

# Daley Ranch Field Study

## Questions and Answers

### Plants

**How do leaf size, shape, and orientation help native plants survive?** To survive in our climate of low rainfall, the plants around you have adapted in ways that help them conserve water. Leaf size, orientation to the light, and shape are all important ways to prevent desiccation (drying out) of a plant. Smaller leaves conserve water because there is less transpiration. A leaf that points skyward or is folded like a taco rather than being horizontal to the sun, does not evaporate as quickly or have its surface open to drying sun and wind.

**What are some leaf adaptations that contribute to plant survival in this plant community?** The plants in the chaparral community often have leathery, waxy, or folded leaves and woody, stiff stems. Thick leaves help the plant hold more water. Folded leaves (like the laurel sumac) help keep parts of the leaves shaded at all times. Keeping leaves cool helps prevent the water in or on the leaves from evaporating. The plant's stiff stems encourage water to run straight down to penetrate the earth right around the root ball. Chaparral and coastal sage scrub plant communities often become summer dormant and drop some of their leaves to help conserve water, some times leaving only enough leaves to keep the plant alive.

In comparison, plants of the coastal sage scrub community, sometimes called "soft chaparral," are less woody, the leaves are more herbaceous. To conserve water the leaves are more tender, smaller, or narrower like California sage brush or soft and hairy like white sage. Again, these plants will drop leaves in drought to conserve water, becoming summer dormant, and/or, as a last resort, they sometimes can drop all their leaves and still survive.

Riparian communities are those along creeks, streams, or rivers. In California water is often below the soil surface for many months. Riparian plant communities are easy to spot because they look like a vein or stripe of green trees running down a valley or canyon. Sycamores are some of the biggest trees in this plant community but willows and cottonwoods are common along creeks and streams as well. Some of the plants in the riparian community are "winter deciduous," meaning they drop their leaves in winter. Because they have better access to water, their leaves are often large, soft, and broad.

Chaparral, coastal sage scrub, and riparian areas are a few of the very important plant communities as they provide water, food, shade, and shelter for wildlife. Unfortunately, coastal sage scrub and riparian areas are disappearing because of construction projects. Some species of birds, like the *Least Bell's Vireo*, and many reptilian and amphibian species are disappearing from our area along with their preferred habitat.

**Some plants grow on north-facing hillsides, some grow on south facing slopes—what effect does this have on those plants?** Where a plant grows also affects its ability to survive. There is more shade on north-facing slopes so less water is lost through evaporation and exposure to the sun; therefore, plants on north-facing slopes are usually taller and denser than on the south-facing slopes.

Our local climate ranges from arid to semi-arid. One of the indicators for climate is the amount of measurable rainfall in an area. Escondido receives an average of 15 inches of rain a year as compared to San Diego, which receives 8-10 inches, or Borrego which only gets 4-5 inches a year.

On the Daley Ranch you can see fine examples of oak woodlands, mixed chaparral, coastal sage scrub, and riparian plant communities. As you have learned there are distinct differences in the look and behavior of the plants in these three habitats.

**What could you do to help preserve California's unique plant communities?** A few of the ways you can help protect our plant communities would be to stay on designated trails (leave a place for wildlife), keep your dogs on leash (their roaming upsets wildlife), do not remove any natural or historical feature (do not pick plants, do not remove historical artifacts), and do not smoke (many plants have volatile oils that can explode when they come in contact with fire).

Every preserve and open space park or recreational facility has rules and regulations that are important for you to know and follow. Rules and regulations are put in place generally for the protection of the natural, cultural, and historical resources found within the park, as well as for your own protection.

## History

**Who settled Daley Ranch?** Robert Daley was a “squatter” on un-surveyed federal land that is now Daley Ranch from 1869 until 1875 when he was able to make a legal claim to the land. Daley used the land for farming and raising cattle and horses. Native American workers were often employed on the ranch. He was married in 1882 to Rebecca Breedlove of Valley Center (Bear Valley) and they had 3 children. Robert died in 1919.

