Descanso: Plant Adaptations

Plants have special features that help them grow in specific environments.

These special features are called adaptations.

Read about the plants below to learn more.

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*These plants are native to California. Native plants develop and grow naturally in a specific place.

Black Sage

Salvia mellifera

Fun fact: The seeds are important food for quail and other birds.

Black Sage is one of the many native sages found in the California Garden at Descanso. To find this plant, look for soft leaves (small in summer and large in winter) and pale blue or purple blooms in the spring.

Black Sage is adapted to survive in our Southern California climate in several ways.

- The plant grows small leaves during the hot dry months as a way to save water. The plant grows larger leaves during the wet months to capture as much water as possible in preparation for the dry season.
- The plant has shallow roots to take advantage of early winter rains and deep roots for access to the ground water.
- The nectar of the flower feeds **pollinators** like bees, flies, butterflies and hummingbirds. Pollinators help spread pollen, which helps the plant make new seeds.

California Buckwheat

Eriogonum fasciculatum

Fun Fact: Once its root system is established, it can live for up to 50 years, requiring only the seasonal rainfall.

You can find buckwheat in the Oak Woodland and the California Garden at Descanso. Look for a large shrub with small leaves and tiny clusters of flowers

This shrub is native to the southwestern United States and northwestern Mexico. It grows on scrubby slopes in **chaparral** and in dry washes.

The leaves of California buckwheat are small and leathery and the undersides are covered with fine hairs. Hairy leaves provide insulation from heat and protection from direct sunlight. These are adaptations that save water and help the plant survive hot, dry summer months. California buckwheat may also shed its leaves to help the plant survive periods of drought.

The tiny flowers provide a good source of nectar over many months. Bees, butterflies and other **pollinators** visit the flowers; birds and mammals relish the seeds. The flowers stay on the plant for many weeks, often drying to pleasing tan, cinnamon or dark brown shades.

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California Poppy

Eschscholzia californica

Fun fact: This flower is native to California and became the state flower in 1903.

At Descanso, you can find the California Poppy in the spring time scattered around the Rose Garden and Oak Woodland. Look for bright orange flowers and tiny green leaves.

The California Poppy grows all over the western United States. These plants have many adaptations that help them grow and thrive.

- They have a special root called a **taproot** that grows straight and deep into the ground. The taproot helps absorbs water and minerals quickly.
- Flower petals will close at night or in cold weather for protection.
- Bright colors attract **pollinators** such as bees, butterflies and beetles. The pollinators spread pollen grains which allows the plant to make seeds. After the flower falls off the plant, a long seed pod grows in its place. When the seeds are ripe, the pod suddenly bursts open and flings seeds far from the plant. The seeds will make new plants or will be **dispersed** to other places by animals.

Photo credit: Kimberly-Ann Talbert

Laurel Sumac

Malosma laurina

Fun Fact: The plant is nicknamed the “Taco Plant” because of its folded leaves.

Laurel Sumac can be found at Descanso in the Oak Woodland on the paths behind the lake. Look for a large shrub with folded leaves.

The Laurel Sumac has several adaptations to help it survive in a Southern California climate.

- The Laurel Sumac has larger leaves than most **chaparral** plants. The leaves curl up like taco shells in hot weather to reduce exposure to the sun and help the plant retain water.
- The Laurel Sumac has a deep tap root that grows up to 40 feet and finds moisture deep in the soil. This root system helps the Sumac stay green and full in the summer, a time that many **chaparral** plants look **dormant** and dry.

The Laurel Sumac also has a relationship with local wildlife. The plant helps oak woodland animals by providing dense shelter and deep shade in the summer. Its flowers provide food for native bees. Deer and quail eat its tiny fruits.

Matilija Poppy

Romneya coulteri

Fun Fact: This flower is often called the fried-egg flower because of its large white petals and yellow center.

At Descanso, look for the Matilija Poppies in the California Garden. There is a large field of above the cactus patch. The large white and yellow flowers, supported by 7-foot-tall woody stems, bloom from May to September.

The Matilija poppy, native to California, has the largest flower of any plant native to the state. The flowers are irresistible to bees and butterflies, who go on to spread the plants pollen.

The plant commonly goes **dormant** in the heat of summer or fall, an adaptation common in hot, dry climates like Southern California.

Like some other native flowers, it is a “fire follower” — it grows in burned areas after fires and its seeds need such fires to germinate (start growing). The plant grows rhizomes -- a horizontal stem growing under the ground--and it spreads underground via the growth of the rhizomes. New branches of the plant grow out of these underground stems, which also store food for the leaves and the roots.

Oak tree (Coast live oak)

Quercus agrifolia

Fun Fact: In 1982 Los Angeles passed a law to protect the native trees, like the Coast live oak.

Coast live oak trees can be found all over Descanso. Look for tall trees with rough bark, long twisted branches, and green leaves.

Have you ever sat under a large shady tree on a hot day? You may have enjoyed the shade of an oak tree. The Coast live oak has adapted to life in California in several ways.

In Southern California, we have short, wet winters and long, hot, dry summers. Trees need water in order to grow, to keep themselves safe, and to reproduce. Coast live oaks have several adaptations to save water.

- They grow huge root systems that search for water.
- The leaves are cupped to help hold dew and mist.
- The underside of the leaves have fuzz to help keep moisture in.

Fire is a threat in California, so the oak trees have fire resistant bark. The bark feels like concrete. It keeps out the heat and doesn't let pests or insects in.

Other adaptations involve animal interactions. Tiny spikes around the edges of the leaves protect the tree from hungry animals. Oak seeds are inside a heavy acorn, which many animals like to eat. Squirrels, for example, will gather acorns in the fall and then bury or stash them to last through the winter. However, squirrels can't remember all the places they bury the acorns and some of the forgotten acorns will grow into oak trees. As you explore Descanso, be sure to use your senses to look for oak tree adaptations.

