentals.



### Fremont's Milkvetch (*Astragalus lentiginosus* var. *fremontii*)



*Astragalus* is a diverse genus in the bean family (Fabaceae) containing many species that are extremely rare. Many are highly adapted to specific habitats or types of soil. To add to this complex diversity, this particular species has 19 recognized varieties! The best way to identify this species is to look for the rattling, inflated pods. These were ground and used as a spice for beans and other foods by the Cahuilla.