**Who lived here before the Daley family?** The *I'pai ti'pai* were the first residents of the area. They lived off the land, hunted for small game, and dug roots and used plants to survive. They slept overnight in natural caves (evidence of their passing can be seen in the smoke-darkened interiors of these caves) and built small huts and ramadas for shelter. Large flat boulders can be found on the Ranch, dotted with *metates* and *morteros*, that were used to grind acorns, which were a staple of their diet.

Spanish missionaries arrived in the areas as early as 1769. The missionaries wanted to convert the native population and keep them close to the missions so they could be used for labor. After the Mexican revolution in 1821, the Kumeyaay became Mexican citizens but still had very few rights. After the Battle of San Pasqual in 1846, the area where Escondido, Valley Center, and the Daley Ranch now stand became American territory.

**How did the Daley's make a living?** In the late 1890's, the Daleys operated the Fern Valley Dairy on Daley Ranch. They shipped their butter from Escondido to San Diego by stagecoach or wagon. The ranch house in use today was built about 1928 by the Daley brothers, George and Howard, although neither of them used the house as a primary residence. The fireplace was built of cobblestones that had been used as ballast on clipper ships that traveled to California around Cape Horn.

**Why is Daley Ranch important, and how can you help preserve it?** The Ranch provides an open space area where visitors can hike, bike, or ride a horse without charge. The area is a designated preservation/mitigation bank and all plants and animals are protected. If contractors have to disturb a habitat somewhere else, they pay a “fine” that is used to help pay for the ranch and its upkeep. You can do your part by staying on designated trails (save a place for wildlife), keeping your dogs on leashes (their roaming upsets wildlife), not removing any natural or historical feature (do not pick plants, do not remove historical artifacts), and not smoking (many plants have volatile oils that can explode when they come in contact with fire).

## **Geology/Climate/Weather**

**What is soil?** Soil is the end product of erosion. The large granitic rocks that dominate our area break down (decompose) and form a coarse, sandy loam. This is the most common natural soil here and is made up mostly of quartz and feldspar. The feldspar and other minor mineral parts of the rocks, except the quartz, grind down over time, recombine, and form different types of clay soils. Sedimentary rock covers granitic rocks in places. This sedimentary rock was formed when ancient rivers and seas washed soil into a depression or valley. As it built up over long periods of time, pressure from the weight caused the soil to compact into rock. However, there is little or no sedimentary rock found in our area.

**Where does the soil come from?** Our portion of San Diego County sits above a huge batholith in the Peninsular Range region. A batholith is a great mass of intruded molten rock that formed and cooled under the earth's surface as tectonic plates collided. The batholith is then pushed upward through tectonic action. The outer rock will slough off and larger pieces become smaller over eons of temperature, water, and wind action.

**How were the hills and valleys around us formed?** Erosion and the uplift of the batholith by tectonic movement caused the formation of hills and valleys in the San Diego region.

### **What are erosional forces?**

Temperature change, wind, and water are elements that help to mold the geography of the land. Through temperature extremes (from freezing to high heat) rock is sloughed off. Holes and ridges as well as caves are formed by softer rock parts wearing away faster than resistant parts. Water is a major erosional force, when present, as it moves large amounts of soil in a short time. Wind is another erosional force. In our area (arid to semi-arid) with little rainfall, wind is a fairly constant influence on surfaces. All these erosional forces contribute to the breaking down, movement, and contouring of our hills and valleys.

**What are some reasons we should keep some natural areas undisturbed by limiting farming, construction or recreational use?** We need to preserve the natural habitat of plants and animals as well as protect the cultural and natural features. This will allow the areas to be studied in the future. It also gives us places where we can go to escape from the noise and pollution of crowded, urban areas so we can rejuvenate our minds and bodies.

## Wildlife/Tracking

**What is one of the largest land mammals in our area?** One of the largest land mammals is cougar. Others large mammals are humans and deer.