Oregon Grape

Berberis aquifolium or Mahonia aquifolium

Fun fact: The berries can be used to make jelly but needs lots of sweetener.

Search for the Oregon Grape at Descanso along the south fence in the Rose Garden. Look for the spiny leaves, the yellow flowers or the blue berries. Then go to the California Garden to see if you can find more Oregon Grape bushes.

The Oregon Grape plant is very good at adapting in order to protect itself. One way it adapts is to have small, tough, leathery leaves that help keep water from evaporating during our long, hot, dry season. If you touch the edges of the leaves you will feel the very prickly spines. Deer and other animals don't like the way that feels and will not chew the leaves. Since plants need to keep their leaves to make food for themselves, keeping hungry animals away helps the plant survive.

In spring there are bunches of yellow flowers that attract pollinators.

In the summer you'll find dark blue berries. This attracts birds and animals who eat the berries and then spread the seeds in their droppings.

Prickly Pear

Opuntia

Fun Fact: These cactuses often bloom after the rainy season. Their flowers come in yellow, purple or red.

The Prickly Pear cactus can be found in the California Garden at Descanso.

The prickly pear cactus is a versatile plant that grows naturally in the desert. In order to survive the extreme desert conditions, the cactus has the following adaptations:

- Thick, waxy skin reduces water loss and reflects the heat of the sun.
- Large, fleshy stems soak up and store water that is scarce.
- Sharp, spiky spines protect the plant from hungry animals. Spines also collect drops of water and are pointed downward to send the water to the base of the plant where roots are located.
- Long shallow roots spread over a wide area to collect any available moisture.

Rose

Rosa

Fun fact: The petal is the part of the rose that has a scent. The smell is strongest in the morning.

Look for roses in the Rose Garden at Descanso.

Roses have learned how to survive in many different areas and conditions. They can tolerate different amounts of water, sunlight, nutrients, and elevation. Some of their adaptations include:

- Prickles: Anyone who has gone to smell or cut a rose will notice the sharp hooks on their stems, commonly called thorns, these are actually “prickles”. The prickles protect the stem from being eaten by animals such as deer.
- Color and Scent: Flowers evolved bright colors and pleasant scents to attract bees, butterflies and other insects to the plant for the purpose of **pollination**. However, most roses you see today look a certain way because flower growers and botanist have bred them for specific traits, such as bright colors, repeat blooms or pleasant scents.
- Foliage Loss: Since roses only have prickles on the stems, the leaves and blossoms are not as protected. Roses have therefore adapted to survive even when they lose foliage.

Rosemary

Salvia rosmarinus

Fun fact: Rosemary is native to the Mediterranean, which has a similar climate to parts of Southern California.

Rosemary can be found in the Descanso rose garden.

Rosemary is an evergreen herb that is well adapted to our Southern California climate.

Its small, narrow, dark, glossy leaves are adaptations that allow the plant to conserve water and endure hot summer temperatures.

The small cluster of light lavender blue, white or pink flowers attract lots of different bees, birds and insects, who will in turn help spread the plant's pollen.

Toyon

Heteromeles arbutifolia

Fun Fact: The Toyon's seeds will not sprout if they are eaten too soon. The Toyon berry protects its seeds by releasing a gas that keeps animals away until the berry is ripe.

At Descanso, you can find Toyon scattered throughout the native plant areas of the Gardens, especially in the upper trails of the Oak Woodland and on the paved path above the Cactus Garden.

Toyon is an evergreen shrub that can grow to be 12 feet tall if it's in a sunny spot. If it's in the shade, it will seek sunlight and can grow to over 30 feet tall.

The Toyon as several adaptations that help it grow well.

- Thick waxy leaves help the shrubby tree retain water.
- Roots branch out both deep and wide to find the limited moisture in the soil.
- Bright red berries are ripe in the winter. These berries are an important food source for pollinators and other animals since it is one of the few plants that has flowers and offers fruit in the winter. The animals that eat the berries help the Toyon by dispersing its seeds.

Western Sycamore

Platanus racemosa

Fun fact: Hummingbirds will gather the fuzz from the back of sycamore leaves to line their nests.

Find these trees in the Rose Garden at Descanso. Look for tall trees with creamy white and reddish brown bark that sheds.

Have you ever gone to the mountains to swim, fish or boat in the streams and rivers? You may have seen the large, colorful, beautiful Western sycamore tree growing near the water.

Western sycamores have several adaptations to help them survive well in their habitat.

- Sycamores need lots of water so they typically grow by streams or rivers.
- Sycamores grow quickly. Their bark sheds to allow for this new growth.
- Sycamores have large leaves (up to 10 inches wide!) with a fuzzy underside. The fuzz helps retain moisture.
- The leaves turn yellow and gold in the fall and drop in the winter. This helps the tree conserve energy during the winter season
- Their plain flowers become balls with tiny, fuzzy seeds. These seeds are so small that they can float on the wind and they are fuzzy enough to stick to furry animals. The wind or animal **disperses** the seed to a new spot where it can grow.

Glossary

Chaparral: A plant community that is shaped by mild, wet winters and hot, dry summers.

Disperse: To distribute or spread. Wind, water, animals and insects will help plants spread their seeds.

Dormant: A time in an organism's life cycle when growth and development temporarily stops in order to save energy. Dormancy is often influenced by environmental factors, such as temperature.

Tap root: A main root that grows vertically downwards.

Pollination/ Pollinator: Pollination is the act of moving pollen grains from the male anther of a plant to the female stigma. This makes new seeds. Since plants can't move, they often need help spreading their pollen. Pollinators are insects, birds or mammals that help plants spread pollen.