**What animals do we have in the area that belong to the canine family?** Animals we have on Daley Ranch that belong to the canine (dog) family are gray fox and coyote.

**What animals do we have in the area that belong to the feline family?** Animals we have in the area that belong to the feline family are bobcats and cougars (pumas, mountain lion).

**When can we see these wild animals?** We as humans are most active during daylight hours (diurnal). Many other mammals are nocturnal (awake/active during the night) or crepuscular (awake/active at the twilight hours of dusk or dawn). However, many mammals are very mobile and secretive and not easily viewed.

**How can we tell that mammals or other animals have been around when we don't see them?** We can locate animal tracks, scat, and sign even when we do not see the animal itself. This skill and activity is called tracking. All animals leave messages that tell us of their lives. Tracking is piecing the clues together to tell a detective story. Tracking is also the process of learning the language of the animals' culture.

**What are tracks?** Any detectable imprint left on a surface by an animal's body parts that touch that surface is a track? This includes mammals, birds, reptiles, and insects.

**What is scat?** Scat is a scientific term for animal droppings or poop. The size, shape color, and content of scat can tell us who left it and what they might have recently eaten. Scat can be all plant matter or it can have nuts, seeds, berries, meat, fur, bones, feathers, snake skins and rattles, or insect parts. Sometimes the scat contains things that are unhealthy for the animal such as paper, cellophane, or parts of clothing.

**What is sign?** Any indication of an animal's recent presence, other than tracks or scat, is sign. This may include deer lays (beds), deer or rabbit browse (nibbled stems of soft plants), owl cough pellets, woodrat nests, wildlife trails, animal kill sites, etc.

**What practical purpose does wildlife tracking serve?** Tracking and natural history skills are used by trained trackers/naturalists to detect the presence or absence of local and regional species in our natural areas. This information is gathered on standardized, quarterly Wildlife Tracking Surveys all around San Diego County. In turn, the data are used by biologists and others to make more informed management and land use decisions. Tracking is an excellent tool to help us keep wild life healthy and happy in our heavily peopled, highly developed region.

**What can tracking mean to us?** Tracking is an interesting and enjoyable activity that can enrich our lives. The tracking and natural history skills we learn allows us to more clearly understand and witness the world around us. What we better understand allows us to be more ready and willing to protect and preserve wildlife and the places they live.

**What can you do to help these animals remain a part of this ecosystem?** The City of Escondido has had the foresight to purchase, maintain and enhance the Daley Ranch. Along with National Forest Service, Bureau of Land Management, U.S. Geological Survey and other agencies we are responsible for maintaining habitat and creating corridors for animal movement. A few of the ways you can help protect Daley Ranch would be to stay on designated trails, keep your dogs on leash (their roaming upsets wildlife), do not bring firearms or weapons, do not remove any natural or historical feature (do not pick plants, do not remove historical artifacts) and do not smoke (many plants have volatile oils that can explode when they come in contact with fire).

## Reptiles

**What species of snakes are found here?** The snakes that are seen most often on Daley Ranch are gopher snakes, king snakes, rosy boas and rattlesnakes. Rattlesnakes found here are the Southern Pacific, the Western Diamondback, and the Red Diamond.

**Do snakes hear and see well?** Snakes do not have ears, so they cannot hear. Snakes know when a predator or prey is near partly because they “feel” the vibrations transmitted through the ground with their bodies. Snakes do have eyes, however, they do not see very well. Snakes must depend upon and use a combination of their senses to locate their prey.

**How do snakes detect scent?** They use their tongues to detect scent and their lower jaw to sense heat. A snake will flick out its tongue to gather invisible molecules floating in the air, then pull its tongue back into its mouth. In the roof of a snake’s mouth there are a couple of small holes that the snake will insert its tongue into. These holes help the snake to determine if what it is “smelling” is something good to eat or something in which it has no interest.

**Can snakes swim and climb?** Snakes can climb. They may not prefer to, but when there is a reason, like they want to eat something that happens to be in a tree, they will climb. If there is a reason to swim, they will swim.

**Why are snakes important to this ecosystem?** Snakes like to eat the animals that prefer the same foods as people. Rodents, which make up the largest portion of snake’s diet, like to eat grains and seeds. These same grains and seeds go into products made for humans such as cereals and breads. Rodents can reproduce about every three weeks with a brood of many offspring; then, every three weeks these offspring can have babies. Get the picture? Snakes help keep the population of these small mammals under control. Our environment would be soon over run with rodents if we didn’t have snakes and other predators to eat them.

**How can you help protect them?** There are many things we can do to help protect snakes. The best way to protect them is to leave them alone. Do not kill, capture, or try to pet them. Every preserve and open space park, or recreational facility has rules and regulations that are important for you to know and follow. Rules and regulations are put in place generally for the protection of the natural, cultural and historical resources found within the park, as well as for your own protection. A few other ways you can help protect snakes would be to stay on designated trails, keep your dogs on leash (their roaming upsets wildlife), do not remove any natural or historical feature (do not pick plants, do not remove historical artifacts), do not bring weapons or firearms, and do not smoke (many plants have volatile oils that can explode when they come in contact with fire). Snakes can be protected simply by leaving them alone! Snakes are not aggressive and are afraid of you. If you see a snake, take several steps away from it and watch it do its thing. Notify a ranger if it is a rattlesnake, so that it can be moved to a safer location.

## Birds

**Name a few birds that were brought to show you.** Nancy Conney usually brings a golden eagle, a red tail hawk, a red shouldered hawk, a western screech owl, a barn owl, or an American Kestrel.

**What do birds have in common?** Beak, wings, feathers, legs, and feet all give clues as to how a bird earns a living (gets its food) and survives in this ecosystem. Is its beak long or short, straight or hooked? Are its wings long and pointed or short and round? When it flies, does it flap its wings constantly or soar mostly? What about its tail—is it short or long? What about its feet—large or small, webbed or not?

**What ways can you help to protect birds?** There are many things we can do to help protect birds as they are fragile creatures. Please don't try to capture a live bird—even if it is injured. Report it to the rangers or humane society person. Don't try to put a baby bird back in its nest as you could injure it or disturb the nest. Do not collect the eggs of wild birds or disturb a bird sitting on a nest as the parent bird could abandon the eggs or young chicks. Also, because birds can be attracted to shiny items and fishing line and will use these items in their nests, we can help birds by putting our candy wrappers and fishing line in the trash cans. Wrappers can be ingested and line can get tangled in baby bird's feathers and feet and may kill the bird. They, like most animals, only want to go about the business of finding shelter, feeding themselves and their young.

## Spiders/Tarantulas

**What is unique about a tarantula that sets it apart from the rest of the arachnid class?** Tarantulas have a large, hairy body; and they have fangs that move up and down in a “chewing” motion. They also have two claws and adhesive pads on each foot. Spiders stun their prey by injecting venom and drawing the juices out of the body and Tarantulas crush the prey using their fangs. Tarantulas actually consume their prey with a chewing movement. They are nocturnal and usually stay in their dens during the day.

**Do tarantulas weave webs?** No, but they do have a silk-like material that they use for nest insulation, as a “drag line” to relocate their burrow or retreat, and for nesting materials. Spiders weave webs for capturing and holding their food.

**How do tarantulas find food?** Tarantulas locate prey by vibration. Some bristles (hair) on the exoskeleton act as “sonar” that pick up very small amounts of vibration and allow the tarantula to pin point the location and size of their next meal.

**How do tarantulas defend themselves?** The primary defense of most tarantulas is fleeing. Due to their ability to sense vibration, a tarantula can feel your footsteps long before you see or are even close to them. There are some species that will brush urticating bristles off their abdomen as they escape. Urticating bristles are barbed and designed to float in air and penetrate skin and/or mucous membranes thus causing irritation. All tarantulas will stand and fight if overly annoyed.

**How do they grow?** Since tarantulas, like most arachnids, have an exoskeleton they are required to molt in order to grow. Their new “armor” grows under the old and when the old skin is outgrown it is cast off revealing the new.

## Native Americans/Cordage

**What plants and animals were used for the following: food, clothing, shelter, household goods/games, weapons/tools? Why is it important that we understand the history of the indigenous people who lived in this area?**

***Yucca (Our Lord's Candle)*** – a major food source; the flowers, buds, and young flower stalks are all edible—raw, boiled or roasted. The roots make a good lather and can be used to wash hair; the roots are also a good laxative. Seeds were ground into flour and mixed with other seeds. The dry leaves are very fibrous. They can be pounded and made into cordage for lashing and bowstrings as well as making sandals and shoe strings. A fine white thread made from the twisted plant fibers was used in basket weaving designs. The sharp points of the leaves with fibers still attached work like a needle and thread.

***Manzanita (Little Apple)*** – The berries make good pies, cobblers, and jellies. They can be eaten raw, ground and boiled like mush, or stewed. Cider is the most popular product made from manzanita. The berries should be scalded in hot water until they are soft, then they can be crushed and left to soak for at least an hour before they are strained leaving a refreshing slightly spicy and acid drink. Coyotes eat the berries on the lower branches of the plant. Manzanita seeds do not become viable until they have been scarified. Passing through the coyote's digestive tract accomplishes this.

***Coast Live Oak*** – A mush or meal called *wiashal (or shawii)* is made from acorns of oak trees and was and still is the staple food of local Indians (as well as tribes all over California). The acorns were gathered and dried, then pounded or ground in a depression in a smooth rock near the harvesting area. After the acorns were ground, the meal was collected in tightly woven baskets. Water was run over and through the acorn meal until the tannin bitterness in the acorns was leached out. Then the acorn meal was ready to be made into soup, mush, or dough. As successive generations used the same rock, the depressions became smooth hollows. These grinding rocks or *metates and morteros* can be found throughout California.

The slow, even burning of oak bark made it perfect for use by Native Americans to temper the wood for their bows and to fire clay pots made for carrying water. They would also use oak wood to slow cook woodrats and other small game.

Pioneers in California often made replacement spokes for their wagon wheels out of the hard wood of the Coast Live Oak. They also used the tree for firewood. This usage and clearing groves to create pasture for cattle has resulted in the loss of oak woodlands that had set the California landscape apart from all others.

***Willow*** – The most common willows found in our area are Sandbar and Arroyo willows. Their leaves are long and slender and the branches straight and flexible. Local indigenous people used willow branches with the leaves still on them in the construction of ramadas

to provide shade. Willow branches were often used as the framework for Indian huts and for baby carriers.

Branches were used for basket making. The inner bark was pounded and stripped to make two piece aprons for women as well as soft padding for the inside of a baby carrier. Willow bark is the source of aspirin.

**Sages** – The seeds of black sage were parched, ground and eaten and the leaves were sometimes used for flavoring food. White sage was and still is used ceremonially. It was also used as olfactory camouflage. When it was rubbed on the body of a Native American hunter it disguised his human scent and made it easier to catch or kill game.

**Why is it important that we understand and protect the history of the indigenous people who lived in this area? ).** Daley Ranch has natural, cultural and historical resources that need to be kept in tact for your children's children's children. We cannot keep them in tact if we use or abuse them. Every preserve and open space park, or recreational facility has rules and regulations that are important for you to know and follow. Rules and regulations are put in place generally for the protection of the natural, cultural and historical resources found within the park, as well as for your own protection. A few of the ways you can help protect and understand Native American history would be to stay on designated trails (no walking through historical sites), do not remove any natural or historical feature (do not pick up or remove historical artifacts), do not bring weapons or firearms (no target shooting), and do not smoke (many plants have volatile oils that can explode when they come in contact with fire